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A Qualitative Analysis of the Integration of Technology at the School District Level in Terms of the Technology Leadership, Management, and Policy Pyramid: a Theoretical Model Developed by Dr. John Collins, Through the Perceptions of Technology-using Teachers

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A QUALITATIVE ANALYSIS OF THE INTEGRATION OF TECHNOLOGY
AT THE SCHOOL DISTRICT LEVEL IN TERMS OF
THE TECHNOLOGY LEADERSHIP, MANAGEMENT, AND POLICY PYRAMID:
A THEORETICAL MODEL DEVELOPED BY DR. JOHN COLLINS,
THROUGH THE PERCEPTIONS OF TECHNOLOGY-USING TEACHERS

BY

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Submitted in Partial Fulfillment
of the Requirements for the Degree
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SETON HALL UNIVERSITY
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DEDICATION

This dissertation is dedicated to the following individuals:

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to my brother, Michael,

and to my grandparents,

Andrew and Irene,

Frank and Anne,

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Chapter I

INTRODUCTION

The Problem

“From the birth of the motion picture in 1922, to the advent of the computer in the mid-1970s, educators have been intrigued with the potential of technology to help transform education and improve student learning” (Brush & Hew, 2007 ¶ 1). Things are still the same today. As Brooks-Young (2002) explains, technology is not the “magic pill” that is needed to solve all of education’s problems, but it can be a powerful tool when used in conjunction with other powerful tools to improve instructional programs. With this in mind, schools are spending billions of dollars to purchase computers to benefit their students. For example, school districts in the United States spent 7.87 billion dollars on technology equipment during the 2003-2004 school year (Quality Education Data, 2004). According to the Digest of Education Statistics of 2006, the percent of all public schools having access to the Internet increased from 35 percent in 1994 to 100 percent in 2003, the number of computers for instructional purposes (in thousands) increased from 5,621 in 1995 to 11,180 in 2003, the average number of instructional computers per school increased from 72 in 1995 to 136 in 2003, the number of instructional computers with access to the Internet (in thousands) increased from 447 in 1995 to 10,361 in 2003, the percent of instructional computers with Internet access increased from 8 percent in 1995 to 93 percent in 2003, the number of public school students per instructional computer with Internet access decreased from 12.1 in 1998 to 4.4 in 2003, and the percent of instructional rooms with access to the Internet increased

from 3 percent in 1994 to 93 percent in 2003. The data clearly shows that school districts are purchasing computer based technological equipment.

The problem is that even though schools are spending a great deal of money on computers and technological related equipment, the technology is often unused or infrequently used in many districts across the United States. Bauer and Kenton (2005) reported that the educational community as a whole and the general public might be surprised to learn that the use of the computer is far less utilized as an educational tool in schools. There are many barriers to integrating technology into schools today. For example, Brush and Hew (2007) conducted an extensive literature review on technology integration into K-12 schools, and they have identified the following barriers to the successful integration of technology in today's schools: (a) the lack of resources, including technology, access to available technology, time, and technical support; (b) the lack of knowledge and skills; (c) institutional barriers, including leadership, school timetabling structure, and school planning; (d) teacher attitudes and beliefs, (e) assessment, and (f) subject culture. Okojie, Okojie-Boulder, and Olinzock (2006) also explained that common excuses why teachers do not use technology to support instruction is due to a shortage of computers, lack of computer skill, and computer intimidation. Bauer and Kenton (2005) learned that teachers did not integrate technology into their classrooms on a regular basis because (a) the students did not have enough time at the computers, and (b) teachers needed extra planning time to structure lessons that involved technology. The teachers also had the following concerns: out-dated hardware, lack of appropriate software, technical difficulties, and various student skill levels (Bauer and Kenton, 2005). In fact, Bauer & Kenton (2005) concluded that schools have not

yet achieved true technology integration. Many of these barriers prevent the technology to be used for instructional purposes.

There are many problems that schools face in integrating technology. For example, while researching this issue, Ausband (2006) found that even though central office has technology specialists and curriculum workers to improve and support technology instruction and student achievement for the students, there is a gap between many parts of the central office staff and information is often not coordinated between the departments of the district, and the instructional technology specialists find it difficult to find the time to work with the teachers to successfully integrate technology and document their portfolios. This is a common problem for many districts. The significance of Ausband's (2006) research shows that many of these barriers to technology integration exist at the district level. Duran and Valadez (2007) found that there is often a digital divide in terms of computers and the Internet between high and low resource schools. Many of low resource schools do not have the funding to allow for technology integration to take place in their districts. It is also difficult for teachers to change their traditional instructional methods to begin incorporating technology into their classes. Li (2007) explained that teachers and students have different views of technology integration into the classroom, and even though the teachers acknowledged that the students like technology, they found it to be an extra work load and perceived computers were not worth the time invested because they have little educational value. Brinkeroff (2006) found that many barriers such as resources, institutional and administrative policies, skills development, and attitudes can often result in underutilized technology resources and lack of integration of these resources within instruction. Several of

these problems contribute to poor technology integration in many of our nation's school districts.

It is obvious that the data reveals that schools districts are purchasing the technological equipment, but it is unclear why it is not often being used for instructional and pedagogical practices. Much of the literature on this area identifies many barriers and problems that contribute to this phenomenon. Research must be done at the district level to learn more about this phenomenon. Collins (2009) explains that the idea of change is often associated with technology, and it is often difficult for people to change their traditional approaches to their jobs to using technology; they must be assisted or guided through the process in order for the change to be successful. This same idea applies to teachers and the entire learning community. School districts must develop the leadership and vision to allow for the successful integration of technology so it can be of value to the entire learning community.

Significance of the Study

Brush and Hew (2007) conducted an extensive literature review on the integration of technology in schools, and they found that majority of the K-12 studies focused on technology integration at the level of teachers and what took place in their classrooms. Brush and Hew (2007) found very little work at the district level, and they recommended that more research should be done at this level to actually see how schools are integrating technology. Understanding how technology is being integrated at the district level is critical to the process in order for one to see what is being done at this level to facilitate the implementation of technology into classrooms and pedagogical practices. This is an area that truly must be

explored in order to understand technology integration in schools. Bebel, Russell, and O'Dwyer (2004) explained that schools are typically organized in a hierarchical fashion where students are nested within classrooms, classrooms within schools, and schools within districts, and events take place and decisions are made at each level that can hinder or assist events that occur at the next level. This idea can clearly apply to technology. Decisions regarding technology at the district level can have significant effects on how technology is used in the classroom for teaching and learning (Bebel et al., 2004). Research done at the district level will help the researcher understand how technology is being integrated at this level, and the outcomes could lead to educational policy on technology integration. The researcher in this study used one district that was exceptional in technology to understand how to integrate technology in a successful manner, and the information learned through this research may help other school districts integrate technology successfully.

Much of the research suggests that changes must be made to the culture of schools in order to allow for the integration of technology to be done in an effective manner. The literature base on this area suggests that it is a process of change, and schools need to develop the framework to allow for these changes to take place. According to the Technology Leadership, Management, and Policy Pyramid (Collins, 2009), schools need to utilize all of the following components of the pyramid in their vision in order to attain excellence in educational technology: (a) provide activities in organizational integration, (b) provide activities and sustaining and maintaining infrastructure, and (c) provide activities in planning for the future. Collins (2009) explained that all of these steps must be done simultaneously with committed leadership in order to see improvement and attain excellence.

The first side of Collins' (2009) Technology Leadership, Management, and Policy Pyramid deals with organizational integration activities. Professional development is a critical component to the successful organizational integration of technology in schools. Okojie, Okojie-Boulder, and Olinzock (2006) explained that technology is a device or tool that is used to enhance instruction, and using it for educational purposes requires understanding pedagogical principles that are specific to the use of technology in instructional settings and proper training for teachers. Evmenova and King-Sears (2007) stated, "Just having computers and software in the classroom is not significant; how the educators use those computers and that software to promote learning is far more important" (¶ 2). Franklin (2007) explained that, "Teacher efficacy is essential to the integration of technology, and teacher efficacy is linked to electronic pedagogical content knowledge and skill" (¶ 51). Many studies in the literature identified beneficial outcomes and the importance of professional development opportunities in helping teachers integrate technology into the classroom. For example, Howland and Wedman (2004) conducted research to see the effects of a training program where teachers were involved in a 2-year individualized professional development program to (a) develop technology and skill efficacy, and (b) integrate technology into teaching. The results of the study indicated significant change in faculty skill and efficacy in the areas of communication, inquiry-based learning, feedback and metacognition, and problem solving (Howland & Wedman, 2004). In another study, Martinez-Pons and Rosenfield (2005) tested the following two hypotheses: (a) that participation in a course providing theory and practice in the classroom use of technology promotes its use and results in gained competence in technology use; and (b) that functional relations exists among the availability of technology in the classroom, technology

utilization, and competence in technology use. It was concluded that these technology interventions were successful, and that teachers' competence in the use of technology in the classroom was a direct function of the degree that the technology was used (Martinez-Pons & Rosenfield, 2005). Collins (2009) explained that the organization must help the staff make the necessary changes to help the staff integrate technology into their daily work routines.

The next side of the Technology Leadership, Management, and Policy Pyramid addresses the need for maintenance activities. "Maintenance implies that the technology needs to be preserved and continue in operation" (Collins, 2009, p. 49). Maintenance is an on-going and never-ending routine that must constantly be done in order to keep the technology in good working order (Collins, 2009). There are different types of maintenance activities that should be performed at various times during the year. Collins (2009) identified the following types of maintenance activities: daily maintenance, weekly or monthly maintenance, semi-annual maintenance, and annual maintenance. School districts must perform routine maintenance activities in order to keep the technology functioning well so it can be used as a valuable tool for the entire learning community.

The importance of proper planning is addressed by the third side of the Technology Leadership, Management, and Policy Pyramid. Collins (2009) recognized the fact that good planning is hard work, but it is very important to plan for the future in terms of technology. Schools need to continue to prepare and serve students well in the future, and in order to successfully do this, they must begin now with proper planning. Schools and other organizations must use the plan as a beginning framework and continually revisit this plan to ensure that it remains up-to-date and realistic (Collins, 2009). The plans are critical to help the organization move forward in the right direction. Brooks-Young (2002) explained that

administrators must examine what practices are already in place, consider what needs to be done, and what areas need to be developed. Collins (2009) explained that the technology keeps changing very quickly, and planning is one way that will allow us to anticipate the changes without them happening before our eyes and then be expected to deal with it. Finally, Collins (2009) explained that the entire organization, where every office is represented, should be involved with the planning process, the planning must be done with the organization's mission in mind, and committed leadership must be a part of this process in order for it to be successful.

Collins (2009) explained that in order for the Technology Leadership, Management, and Policy Pyramid to be successful in helping school districts and administrators integrate technology, all three sides of the pyramid (organization integration activities, maintenance activities, and planning activities) must be done simultaneously with committed leadership. Collins (2009) explained that the leadership should be used to help people change and embrace the technology to use it as a valuable tool for the good of the organization. Collins (2009) explained that everyone in the entire school community such as students, parents, governing bodies, administrators, teachers, and staff should be involved in this process, and the leadership should be in place to help these individuals properly integrate technology into educational settings.

Improvements must be made in integrating technology into our Nation's schools. Dickard (2003) explained that there are a number of actions that must be taken in order to sustain the technology infrastructure in our schools and take it to the next level. According to Dickard (2003), the top ten list includes the following recommendations: "(1) Accelerate teacher professional development, (2) 'professionalize' technical support, (3) implement

authentic ed-tech assessments, (4) create a national digital trust for content development, (5) ensure that all Americans have 21st century skills, (6) make it a national priority to bridge the home and the community divides, (7) focus on the emerging broadband divide, (8) increasing funding for the federal ed-tech block grant, (9) share what works, and (10) continue ed-tech funding research” (p. 12-14). Collins (2004, p. 58) stated that, “In educational technology, our efforts are especially imperative. We are preparing students for their futures, which involve using technology in their lifelong learning, most vocational fields, and leisure-time activities.” Technology is a valuable tool in our world today, and schools must provide opportunities for students, teachers, administrators, staff, and the entire learning community to have access to it.

Purpose of the Study

The purpose of this research is to analyze the integration of technology at the school district level. Collins’ (2009) Technology Leadership, Management, and Policy Pyramid will be the conceptual framework used in this research. This pyramid has the following, three sides: Organizational Integration Activities, Maintenance Activities, and Planning Activities. According to this conceptual framework, schools need to utilize all of the following components of the pyramid in their vision in order to attain excellence in educational technology: (a) provide activities in organizational integration, (b) provide activities in maintaining the infrastructure, and (c) provide activities in planning for the future. Collins (2009) notes that all of these steps must be done simultaneously with committed leadership in order to see improvement and attain excellence.

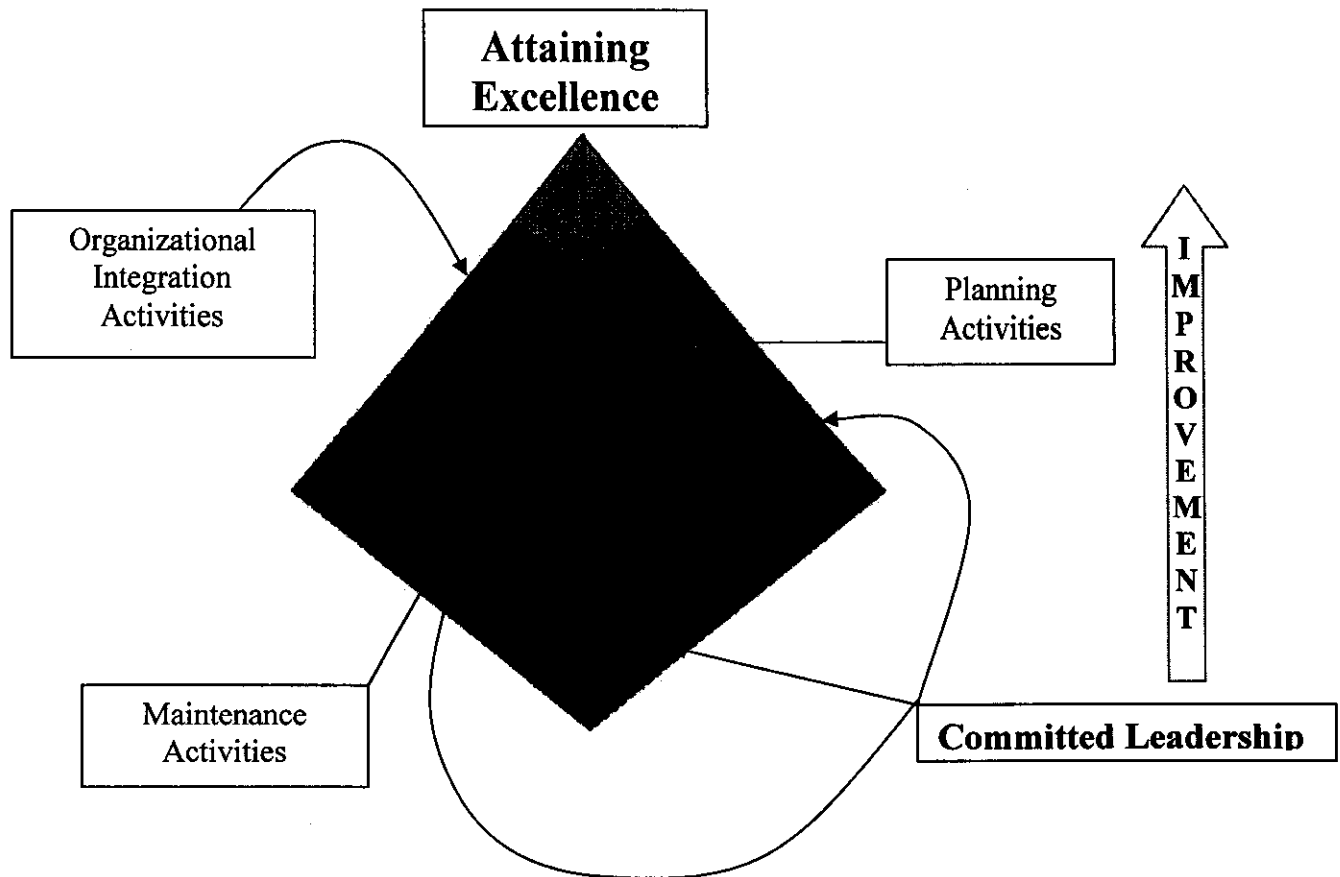


Figure 1. The technology leadership, management and policy pyramid (TLMPP) – (three-dimensional view).

First, according to Collins' (2009) pyramid, school districts need to develop the leadership and vision that will allow for the integration of technology into their buildings and academic programs. In summarizing the work of Tichy and DeVanna (1986), Yukl (1998) explained that once a leader recognizes the need for change, a common vision must be formed.

“Before people will support radical change, they need to have a vision of a better future that is attractive enough to justify the sacrifices and hardships the change will require. The vision can provide a sense of continuity for followers by linking past

events and present strategies to a vivid image of a better future for the organization.

The vision provides hope for a better future and the faith that it will be attained someday” (Yukl, 1998, p. 442).

In explaining the work of Tivhy and DeVana (1990), Northouse (2001) stated, “The vision acts as a conceptual road map for where the organization is headed in the future and what it will look like” (p. 144). The common vision should motivate employees or subordinates to change in an effective manner. “To be motivating, a vision must be a source of self-esteem and common purpose. It should be expressed in ideological terms, not just in economic terms to help people develop a sense of purpose about their membership in the organization” (Yukl, 1998, p. 336). In compiling the writings of Bennis and Nanus (1985), Kotter (1996), Kouzes and Postner (1995), and Nanus (1992), Northouse (2001) explained that the vision should have the following elements: be simple and idealistic; appeal to the values, hopes, and ideals of the organization; emphasize distant ideological objectives rather than immediate tangible benefits; be challenging, realistic, meaningful, and credible; address basic assumptions about what is important to the organization; be focused enough to guide decisions and actions but general enough to allow for creativity; and be simple enough to be communicated within five minutes or less. It should not be the work of only one individual or the leader, but it should encompass different viewpoints from individuals that are involved with the organization. In explaining studies conducted by Bennis and Nanus (1985), Yukl (1998) stated, “The leaders established a network of formal and informal contacts with people, including outsiders as well as members of the organization. They were attentive to the ideas and opinions of others, especially people who advocated new or different viewpoints. The vision was based on the ideas and values of followers and other important

stakeholders.” (p. 338). From these viewpoints, a mission statement should be developed that describes the vision and the values implied by this vision (Northouse, 2001). The vision statement must involve the entire school community in order for it to be successful. Schools must develop the leadership and vision in order to facilitate the integration of technology into their environments and form a culture that is willing to accept and work with this technology. Leadership is essential to the success of Collins’ (2009) Technology Leadership, Management, and Policy Pyramid.

The first side of Collins’ (2009) pyramid is based on Organizational Integration Activities. This phase of integration deals with activities that help organizations learn how to use the technology and integrate it into the working environment (Collins, 2009). Professional development is critical to the success of this side of the pyramid. Organizations should adopt life-long learning approaches to learning the technology, and professional development programs should be supported with the organizational policy, practice and procedures that use technology (Collins, 2009). Brooks-Young (2002) explains that the Apple Classrooms of Tomorrow Report from 1995 indicates that the research seems to suggest that while technology can have a positive effect on student outcomes, it is dependent on the teachers’ comfort level in using it as an educational tool. This is why administrators need to be sure to include professional development programs in the process. Teachers need to be able to learn the technology in a supportive and non-threatening environment.

The next side of Collins’ (2009) Technology Leadership, Management, and Policy Pyramid is based on Maintenance Activities. Administrators must maintain and sustain the computer systems in the organization if they want to avoid problems with the technology and keep everything working properly. Many times organizations simply purchase the

technology and expect everything to run smoothly, and they often overlook this maintenance component. However, “maintenance” must be in the planning process as it prevents major problems and crashes to ensure optimal performance of the technology, and these activities also help to repair or replace broken and out-of-date equipment (Collins, 2009). For example, Phelan (2007) explained that the *Total Cost of Ownership* does not only involve purchasing computers, and one is all set to go; there is more to it. Total cost of ownership involves all of the following components: hardware, software, initial computer/network setups, on going maintenance and support, staff development, and networking. Phelan (2007) also explained *Carrying Capacity* in terms of technology. Carrying capacity is used to explain the number of computers that a school or organization can support. It is based on the organization’s budget and planning issues. Administrators must understand the concept of carrying capacity when they are maintaining their infrastructure. For example, Techruler (2007) provides specific information that organizations must maintain their systems performing the following operations: disk defragmenting, disk cleaning, windows updates, check/scan disks, and close unwanted programs. Techruler (2007) provides step-by-step instructions for administrators to maintain their infrastructure and offers ways to solve problems. Collins (2009) explains that maintenance activities are critical to the success of the organization’s survival.

Planning Activities comprise the third side of Collins (2009) Technology Leadership, Management, and Policy Pyramid. “Planning for the Future” is critical to the success of the integration of technology in organizations today. Organizations must realize that technology changes every day; this is due to Moore’s law. According to Intel’s web site (2007), Moore’s law states that the number of transistors on a chip doubles every 2 years. This basically

means that computers are becoming better and faster approximately every 18 months. If organizations do not recognize this fact and think that the computers they purchased will last a long time, then their technology will quickly become obsolete. Organizations must also understand that their technology must also support the programs that are running on the Internet. This means that if the internet and all software and hardware are being upgraded in the world today and schools do not upgrade their equipment, then their equipment will eventually become useless. Yes, they might be able to do word processing and related applications, but they will eventually have a problem going onto the Internet and installing new software. They will even have a problem installing new hardware on an old computer. In order to avoid these problems, schools must constantly work on planning for the future. The budget must be designed to allow for this process to occur. Brooks-Young (2002) established the following performance indicator: (a) look at what technology plans are already in place, (b) look at what needs to be done, and (c) look at what areas of technology need to be developed.

In planning for the future, organizations must understand the reality of state of the practice. It would be incredible if all of our schools and organizations could have state of the art equipment when it comes to technology, but the reality of the situation is that many organizations do not have this cutting edge technology because it is too expensive. Many schools and organizations are operating with older equipment that still functions and is used as a tool to help people accomplish their jobs. For example, according to the Intel's (2007) web site, the Pentium III processor is no longer being supported because it is no longer manufactured, but their web site offers online solutions to common problems. This is a type of processor that many schools are still using today. Schools often use Local Area Networks

(LAN's) that are connected to each other over telephone lines, and this is becoming an old system since everything today runs over the Internet. The web site of the Electronic Labyrinth (2007) provides a timeline for people to see the history of technology through electronic publications ranging from 367 to 1995. This is a great site to see just how far we have come with technology in the recent years. Unfortunately, problems often arise when working with older equipment, and the current technology does not often support all of the older technology. However, this older technology would be great for organizations to use if they cannot afford new technology, and sometimes schools often acquire older technology to replace even older technology that was in place. Technology acquisition (hardware and software) really all depends on planning and the budget. Organizations should always be looking to the future, and they should always plan to acquire new technology even if it is not the best cutting edge technology. Schools should also remember that state of the art technology will eventually become state of the practice technology due to Moore's law (Collins, 2009).

Collins' (2009) Technology Leadership, Management, and Policy Pyramid can be applied to change in all organizations when integrating technology. All sides of the pyramid (Organizational Integration Activities, Maintenance Activities, and Planning Activities) must be done simultaneously with committed leadership to support the organizational change. As organizations work on each side of the pyramid together, the organization will see improvement in the area of technology integration, and the organization must continue to use the pyramid in order to attain excellence in this endeavor.

Guiding Questions

This research will analyze the integration of technology at the district level. The primary question that will be addressed in this research is – How is technology being integrated at the district level in terms of Collins’ (2009) Technology Leadership, Management, and Policy Pyramid? The following questions will contribute to this research:

1. How do elementary, middle, and high school teachers perceive the integration of technology in their school district in terms of the Technology Leadership, Management, and Policy Pyramid?
2. How do elementary, middle, and high school teachers perceive the Technology Leadership, Management, and Policy Pyramid as having an effect on their instructional methods?
3. How do elementary, middle, and high school teachers perceive their school district in providing organizational integration activities (curriculum integration and staff development)?
4. How do elementary, middle, and high school teachers perceive their school district in providing maintenance activities?
5. How do elementary, middle, and high school teachers perceive their school district in providing planning activities?
6. How do elementary, middle, and high school teachers perceive the leadership in their school district in regards to all sides of the Technology Leadership, Management, and Policy Pyramid?

Delimitations and Limitations of the Study

This study has a few delimitations and limitations. The subjects of this study were delimited to elementary, middle, and high school teachers working at one school district in Essex County, New Jersey with a District Factor Group of J. Teachers from this district were randomly selected for participation in this study. Caution should be exercised when applying this information to other school districts and educational settings.

Another limitation of this study is the possible bias of the researcher. The researcher is presently a science teacher who integrates technology into his courses on a regular basis.

Finally, the data was collected during the time period of mid May to the beginning of June of 2008, and the information gained from this study is specific to that time frame.

Definition of Terms

In order to understand Collins (2009) Technology Leadership, Management, and Policy pyramid and this research, it is important to understand the following terms: Technology, Leadership, Organizational Integration Activities, Maintenance Activities, and Planning Activities.

Technology. According to the online version of Encarta's dictionary (2007), technology is defined in the following manner: "(a) application of tools and methods: the study, development, and application of devices, machines, and techniques for manufacturing and productive processes, (b) method of applying technical knowledge: a method or methodology that applies technical knowledge or tools, (c) machines and systems: machines, equipment, and systems considered as a unit, and (d) CULTURAL ANTHROPOLOGY sum of practical knowledge: the sum of a society's or culture's practical

knowledge, especially with reference to its material culture.” Definitions a, b, and c are relevant to this study.

Leadership. According to the online version of Encarta’s dictionary (2007), leadership is defined in the following manner: “(a) ability to lead: the ability to guide, direct, or influence people, (b) guidance: guidance or direction, (c) leaders: a group of leaders (*takes a singular or plural verb*), and (d) office or position of leader: the office or position of the head of a political party or other body of people.”

Organizational integration activities. According to Collins (2009), “To keep us on task and consistent, the process of integrating is our key concern. By placing the two parts together, we get the overall definition of organizational integration as the process of integrating [technology] within a given organizational setting” (p. 16).

Maintenance activities. According Collins (2009), “Let us consider maintenance as the act of supporting or sustaining technology” (p. 17).

Planning activities. According to the online version of Encarta’s dictionary (2007), planning is defined in the following manner: “(a) system for achieving objective: a method of doing something that is worked out in advance, (b) intention: something that somebody intends or has arranged to do (*often used in the plural*), (c) layout: a drawing or diagram on a horizontal plane of the layout or arrangement of something, (d) list or outline: a list, summary, or outline of the items to be included in something such as a piece of writing or a meeting, and (e) ARCHITECTURE perspective drawing: a scale drawing showing the various perspectives of something, especially a building.” Here, planning is meant to proactively work with the technology, (Collins, 2009).

Organization of the Study

Chapter I presents the problem to be studied: How is technology being integrated at the district level in schools in terms of the Collins' (2009) Technology Leadership, Management, and Policy Pyramid? This chapter contains an overview of the problem as it relates to technological issues that schools are facing in today's environment.

Chapter II contains a review of relevant literature that focuses on the integration of technology in today's schools. The research reveals beneficial uses of technology for students, barriers to integration, successful professional development and training programs for educators, and the integration process.

Chapter III contains a description of the methodology that will be used in this study to evaluate how technology is being integrated at the district level in terms of Collins' (2009) Technology Leadership, Management, and Policy Pyramid. This chapter will reveal the research design, the method of data collection, and the population used in this study.

Chapter IV provides the results of the data.

Chapter V summarizes the study, provides an analysis of the results and connects it to the literature base on this area, provides conclusions, and offers recommendations for policy, practice, and future research.

Chapter II

REVIEW OF RELATED LITERATURE

Introduction

The successful integration of technology in schools allows for computers to be used for instructional purposes. Computer-Assisted Instruction is a teaching method that allows instructors to supplement traditional teaching methods with the aid of a computer.

“Recent advances in instructional technology provide educators with a range of exciting and versatile teaching tools. Today’s microcomputer programs are capable of demonstrating intricate patterns of movement that can readily enhance a student’s ability to visualize complex concepts. Because of this, computer assisted instruction is gaining popularity as an effective and efficient method of teaching...” (Boucher, Hunter, & Henry, 1999 ¶ 1).

There are a variety of programs that are specifically designed to facilitate student learning in many subject areas, and many of these programs are developed to work in conjunction with the students’ textbooks. “The computer enables the students to be actively involved in the learning process, individually or in groups of two or three. The computer allows students to progress at their own pace, an important implication for the gifted learners as well as for the low achievers.” (Huppert, Lazarowitz, & Yaakobi, 1993 ¶ 2). Students in all subjects can benefit from the use of computers. Today’s microcomputers can also foster communication between the learning community through the use of email, and they can facilitate research for the students. Beldarrain (2006) also found that computers can be used for distance education programs, and student interaction and collaboration could be accomplished through the use

of blogs, wikis, podcasts, and social software that allows for the members of the group to feel connected with each other. Evmenova and King-Sears (2007) explained that educators can use the technology to increase the efficiency of the educational process. The use of computers is beginning to play a significant role in the ways that students learn. According to Brooks-Young (2002), technology is not the “magic pill” that is needed to solve all of education’s problems, but it can be a powerful tool when used in conjunction with other powerful tools to improve instructional programs.

Specifically in the area of science, computers can play a major role in student learning because they can simulate laboratory experiments that might not ordinarily be conducted due to time constraints or a lack of funding for laboratory equipment. For example, “The potential of the computer simulation in learning science, and in laboratory work, in particular, may open new horizons for students’ active learning and for new studies investigating the relationship between computer assisted learning (CAL) and mastery of cognitive, affective, and psycho-motor skills of different types of learners” (Huppert et al., 1998 ¶ 68). Students can also run experiments and simulations several times until they understand the concepts. Another researcher states, “Scientific discovery learning is a highly self-directed and constructivistic form of learning. A computer simulation is a type of computer-based environment that is well suited for discovery learning, the main task of the learner being to infer, through experimentation, characteristics of the model underlying the simulation” (de Jong and & Joolingen, 1998 ¶ 1). In 1999, Terry explained that use of the Internet can enrich the biology class due to the fact that there are thousands of sites available to supplement courses. For example, there are many web sites that have information on

collections of organisms, sequenced genomes, databases of biomolecular structures, course materials, online scientific publications, professional journals, and much more.

Unfortunately, there are many barriers to integrating technology in schools, and in many cases, it is not done well or educators do not know how to exactly integrate the technology into the learning environments. There is also no clear standard or uniform definition of technology integration in K-12 schools (Bebell, Russell, & O'Dwyer, 2004). Bauer and Kenton (2005) reported that the educational community as a whole and the general public might be surprised to learn that the use of the computer is far less utilized as an educational tool in schools. Schools need a successful technology integration plan in place to benefit the learning community. In order to help organizations attain excellence in the technology integration process, Dr. Collins (2009) created the Technology Leadership, Management, and Policy Pyramid (TLMPP). According to the Technology Leadership, Management, and Policy Pyramid, schools and other organizations need to utilize all of the following components of the pyramid in their vision in order to attain excellence in educational technology: (a) provide organizational integration activities, (b) provide maintenance activities, and (c) provide planning activities (Collins, 2009). According to this Technology Leadership, Management, and Policy Pyramid, all of these steps must be done simultaneously with committed leadership in order to see improvement and attain excellence (Collins, 2009). With this information in mind, schools and administrators must develop the leadership and vision that will allow for the integration of technology to be used as a powerful tool by its learning community.

RELATED LITERATURE

Barriers to Technology Integration

There are many barriers to the successful integration of technology in today's schools. Many teachers do not want to integrate technology into their classrooms for a variety of reasons. Bauer and Kenton (2005) performed a qualitative study that examined the classroom practice of 30 "tech-savvy" teachers. All of these teachers were proficient in technology, and they taught at the elementary, middle school, and high school levels. The purpose of the study was designed to determine how often these teachers used technology in their instruction, the obstacles that they had to overcome, and their general concerns or issues regarding the technology. Bauer and Kenton (2005) learned that these teachers were innovative and were able to overcome obstacles, but they did not integrate technology into their classrooms on a regular basis because (a) the students did not have enough time at the computers, and (b) teachers needed extra planning time to structure lessons that involved technology. The teachers also had the following concerns: out-dated hardware, lack of appropriate software, technical difficulties, and various student skill levels (Bauer & Kenton, 2005). Bauer and Kenton (2005) concluded that schools have not yet achieved true technology integration. Brush and Hew (2007) conducted an extensive literature review on technology integration into K-12 schools, and they have identified the following barriers to the successful integration of technology in today's schools: (a) the lack of resources, including: technology, access to available technology, time, and technical support; (b) the lack of knowledge and skills; (c) institutional barriers, including: leadership, school timetabling structure, and school planning; (d) teacher attitudes and beliefs, (e) assessment, and (f) subject culture. Okojie, Okojie-Boulder, and Olinzock (2006) explained that common

excuses why teachers do not use technology to support instruction is due to a shortage of computers, lack of computer skill, and computer intimidation.

Barriers to the integration of technology also exist at the district level. In a case study by Ausband (2006), the job responsibilities of district-level instructional technology specialists that related to curriculum work and their perceptions concerning their job responsibilities and relationship to curriculum work were investigated. Ausband (2006) explained that central office has technology specialists and curriculum workers to improve and support technology instruction and student achievement for the students. The data was collected through document analysis, shadowing, interviews, and a focus group. Many barriers were identified that contributed to reasons why technology is not successfully integrated into schools. Ausband (2006) found that there were communication problems between the instructional technology specialists and the curriculum workers for the district, accountability issues for teacher technology portfolios, leadership issues in terms of technology, and a lack of time to work with the teachers. Ausband (2006) found that there is a gap between many parts of the central office staff and information is often not coordinated between the departments of the district, and the instructional technology specialists find it difficult to find the time to work with the teachers to successfully integrate technology and document their portfolios.

Teachers and students also have different views on the integration of technology. Li (2007) performed a study where the voices of the teachers and students were heard about their opinions, perceptions, and views about technology in schools. Li (2007) explained that a technology-enhanced environment can be viewed as a system that emerges from the interaction of its components, and the components are the critical stakeholders in this

process. These stakeholders include the students, the parents, and the administrators. Li (2007) wanted to learn about the perceptions of the teachers and students in terms of technology in the classroom because this information is very important in the technological integration process. The study was conducted through a mixed methods approach. The teachers were interviewed, and the students were surveyed. Li (2007) found that the survey results showed that the students liked to use technology as a form of learning, and they thought it could be effective in learning. Specifically, their views fell into the following categories: (a) increased efficiency and the need for change, (b) pedagogy, (c) future preparation, and (d) increased motivation and confidence. In terms of the pedagogy category, the students thought that the technology allowed for different and varied approaches to teaching and learning that could not always be achieved through a traditional textbook (Li, 2007). The teachers, on the other hand, were not as excited about the use of technology in the classroom. Li (2007) found that most of the teachers perceived computers as nothing more than “souped-up typewriters” and were primarily for demonstration purposes. Li (2007) also found that even though the teachers acknowledged that the students like technology, they found it to be an extra work load and perceived computers were not worth the time investing because they have little educational value.

There is also a digital divide in terms of computers and the Internet between high and low resource schools. Duran and Valadez (2007) conducted research on this topic. In this study, teachers were surveyed from six southern California schools. Five of these schools were low resource schools, and one school was identified as a high resource school. Duran and Valadez (2007) found that the high resource school teachers significantly had more access to the computers and the Internet, more frequent use of computers and the Internet,

more creative uses of computers and the Internet for instruction, communicated with the students via email more frequently with the students, and engaged more frequently with other teachers through online activities. Funding certainly plays a major role in the successful integration of technology.

Professional Development and Technology Training

Professional development is another critical factor to successfully integrating technology in schools. In a study conducted by Howland and Wedman (2004), teachers were involved in a 2-year individualized professional development program to (a) develop technology and skill efficacy, and (b) integrate technology into teaching. Pre-service teachers were also used in this study, and they were enrolled in the courses taught by the faculty participants. Pre and post questionnaires were used to determine data for the faculty's development of technology knowledge and skill efficacy, integration of technology into their courses, and change in the teacher practices. The pre-service teachers had to complete a survey to indicate the amount of technology used in their courses. The results of the study indicated significant change in faculty skill and efficacy in the areas of communication, inquiry-based learning, feedback and metacognition, and problem solving (Howland & Wedman, 2004). Howland and Wedman (2004) also found that the pre-service teachers reported using more technology-based applications in their courses.

Gardner (2004) conducted a summer workshop to show teachers how to successfully integrate technology into math courses. Gardner (2004) encouraged math teachers to see that mathematical content can be integrated with technology and information literacy so the students can become responsible for their own learning, develop their own strategies, and

collaborate with other learners. This educator showed teachers that successful integration involves technology plus planning plus subject content. Gardner (2004) provided the teachers with an electronic tool kit of web sites and application software that enabled the teachers to create technology-enhanced lesson plans.

In another study, Martinez-Pons and Rosenfield (2005) tested the following two hypotheses: (a) that participation in a course providing theory and practice in the classroom use of technology promotes its use and results in gained competence in technology use; and (b) that functional relations exists among the availability of technology in the classroom, technology utilization, and competence in technology use. Fifty-five graduate students participated in a course dealing with the classroom use of technology tools. Pre and post tests were used to measure technology use. Martinez-Pons and Rosenfield (2005) found that there were statistically significant differences between the pre and post tests, and this showed that the technology interventions were successful. Martinez-Pons and Rosenfield (2005) also learned that competence in the use of technology in the classroom was a direct function of the degree that the technology was used.

Hughes and Ooms (2004) conducted research where they established and sustained content-focused technology inquiry groups. They used this as a teacher professional development model where groups of teachers came together with similar courses and grade levels to identify problems with the integration of technology into their courses and to offer solutions to the problem. The research of Hughes and Ooms (2004) proved to be successful because as time went on, the teachers used the information they were learning in the groups to integrate technology into their classes and lesson plans. This process was based on teacher collaboration.

In another study, Zhao (2007) researched the perspectives and experiences of 17 social studies teachers regarding technology after they went through a technology integration training program. The research showed that the teachers had a variety of views about technology integration, and their views played a role in how they used technology and computers in the classroom. Zhao (2007) observed the following, four categories of technology-related activities from the teachers: (a) teacher-centered, (b) structured inquiry, (c) teacher-student negotiated, and (d) student-centered. Teacher-centered activities permitted the teachers to use technology such as PowerPoint presentations to strengthen or support their classroom lectures. Structured inquiry allowed the students to learn from various web sites. In student-teacher negotiated methods, the students learned through web sites that their teachers provided them with, but they were also free to do additional research on their own. In the student-centered activities, the students used the technology to do research and present their findings to the class through the use of technology. Zhao (2007) found that many of the teachers were willing to use technology, expressed positive thoughts about the training program, increased their use of technology in the classroom, and they used it more creatively. Zhao (2007) also learned that the more the teachers used the technology, the more willing they were to use it in the classroom; however, the integration training did not ensure that the teachers would completely replace their teaching with technological methods.

Brinkeroff (2006) also researched the concept of professional development in terms of the integration of technology. Brinkeroff (2006) explained that many barriers such as resources, institutional and administrative policies, skills development and attitudes can often result in underutilized technology resources and lack of integration of these resources within

instruction. In this research, teachers went through a professional development academy to address these barriers and to promote their use of technology for instructional methods.

Brinkeroff (2006) found that the teachers had significant gains in their self-assessed technology skills and self-efficacy; however, there was little or no change in their self-assessed technology integration beliefs and practices in terms of technology integration despite interview data where the teachers felt that their teaching methods changed.

Brinkeroff (2006) found the technology integration academy to be a successful experience for the teachers; however, it did not address all of the intended objectives of the professional development program.

Teacher education is important to the success of a technology integration program. Today, many pre-service teachers are being taught ways to integrate technology into the classroom through their teacher-preparation programs. In a study done by Capobianco & Lehman (2006), a science teacher educator examined her own knowledge practice about technology through action research while simultaneously helping pre-service teachers develop their own practice. A PT3 implementation project facilitated this research. Qualitative analysis of classroom observations, field notes, and student feedback forms revealed that the pre-service teachers' growth and development related to the integration of technology in the classroom parallels that of the teacher educators (Capobianco and Lehman, 2006). Brzycki and Dudt (2005) also did work with pre-service teachers, and they used a PT3 grant from the U.S. Department of Education, entitled "Preparing Teachers for the Digital Age." The grant allowed progress to be made in infusing technology into the curriculum of teacher education programs, but teacher educators recognized the following barriers in dealing with the technology: adoption-time, support, models, infrastructure, and

culture (Brzycki & Dudt, 2005). Brzycki and Dudt (2005) concluded that in order for integration to be successful, change facilitators need to offer multiple forms of support and incentives, tie incentives to desired outcomes, involve faculty in the decision making process to allow for buy-in to take place, use faculty models, supplement technical support with peer support and well trained student assistants, and develop strong administrative support.

Teacher education programs have a lot of work to do in this area, but they are beginning to address these issues.

Administrators also need training in order to make the integration of technology possible in schools. Dawson and Rakes (2003) performed a study to determine the influence of principals' technology training affects the integration of technology in schools. The study examined the amount and types of training that the principals received, and it looked at the age of the principals, sex, years of administrative experience, school size, and grade level. It was determined that training does have a positive impact on technology integration, and that the age of the principal played a major role in the leadership style. Principals who were under 41 lead the process very differently than principals who were 41 through 55, but both were effective (Dawson & Rakes, 2003). Dawson and Rakes (2003) found that even though the principals received training, they did not receive enough training to fully integrate the technology into their schools, and they concluded that increasing principal training would produce higher levels of technology integration into schools.

Okojie, Okojie-Boulder, and Olinzock (2006) explained that technology is a device or tool that is used to enhance instruction, and using it for educational purposes requires understanding pedagogical principles that are specific to the use of technology in instructional settings and proper training for teachers. Evmenova and King-Sears (2007)

stated, “Just having computers and software in the classroom is not significant; how the educators use those computers and that software to promote learning is far more important” (¶ 2). Franklin (2007) explained that, “Teacher efficacy is essential to the integration of technology, and teacher efficacy is linked to electronic pedagogical content knowledge and skill” (¶ 53). Grove, Strudler, and Odell (2004) conducted a study that investigated the mentoring practice of 16 cooperating teachers as they mentored student teachers to integrate technology into their teaching and learning practices. This study found that in order for student teachers to integrate technology into their classes and create student-centered lessons through technology, they needed skillful mentors as well as access to technology (Grove, Strudler, & Odell, 2004). Grove, Strudler, and Odell (2004) also found that mentors should attend frequent professional development programs to frequently acquire skills to teach in reform-minded ways and the knowledge to help new teachers teach through these reformed standards.

Organizational Integration Activities

The integration process is critical to the success of infusing technology into the curriculum. Abdelraheem (2005) explained that information and instructional designers can successfully design instruction and learning through technology if they choose the right resources, tools and processes accompanied with well-designed software. Abdelraheem (2005) found that the goal of producing high quality electronic learning systems that truly benefits learners could only be achieved through collaboration among instructional technologists and information technologists. In a study by Penuel (2006) that addressed the initiatives to make laptops with wireless connectivity available to all students in schools, it

was found that successful implementation included extensive teacher professional development, access to technical support, and positive teacher attitudes toward the use of technology. Evmenova and King-Sears (2007) explored ways to integrate technology into instructional settings, and they identified the following principles: (a) choose the technology that aligns with curriculum outcomes, (b) match students' instructional needs with the technology, (c) choose technology that helps the students blend in with peers, and (d) choose the parsimonious alternative. Evmenova and King-Sears (2007) explained that technology changes quickly, and educators should examine the choices carefully and then decide what to use.

Cagiltay (2006) performed a study that explored the concept of providing an Electronic Performance Support System (EPSS) and the use of scaffolding techniques to assist or support the learner in developing the skills needed to use the technology. The EPSS is done through an online tutorial system, and it provides opportunities for the learner to acquire the information needed to use the technology in their careers. Cagiltay (2006) identified the following components of an EPSS: (a) it is comprised of a collection of integrated software components; (b) it is part of an organization's knowledge management system; (c) it is user-controlled and is easy to use; (d) it provides support at the moment it is needed; and (e) it presents relevant and context-focused information that a task performer needs in a real work environment. Cagiltay (2006) identified the following types of scaffolding that were investigated in this study: (a) conceptual (supportive) scaffolding, (b) metacognitive (reflective) scaffolding, (c) procedural scaffolding, and (d) strategic-intrinsic scaffolding. This study revealed that there are challenges to form this type of support system due to the fact that it is time consuming and demanding, but Cagiltay (2006) found that these

systems are beneficial because scaffolding provides the right amount of material in the right amount of time to help employees succeed in their jobs and enhance quality and proficiency in terms of technology. School districts could adopt such systems to help educators learn how to implement technology into the learning environment.

Many teachers are afraid to use the technology because they know that the students know more about technology than they do. Kara-Soteriou (2006) offered the following suggestions to help teachers integrate technology into their classrooms: (a) internet use: from simple to more complex; (b) computer software: start with the most widely used; (c) use collaborative group learning to teach the new technology; (d) admit your weaknesses and allow your students to become your instructors; (e) collaborate with colleagues; and (f) learn how to get information fast. Kara-Soteriou (2006) explained that technology is easy for the students because they have grown up using it, but teachers must acquire the skills needed to integrate technology into instructional settings. Teachers need to learn how to use the technology and practice these skills in order to use it in their classrooms, and the students can be a great resource to the teachers as they are learning how to use the technology.

Teachers need to be supported through this implementation process. McGrail (2005) preformed a study which investigated the attempts of English language arts teachers to integrate technology into the English classroom. The study was qualitative in nature that used an interview process to learn the perceptions of the teachers in terms of the gains, dilemmas and concerns with using technology for instructional purposes. McGrail (2005) learned that the teachers were willing to accept change as long as they were convinced that it would benefit the students and their own instructional practices. In another study, Adamy and Heinecke (2005) researched the technology integration practices of post-secondary math

teacher educators. These teachers were interviewed in terms of the factors that inhibited them or promoted them to adopt technological innovations in the classroom. Adamy and Heinecke (2005) found that the integration of technology is a social process, and teachers must have administrative and institutional support in order to succeed. Franklin (2007) identified the following factors that influence computer use for teachers: (a) leadership, (b) access and availability, (c) incentives, (d) personal support, (e) external constraints, and (f) philosophy and preparation. Franklin (2007) worked with elementary teachers who were willing to integrate technology into the classroom, and they felt that computers enable students to discover and construct ideas for themselves. Hernandez-Ramos (2005) surveyed practicing teachers in K-12 Santa Clara County, California schools in regard to the integration of technology into schools, and it was determined that exposure to technology in teacher preparation programs, knowledge of software applications, and constructivist beliefs lead to more frequent use of technology by teachers and students. Hernandez-Ramos (2005) also found that the availability of technical support is also related to the frequency of technology use in the classroom.

Li and Achilles (1999-2000) conducted research to determine the factors that contributed to teachers' integrating technology behaviors in a school environment. The study was conducted in a middle school in Michigan that was successful in the early-adoption of technology, and it was located in a reasonably wealthy community. The school was rich in technology, as it had two computer labs with approximately 30 computers each and four computers per classroom. This middle school housed about 600 students with 50 faculty members. One-hundred percent of the school's faculty and administrators used the technology at different levels. In order to guide the study, a theoretical model was developed

that combined the technical, political, cultural, and organizational perspectives as well as the organizational behavior approach (Li & Achilles, 1999-2000). The following, three sets of hypothesized factors were addressed in this research: (a) outcome variables, (b) intervening variables, and (c) causal variables. Outcome variables deal with the pattern of integrating the technology behavior, intervening variables focus on the role expectations and the organizational support that is provided to guide the integrating technology behaviors, and causal variables explain the influences of technology, politics, cultural and school organization on these integrating technology behaviors (Li & Achilles, 1999-2000). This study was primarily qualitative in nature. Data was collected on-site through participant observation, document collection and review, and interviews. The sample used was composed of eight district administrators and parents, and 23 of the 52 teachers. The teachers interviewed were of different genders, attitudes, subject areas, and years of using the technology. In order to increase the validity of the data, data triangulation and method triangulation procedures were used (Li & Achilles, 1999-2000). The results of this case study show that the following, four variables emerged from this research: (a) Institutional Expectation for Integrating Technology Behaviors (Drive), (b) Organizational Support Systems (Facilitators), (c) Classroom Adjustment for Integrating Technology Behaviors (Strategies), and (d) Pattern of Teachers Integrating Technology Behaviors (Outcome) (Li & Achilles, 1999-2000). This study revealed that the variable "Pattern of Teachers Integrating Technology Behaviors" depended on the other three variables (Li & Achilles, 1999-2000). In other words, in order for teachers to take the time to utilize the technology, there must be a drive or institutional need for it, there must be support systems in place to guide these teachers through the process, and there must be time for classroom adjustment to successfully

integrate the technology. According to Li and Achilles (1999-2000, p. 17), “Thus, to integrate technology effectively in schools, school administration needs to work on creating new social conditions to facilitate teachers’ learning and using behaviors.”

Lim (2007) examined effective integration of information and communication technologies (ICT) in Singapore schools. Ten schools were analyzed in this study. From this research, Lim (2007) offers pedagogical and policy implications that can be used to successfully integrate technology into schools. Lim (2007) offers the following pedagogical recommendations: (a) address classroom management issues to create conducive environments for effective technology integration in schools, (b) availability of ICT tools, (c) establishment of disciplinary and educational rules and procedures for ICT mediated lessons, (d) division of labor among teachers, (e) design and implement orienting activities to support learner autonomy with technology, (f) recognize the teacher’s role to engage students in ICT lessons, (g) revisit and revise activities, (h) adopt scaffolding strategies in all ICT-mediated lessons, and plan training sessions for the students to use the technology. Lim (2007) offers the following policy recommendations on a national level: (a) develop strategies for student ICT competency development in selected government and government-aided schools, (b) set ICT competency standards for students, and (c) redesign assessment practices to allow for the use of ICT in learning. Finally, Lim (2007) offers the following policy recommendations at the school level: (a) set a clear vision of ICT strategies for the school and this vision must be shared by all members of the school community, (b) develop frameworks for teachers to collaborate within departments regarding ICT, (c) plan regular sessions for demonstrations of exemplary ICT-mediated lessons by teachers, mentors, or seasoned practitioners, (d) create platforms to showcase the relevance and usefulness of CD-Roms bought by schools, and (e)

setup a mechanism that provides teachers and students with incentives and empowerment in the use of ICT for teaching and learning. All of these recommendations are very useful and practical for the successful integration process of technology into schools.

Maintenance Activities

Collins (2009), stated that, "Maintenance implies that the technology needs to be preserved and continue in operation" (p. 49). Collins (2009) explained that maintenance is an on-going and never-ending routine that must constantly be done in order to keep the technology in good working order. There are different types of maintenance activities that should be performed at various times during the year. Collins (2009) identified the following types of maintenance activities: daily maintenance, weekly or monthly maintenance, and semi-annual maintenance, and annual maintenance. Daily maintenance includes doing the following simple activities each day to ensure that the technology remains functioning: make sure that there is a barrier between computer and liquids, dust, make sure that all of the connections are in place, backup data files, and update important protection software such as antivirus and spyware guards, (Collins, 2009). All of these activities can be performed very quickly, and they will help prevent the computer from experiencing mechanical problems and having parts replaced. Collins (2009) explained that the inspecting, testing, adjusting, servicing, and repairing the technology should be done during the weekly or monthly maintenance. During semi-annual maintenance, Collins (2009) explained that the following items should be performed: semi-annual maintenance activities should be placed on the calendar, filters should be changed, toner cartridges should be replaced, and frayed wires or cables should be located and replaced. According to Collins (2009), "Annual sustainment

activities are tougher to describe. I like to think of this one as the ‘good ole spring cleaning.’ This is the capstone and integration of all the maintenance intervals and activities” (p. 55). Collins (2009) recommended having an “Annual Maintenance Day” in the organization where staff development sessions can be offered, hands-on demonstrations and exhibits could be provided, and the idea that it is important for all employees to take care of the technology can be communicated. Routine maintenance activities will allow the technology to last longer and continue to serve us well.

Planning Activities

Collins (2009) recognized the fact that good planning is hard work, but it is very important to plan for the future in terms of technology. According to Collins (2004, p. 58), “In educational technology, our efforts are especially imperative. We are preparing students for their futures, which involve using technology in their lifelong learning, most vocational fields, and leisure-time activities.” Schools need to continue to prepare and serve students well in the future, and in order to successfully do this, they must begin now with proper planning. “Plans are designed to be beginning frameworks. Things happen. Technology causes shifts in the plan. As James Feldman would say, ‘Shift Happens.’ If we create a plan and fail to periodically review the document we are sure to lose our ability to adapt in a proactive way” (Collins, 2009, p. 56). The plans are critical to help the organization move forward in the right direction. Brooks-Young (2002) explained that administrators must examine what practices are already in place, consider what needs to be done, and what areas need to be developed. It is very important that Collins (2009) explained the concept that organizations must constantly review and update their plans to make sure that they are

moving in the right direction. The technology keeps changing very quickly, and Collins (2009) explained that planning is one way that will allow us to anticipate the changes without them happening before our eyes and then be expected to deal with it. Collins (2009) also explained that planning for the future also requires financial resources, and organizations must make sure to account for this in their annual budgets. According to Collins (2009), there is usually a 4 to 5 year window of opportunity for most technology, and then it should be replaced. Finally, Collins (2009) explained that the entire organization, where every office is represented, should be involved with the planning process, the planning must be done with the organization's mission in mind, and committed leadership must be a part of this process in order for it to be successful. The research of Li (2007) also supports this idea as it was determined that a technology-enhanced environment can be viewed as a system that emerges from the interaction of its components, and the components are the critical stakeholders in this process. These stakeholders include the students, the parents, and the administrators.

Committed Leadership

Collins (2009) explained that in order for the Technology Leadership, Management, and Policy Pyramid to be successful in helping school districts and administrators integrate technology, all three sides of the pyramid (organization integration activities, maintenance activities, and planning activities) must be done simultaneously with committed leadership. Collins (2009) explained that the leadership should be used to help people change and embrace the technology to use it as a valuable tool for the good of the organization. In

summarizing the work of Tichy and DeVanna (1986), Yukl (1998) explained that once a leader recognizes the need for change, a common vision must be formed.

“Before people will support radical change, they need to have a vision of a better future that is attractive enough to justify the sacrifices and hardships the change will require. The vision can provide a sense of continuity for followers by linking past events and present strategies to a vivid image of a better future for the organization. The vision provides hope for a better future and the faith that it will be attained someday” (Yukl, 1998, p. 442).

In explaining the work of Tivhy and DeVana (1990), Northouse (2001) stated, “The vision acts as a conceptual road map for where the organization is headed in the future and what it will look like” (p. 144). The common vision should motivate employees or subordinates to change in an effective manner. “To be motivating, a vision must be a source of self-esteem and common purpose. It should be expressed in ideological terms, not just in economic terms to help people develop a sense of purpose about their membership in the organization” (Yukl, 1998, p. 336). Collins (2009) explained that everyone in the entire school community such as students, parents, governing bodies, administrators, teachers, and staff should be involved in this process, and the leadership should be in place to help these individuals properly integrate technology into educational settings.

Technology Integration and Changes to Schools

Much of the research suggests that changes must be made to the culture of schools in order to allow for the integration of technology to be done in an effective manner. The research suggests that it is a process of change, and schools need to develop the framework to

allow for these changes to take place. According to the Technology Leadership, Management, and Policy Pyramid (Collins, 2009), schools need to utilize all of the following components of the pyramid in their vision in order to attain excellence in educational technology: (a) provide organizational integration activities, (b) provide maintenance activities, and (c) provide planning activities. Collins (2009) explained that all of these steps must be done simultaneously with committed leadership in order to see improvement and attain excellence. Brooks-Young (2002) explained that administrators must examine what practices are already in place, consider what needs to be done, and what areas need to be developed. Dickard (2003) explained that there are a number of actions that must be taken in order to sustain the technology infrastructure in our schools and take it to the next level. According to Dickard (2003), the top ten list includes the following recommendations: “(1) Accelerate teacher professional development, (2) ‘professionalize’ technical support, (3) implement authentic ed-tech assessments, (4) create a national digital trust for content development, (5) ensure that all Americans have 21st century skills, (6) make it a national priority to bridge the home and the community divides, (7) focus on the emerging broadband divide, (8) increasing funding for the federal ed-tech block grant, (9) share what works, and (10) continue ed-tech funding research” (p. 12-14). According to Collins (2004, p. 58), “In educational technology, our efforts are especially imperative. We are preparing students for their futures, which involve using technology in their lifelong learning, most vocational fields, and leisure-time activities.”

Conclusion

School districts and administrators must develop the leadership and vision that will allow for the integration of technology to be used as a powerful tool by its learning community. It appears that society is acting as a driving force for the integration of technology, and our communities expect to see computers used in education. Schools must be ready to accept the responsibility of providing this type of learning in the curriculum. Today, administrators must have a plan in place to develop this process, educate teachers, and hone their skills. It appears that technology is here to stay, and schools must utilize the research and best practices that will enable this implementation process to be successful.

Chapter III

METHODOLOGY

Introduction

The purpose of this research was to analyze the integration of technology at the school district level. Collins' (2009) Technology Leadership, Management, and Policy Pyramid will be the conceptual framework used in this research. This pyramid has the following, three sides: Organizational Integration Activities, Maintenance Activities, and Planning Activities. According to this conceptual framework, schools need to utilize all of the following components of the pyramid in their vision in order to attain excellence in educational technology: (a) provide activities in organizational integration, (b) provide activities in maintaining the infrastructure, and (c) provide activities in planning for the future. Collins (2009) notes that all of these steps must be done simultaneously with committed leadership in order to see improvement and attain excellence.

The researcher used a qualitative approach in the form of focus group interviews to gather data on the integration of technology at the school district level. Patton (2002) described this type of research in the following manner, "A focus group interview is an interview with a small group of people on a specific topic. Groups are typically 6 to 10 people with similar backgrounds who participate in the interview for one to two hours" (p. 385). Allen, Grudens-Schuck, and Larson (2004) explained that it is important to invite 20-25 people with similar characteristics to a single session to have a minimum of 10-12 participants present during the interview; it is better to invite more people to the group because no-shows are common. Incentives such as refreshments should be provided to the

group to help them relax and participate in the interview (Allen et al., 2004). Patton (2002) explained that it is necessary to have different focus groups for a particular study to acquire a variety of perspectives and increase confidence in whatever perspectives emerge. Allen et al. (2004) also explained that multiple sessions must be used to acquire a cross section of views and to understand the perspectives from a diverse population, and the results might not be reliable if only a single group is used. Patton (2002) explained that it is valuable that the participants are able to hear each other's responses, and they can make additional comments beyond their original statements after they hear what others say about the particular topic. The participants do not have to agree or disagree with each other, and they do not have to reach a consensus on the topic (Patton, 2002). Patton (2002) stated that when using focus groups, "The object is to get high-quality data in a social context where people can consider their own views in the context of the views of others" (p. 386). Allen et al. (2004) explained that the moderator should allow the conversation to flow during the group's interview, but it is important to keep the group focused on the main topic, and this can be achieved by the researcher using an interview guide. The data should be collected through audiotapes and transcribed sessions (Allen et al., 2004). Allen et al. (2004) explained that focus groups will allow the researcher to understand themes or perspectives about a particular topic.

Focus groups are an excellent way for researchers to collect qualitative data. Allen et al. (2004) explained that focus groups are a useful way to collect data on a particular topic because these interviews allow the participants to basically say anything that they want during the interviews, and the researcher can not only listen to the content of their discussions, but he/she can hear their emotions, ironies, contradictions, and tensions about the topic. Allen et al. (2004) explained that this type of research tool allows the researcher to

not only learn the facts, but learn the meaning behind the facts, and the researcher gains valuable insight on the topic as a result of these focus group interviews. Patton (2002) identified the following advantages to using focus group interviews for qualitative research: (a) the data is cost effective – the researcher can gather information from eight people in one hour; (b) interactions among participants enhance data quality; (c) consistent thoughts, shared views, and or great diversity about the topic can be quickly assessed; and (d) focus groups tend to be enjoyable to participants because they draw on human tendencies. Allen et al. (2004) explained that focus groups are beneficial to researchers because, “In this way, focus groups elicit information that paints a portrait of combined local perspectives” (§ 8).

It is important for the researcher to have a good interview guide in order to conduct focus group interviews. According to Allen et al. (2004), “A well-designed guide assists the group members to relax, open up, think deeply, and consider alternatives. A good design also allows for synergy to occur, which produces greater insight due to the fact that participants work together during the session” (§ 16). The questions should be well-developed in the interview guide. Allen et al. (2004) explained that the questions should flow from general to specific, and they should invite openness and avoid bias. The researcher should develop the questions to generate responses that are thorough and well-thought out, and as Allen et al. (2004), the responses should not be a series of burst responses. As Allen et al. (2004) explained, the interview guide should not be structured in a manner such as a multiple choice test would be administered or a phone interview would be conducted, and the researcher should avoid sounding mechanical and list-like. The researcher should try to be as natural as possible when conducting the interviews, and he/she should use the guide to keep the participants’ responses focused throughout the interview.

In this particular study, the researcher used three focus groups. A qualitative approach was used to understand elementary, middle, and high school teachers' perspectives on the integration of technology at the school district level in terms of Collins' (2009) Technology Leadership, Management, and Policy Pyramid. As Patton (2002) and Allen et al. (2004) explained, it is important to use multiple focus group sessions to fully understand the perspectives on the topic. For this research design, three focus group interviews were used to fully understand the teachers' perspectives on the integration of technology in their school districts. The interview guide consisted of fifteen questions that were asked over the period of one 90 minutes (one hour and a half) to each group. The data was collected through two audiotape recorders and transcribed sessions.

Population

When conducting focus group interviews, the researcher must understand that it is basically a group interview (Allen et al., 2004). Allen et al. (2004) state the following, "If there's no group, there is no focus group" (¶ 8). Allen et al. (2004) explained that it is important to determine who will be a part of the group, and it is best to form a group based on similar characteristics. According to Allen et al. (2004), focus groups do not work well when researchers have a highly diverse group, so this is why the participants must have similar characteristics. "Composing a group with highly different characteristics will decrease the quality of the data. Individuals will tend to censor their ideas in the presence of people who differ greatly from them in power, status, job, income, education, or personal characteristics" (Allen et al., 2004, ¶ 11). When homogeneous groups are formed, the

participants will be more open to speak and share their opinions freely with one another and better data will be collected.

In this research design, three focus groups were used to understand elementary, middle, and high school teachers' perspectives on the integration of technology at the school district level in terms of Collins' (2009) Technology Leadership, Management, and Policy Pyramid. The first group consisted of teachers at the elementary level, the second group consisted of teachers at the middle school level, and the third group consisted of teachers from the high school level. All of these teachers were from the same school district. The researcher decided to use one district that was exceptional in technology to understand how to integrate technology in a successful manner, and the information learned through this research can help other school districts integrate technology successfully. The research subjects will be tenured teachers who integrate technology into their courses and currently teach at an Essex County public school district with a District Factor Group (DFG) of J.

The researcher contacted the Superintendent of the district via email and sent a letter explaining the study. Once an agreement was established, the researcher had phone conversations with the Superintendent and the Assistant Superintendent and acquired a signed letter of consent form on the school district's letterhead. The researcher then emailed an elementary school principal, the middle school principal, and the high school principal in the district explaining the purpose of the study. Once the principals granted permission for the research to be conducted in their schools, the researcher then contacted the principals via telephone conversations to obtain their help and cooperation in scheduling a day, time and location to conduct the interviews. Letters of solicitation were sent to random teachers in the three schools. The researcher used the principals as a contact person in each school, and the

teachers signed up for the study completely on a volunteer basis with these individuals. The researcher maintained phone conversations with the principals prior to the interviews to check the status of the volunteers who would be involved with the research. Informed consent forms were distributed on the day of each focus group interview, and the research subjects had to sign a copy of the form granting their permission to be involved in the research study. Copies of this signed form were then given to the teachers for their records.

Instrument Design

A predetermined question route that consisted of 15 questions was comprised to form the interview guide. According to Patton (2002),

“An interview guide lists the questions or issues that are to be explored in the course of an interview. An interview guide is prepared to ensure that the same basic lines of inquiry are pursued with each person interview. The interview guide provides topics or subject areas within which the interviewer is free to explore, probe, and ask questions that will illuminate a particular subject” (p. 343).

The researcher should ask the questions in a conversational manner to acquire the participants' perspectives on the issue, but he/she must keep the interview focused on the research topic. The interview guide was thoroughly planned well in advance of the study. An interview guide is important because it makes sure that the interviewer has carefully decided how to best use the limited time available in an interview before it takes place (Patton, 2002). As Allen et al. (2004) note, “A well designed guide assists group members to relax, open up, think deeply, and consider alternatives” (§ 14). The questions in the interview guide were asked to each focus group interview, and the time limit set for each

interview was a 90 minute (one hour and a half) discussion. The questions were arranged from general to specific to invite openness and avoid bias (Allen et al. 2004). The questions in the interview guide were formed to provide insight on the main research question and the six-sub research questions of this study. A few questions were written reflecting each sub-question to help the participants understand the topic and to help the researcher acquire the perspectives of the elementary, middle, and high school teachers on the integration of technology in their school district. Tables 1-6 reflect how the 15 questions correlate to the sub-research questions.

The questions in the interview guide were developed to provide the participants with the opportunity to freely discuss their opinions and understanding of the integration of technology in their school district. According to Patton (2002), the questions should be asked in a truly open-ended manner to enable the participants to respond in their own words. Patton (2002) explained that standard, fixed-response questions with choices, such as multiple choice questions, should be very limited in qualitative research because these questions do not fully allow the participants to provide their perspectives on the topic. These types of questions were avoided in this research design. "In qualitative inquiry, 'good' questions should, at a minimum, be open-ended, neutral, singular, and clear" (Patton, 2002, p. 353). Patton (2002) explained that the following types of questions are truly open-ended questions, and they provide the best data for qualitative research: How do you feel about ____, What is your opinion of ____, What do you think of ____? The questions in this research study were designed along these lines to be completely open-ended to allow the participants to provide their perspectives on the integration of technology in their district. Background questions were also asked to help the researcher learn some basic information

Table 1

Research Question 1

	How do elementary, middle, and high school teachers perceive the integration of technology in their school district in terms of the Technology Leadership, Management, and Policy Pyramid?
Q01: How does your district's technology plan address the following components of technology integration: integrating activities, maintenance activities, and planning activities?	X
Q02: Discuss the professional development opportunities provided by your district. For example, are they primarily hands-on or informational, how many occur per year, and who conducts these professional development opportunities (outside professionals, teachers, or curriculum specialists)?	X
Q03: Explain how these opportunities facilitate teachers in aligning the technology to the curriculum.	X
Q04: Evaluate if these professional development opportunities are useful and practical in helping teachers use the technology and integrate it into the classroom.	X
Q05: Please evaluate how your district provides technical support to maintain the infrastructure and address problems.	X
Q06: How is the technology support system/service for the district organized, and who is involved in the maintenance activities?	X
Q07: When there is a problem with the computer system, how long does it usually take before the repair is performed?	X
Q08: How do you perceive your school district in providing activities in planning for the future in terms of technology? Please be very specific.	X
Q09: Explain how your district's technology plan addresses the issue of "planning for the future" to ensure that the technology remains up-to-date in future years and how this is actually being accomplished in your district.	X
Q10: Overall, how would you describe the leadership in your district in supporting the integration of technology into the school buildings?	X
Q11: Specifically, how is the leadership in your district involved in the following areas of technology integration: (1) integrating activities, (2) maintenance activities, and (3) planning activities?	X
Q12: How is the leadership reflected in your school district's technology plan, and how is this communicated to the school communities?	X
Q13: How do you use technology in the classroom for instructional methods/teaching? Please be very specific.	X
Q14: Is there anything that you would like to add to the discussion to provide the researcher with additional insight on how your district integrates technology into the learning community?	X
Q15: In closing, identify one word that captures technology integration in your district.	X

Table 2

Research Question 2

	How do elementary, middle, and high school teachers perceive the Technology Leadership, Management, and Policy Pyramid as having an effect on their instructional methods?
Q01: How does your district's technology plan address the following components of technology integration: integrating activities, maintenance activities, and planning activities?	X
Q02: Discuss the professional development opportunities provided by your district. For example, are they primarily hands-on or informational, how many occur per year, and who conducts these professional development opportunities (outside professionals, teachers, or curriculum specialists)?	X
Q03: Explain how these opportunities facilitate teachers in aligning the technology to the curriculum.	X
Q04: Evaluate if these professional development opportunities are useful and practical in helping teachers use the technology and integrate it into the classroom.	X
Q05: Please evaluate how your district provides technical support to maintain the infrastructure and address problems.	
Q06: How is the technology support system/service for the district organized, and who is involved in the maintenance activities?	
Q07: When there is a problem with the computer system, how long does it usually take before the repair is performed?	
Q8: How do you perceive your school district in providing activities in planning for the future in terms of technology? Please be very specific.	
Q9: Explain how your district's technology plan addresses the issue of "planning for the future" to ensure that the technology remains up-to-date in future years and how this is actually being accomplished in your district.	
Q10: Overall, how would you describe the leadership in your district in supporting the integration of technology into the school buildings?	
Q11: Specifically, how is the leadership in your district involved in the following areas of technology integration: (1) integrating activities, (2) maintenance activities, and (3) planning activities?	X
Q12: How is the leadership reflected in your school district's technology plan, and how is this communicated to the school communities?	
Q13: How do you use technology in the classroom for instructional methods/teaching? Please be very specific.	X
Q14: Is there anything that you would like to add to the discussion to provide the researcher with additional insight on how your district integrates technology into the learning community?	
Q15: In closing, identify one word that captures technology integration in your district.	

Table 3

Research Question 3

	How do elementary, middle, and high school teachers perceive their school district in providing organizational integration activities (curriculum integration and staff development)?
Q01: How does your district's technology plan address the following components of technology integration: integrating activities, maintenance activities, and planning activities?	X
Q02: Discuss the professional development opportunities provided by your district. For example, are they primarily hands-on or informational, how many occur per year, and who conducts these professional development opportunities (outside professionals, teachers, or curriculum specialists)?	X
Q03: Explain how these opportunities facilitate teachers in aligning the technology to the curriculum.	X
Q04: Evaluate if these professional development opportunities are useful and practical in helping teachers use the technology and integrate it into the classroom.	X
Q05: Please evaluate how your district provides technical support to maintain the infrastructure and address problems.	
Q06: How is the technology support system/service for the district organized, and who is involved in the maintenance activities?	
Q07: When there is a problem with the computer system, how long does it usually take before the repair is performed?	
Q8: How do you perceive your school district in providing activities in planning for the future in terms of technology? Please be very specific.	
Q9: Explain how your district's technology plan addresses the issue of "planning for the future" to ensure that the technology remains up-to-date in future years and how this is actually being accomplished in your district.	
Q10: Overall, how would you describe the leadership in your district in supporting the integration of technology into the school buildings?	X
Q11: Specifically, how is the leadership in your district involved in the following areas of technology integration: (1) integrating activities, (2) maintenance activities, and (3) planning activities?	X
Q12: How is the leadership reflected in your school district's technology plan, and how is this communicated to the school communities?	X
Q13: How do you use technology in the classroom for instructional methods/teaching? Please be very specific.	
Q14: Is there anything that you would like to add to the discussion to provide the researcher with additional insight on how your district integrates technology into the learning community?	
Q15: In closing, identify one word that captures technology integration in your district.	

Table 4

Research Question 4

	How do elementary, middle, and high school teachers perceive their district in providing maintenance activities?
Q01: How does your district's technology plan address the following components of technology integration: integrating activities, maintenance activities, and planning activities?	X
Q02: Discuss the professional development opportunities provided by your district. For example, are they primarily hands-on or informational, how many occur per year, and who conducts these professional development opportunities (outside professionals, teachers, or curriculum specialists)?	
Q03: Explain how these opportunities facilitate teachers in aligning the technology to the curriculum.	
Q04: Evaluate if these professional development opportunities are useful and practical in helping teachers use the technology and integrate it into the classroom.	
Q05: Please evaluate how your district provides technical support to maintain the infrastructure and address problems.	
Q06: How is the technology support system/service for the district organized, and who is involved in the maintenance activities?	
Q07: When there is a problem with the computer system, how long does it usually take before the repair is performed?	X
Q8: How do you perceive your school district in providing activities in planning for the future in terms of technology? Please be very specific.	X
Q9: Explain how your district's technology plan addresses the issue of "planning for the future" to ensure that the technology remains up-to-date in future years and how this is actually being accomplished in your district.	X
Q10: Overall, how would you describe the leadership in your district in supporting the integration of technology into the school buildings?	
Q11: Specifically, how is the leadership in your district involved in the following areas of technology integration: (1) integrating activities, (2) maintenance activities, and (3) planning activities?	X
Q12: How is the leadership reflected in your school district's technology plan, and how is this communicated to the school communities?	
Q13: How do you use technology in the classroom for instructional methods/teaching? Please be very specific.	
Q14: Is there anything that you would like to add to the discussion to provide the researcher with additional insight on how your district integrates technology into the learning community?	
Q15: In closing, identify one word that captures technology integration in your district.	

Table 5

Research Question 5

	How do elementary, middle, and high school teachers perceive their district in providing planning activities?
Q01: How does your district's technology plan address the following components of technology integration: integrating activities, maintenance activities, and planning activities?	X
Q02: Discuss the professional development opportunities provided by your district. For example, are they primarily hands-on or informational, how many occur per year, and who conducts these professional development opportunities (outside professionals, teachers, or curriculum specialists)?	
Q03: Explain how these opportunities facilitate teachers in aligning the technology to the curriculum.	
Q04: Evaluate if these professional development opportunities are useful and practical in helping teachers use the technology and integrate it into the classroom.	
Q05: Please evaluate how your district provides technical support to maintain the infrastructure and address problems.	
Q06: How is the technology support system/service for the district organized, and who is involved in the maintenance activities?	
Q07: When there is a problem with the computer system, how long does it usually take before the repair is performed?	
Q08: How do you perceive your school district in providing activities in planning for the future in terms of technology? Please be very specific.	X
Q09: Explain how your district's technology plan addresses the issue of "planning for the future" to ensure that the technology remains up-to-date in future years and how this is actually being accomplished in your district.	X
Q10: Overall, how would you describe the leadership in your district in supporting the integration of technology into the school buildings?	X
Q11: Specifically, how is the leadership in your district involved in the following areas of technology integration: (1) integrating activities, (2) maintenance activities, and (3) planning activities?	X
Q12: How is the leadership reflected in your school district's technology plan, and how is this communicated to the school communities?	
Q13: How do you use technology in the classroom for instructional methods/teaching? Please be very specific.	
Q14: Is there anything that you would like to add to the discussion to provide the researcher with additional insight on how your district integrates technology into the learning community?	
Q15: In closing, identify one word that captures technology integration in your district.	

Table 6

Research Question 6

	How do elementary, middle, and high school teachers perceive the leadership in their school district in regard to all sides of the Technology Leadership, Management, and Policy Pyramid?
Q01: How does your district's technology plan address the following components of technology integration: integrating activities, maintenance activities, and planning activities?	X
Q02: Discuss the professional development opportunities provided by your district. For example, are they primarily hands-on or informational, how many occur per year, and who conducts these professional development opportunities (outside professionals, teachers, or curriculum specialists)?	
Q03: Explain how these opportunities facilitate teachers in aligning the technology to the curriculum.	
Q04: Evaluate if these professional development opportunities are useful and practical in helping teachers use the technology and integrate it into the classroom.	
Q05: Please evaluate how your district provides technical support to maintain the infrastructure and address problems.	
Q06: How is the technology support system/service for the district organized, and who is involved in the maintenance activities?	
Q07: When there is a problem with the computer system, how long does it usually take before the repair is performed?	
Q8: How do you perceive your school district in providing activities in planning for the future in terms of technology? Please be very specific.	
Q9: Explain how your district's technology plan addresses the issue of "planning for the future" to ensure that the technology remains up-to-date in future years and how this is actually being accomplished in your district.	
Q10: Overall, how would you describe the leadership in your district in supporting the integration of technology into the school buildings?	X
Q11: Specifically, how is the leadership in your district involved in the following areas of technology integration: (1) integrating activities, (2) maintenance activities, and (3) planning activities?	X
Q12: How is the leadership reflected in your school district's technology plan, and how is this communicated to the school communities?	X
Q13: How do you use technology in the classroom for instructional methods/teaching? Please be very specific.	
Q14: Is there anything that you would like to add to the discussion to provide the researcher with additional insight on how your district integrates technology into the learning community?	
Q15: In closing, identify one word that captures technology integration in your district.	X

about the participants. The participants (elementary, middle, and high school teachers) were asked to complete a five question form that consists of background questions so the researcher would learn some basic information about the subjects. A form was used to save valuable time to enable the 15 questions to be asked during the focus group interviews. Patton (2002) explained that it is okay and important to ask background questions such as age, education, occupation, and the like to help the researcher identify characteristics of the participants being interviewed.

The entire discussion for each focus group interview was recorded using two audiotape recorders, and permission was granted from the participants prior to the group interview. Confidentiality was assured by the use of tent cards for each participant, and each person in the group was identified by a letter. The participating teachers had the option to withdraw from the group at any time; however, the information from previous questions could still be used as data from the focus group interviews. The researcher was relaxed and cordial to help the elementary, middle, and high school teachers remain calm, want to continue with the interview, and to enable them to provide their best responses in a relaxed, non-threatening environment; he wanted to establish a good rapport with the interviewees. The participants were also given a stamped, addressed envelope to provide the researcher with any additional information on the integration of technology in their school district after the interview was conducted.

Research Procedures and Techniques for Data Collection

Berkowitz (2007) explained that when conducting focus groups, many details need to be planned in advance of the interviews such as the participants that will be part of the group, the incentives that will be used to entice the people to be a part of the group, the questions that will be asked, the details on where the group will meet, when the meeting will take place, and how long the interviews will last. McNamara (1997-2006) noted that in planning the session; the researcher must think about scheduling, the setting and refreshments; establishing some basic ground rules such as (a) keep focused, (b) maintain momentum, and (c) get closure on questions; form the agenda of the meeting; review the membership of the group; and plan to record the session with an audio or video recorder. McNamara (1997-2006) provided the following recommendations for facilitating focus group sessions,

“(1)Major goal of facilitation is collecting useful information to meet goal of meeting, (2) introduce yourself and the co-facilitator, if used, (3) explain the means to record the session, (4) carry out the agenda, (5) carefully word each question, (6) after each question is answered, carefully reflect back a summary of what you heard, (7) ensure even participation, and (8) closing the session – tell members that they will receive a copy of the report generated from their answers, thank them for coming, and adjourn the meeting” (¶ 5).

After the meeting is over, the researcher must perform certain steps to ensure that the data was collected. McNamara (1997-2006) recommended that the following steps must be taken immediately after the session, “(1) Verify if the tape recorder, if used, worked throughout the session, (2) make any notes on your written notes, and (3) write down any observations made

during the session” (¶ 6). Focus groups can be a valuable way to conduct research with human subjects if they are planned in advance and properly conducted.

The researcher scheduled the focus interviews with the elementary, middle, and high school principals in the district. All of the principals scheduled a private room in their schools to be used for the interviews, and it was determined that the meetings would take place after school at approximately 3:30 PM. The focus group interviews were scheduled not to interfere with any activities in the district or individual schools. The Middle School Focus Group Interview took place on May 12, 2008, the High School Focus Group Interview was conducted on May 28, 2008, and the Elementary School Focus Group Interview occurred on June 3, 2008.

During the focus group interviews, the researcher was cordial and met the participants, and he provided all of the groups with some refreshments. He established a friendly relationship with the groups. He allowed the people to take their own seats, but he seated the group in a “U” configuration so that everyone could see and hear one another (Youberg, 2007). The researcher then introduced himself, thanked the participants for being a part of the group, reviewed the purpose of the research, and set the tone for the meeting (Berkowitz, 2007). Each of the participants were provided with a card to identify themselves through letters (e.g. A, B, C, D, etc.) and their names were written inside of the cards (McNamara, 1997-2006). The time limit for the meeting was disclosed, and the researcher explained to the groups that the sessions were going to be taped using two audiotape recorders, (McNamara, 1997-2006). The researcher explained to the people that their participation in the groups was completely voluntary.

Consent forms were used to gain the permission of participants to use their responses for the researcher to understand how technology is integrated in their district. Each participant had to sign a consent form at the beginning of the sessions. The consent forms outlined the structure of the interview, the protocol for data collection, and the rights' of the participants. The form addressed the issue of confidentiality and how it would be maintained.

Twenty questions were asked over the period of 90 minutes. The questions were open-ended that allowed the participants to say whatever they felt about the topic. All of the questions were designed to reveal information about the integration of technology in their district in terms of Collins' (2009) Technology Leadership, Management, and Policy Pyramid. The researcher tried to maintain even participation throughout the group (McNamara, 1997-2006). The researcher listened to the responses and determined when it was appropriate to move on to the next question. After each question, the researcher briefly summarized the main ideas of each participant (McNamara, 1997-2006).

At the end of the focus group interviews, the researcher asked the participants if they wanted to add anything to the discussion to provide the researcher with additional insight on how their district integrates technology in terms of Collins' (2009) Technology Leadership, Management, and Policy Pyramid. The researcher then briefly summarized the viewpoints of each participant, and thanked everyone for being a part of the group (McNamara, 1997-2006). The researcher also provided each member of the groups with a stamped, addressed envelope if they wanted to provide any additional information on this topic that they did not share during the focus group interviews. Finally, each focus group was notified that they

Table 7

Age Range of Participants

Age Ranges:	Number of Participants:
22-30 Range	7 Teachers
31-40 Range	5 Teachers
41-50 Range	4 Teachers
Over 50 Range	11 Teachers
Total # of Teacher Participants:	27 Teachers

Total years of teaching ranged from 1 to 45 years with a mean of 14.19 years (see Table 8).

Table 8

Total Number of Years Teaching for Participants

Total # of Years Teaching Ranges:	Number of Participants in Ranges:
1-5 Years	6 Teachers
6-10 Years	6 Teachers
11-15 Years	5 Teachers
16-20 Years	5 Teachers
21-25 Years	1 Teacher
26-40 Years	1 Teacher
31-35 Years	2 Teachers
36-45 Years	1 Teacher
Total # of Teacher Participants:	27 Teachers

Total years of teaching in the district ranged from 1 to 45 years with a mean of 10.22 years (see Table 9).

Table 9

Total Number of Years Teaching in the District for Participants

Total # of Years Teaching in the District Ranges:	Number of Participants in Ranges:
1-5 Years	11 Teachers
6-10 Years	6 Teachers
11-15 Years	5 Teachers
16-20 Years	2 Teachers
21-25 Years	1 Teacher
26-40 Years	1 Teacher
31-35 Years	0 Teachers
36-45 Years	1 Teacher
Total # of Teacher Participants:	27 Teachers

Jury of Experts

A jury of experts was used to validate the data collection instrument. Four experts were used for this process. The jury of experts consisted of an assistant superintendent for curriculum and instruction in a J district and former director of technology, a college professor in the area education who spent many years of his life dealing with technology integration and preparing administrators in this area, a science teacher and former chairperson who was involved with technology integration, and a science teacher who frequently incorporates technology into his classes for instructional purposes. Each person

was sent an email of the six main research questions and the actual data collection instrument, and the researcher either met or phoned these people to discuss the purpose of the research. The data collection instrument was sent in the form of a table that aligned the six main research questions to the focus group interview questions. The jury was asked to carefully review the instrument to ensure that it was a valuable and realistic data collection tool. The jury had to explain their perceptions of the instrument in writing via email. The researcher then met or phoned the experts to review their perceptions of this tool and to hear their suggestions to make it a valid instrument. These experts ensured that the data collection instrument was valid and reliable for the purpose of this study. Their suggestions were used to refine the instrument to improve the accuracy of this instrument and minimize bias.

Data Collection

The researcher conducted three focus group interviews with teachers in one school district that is exceptional in technology. The first focus group interview was conducted with teachers at the elementary school level, the second focus group interview was conducted with teachers at the middle school level, and the third focus group interview was conducted with teachers at the high school level. Open-ended questions were asked, and the participants were asked to respond at their own will to these questions. The researcher was relaxed and cordial to make the groups feel comfortable during the discussions, and he kept the groups focused on the questions during the interviews. The participants were encouraged to add additional comments to their original statements as they heard the other people in their group speak. The researcher explained that he would analyze their statements to understand how technology was being integrated into their school district. Two audiotape recorders were

used to tape the focus group interviews, and the researcher then transcribed the interviews from the audiotapes. The transcribed interviews were used for data analysis purposes.

Data Analysis

The researcher reviewed all of the responses to the questions by reviewing the transcribed focus group interviews. In doing this, the researcher looked at the transcripts to see what patterns emerged, common themes, new questions that came about from the discussions, and the conclusions that seem to be true (Berkowitz, 2007). Allen et al. (2004) explained that, "A report based on focus groups will feature patterns formed by words, called themes or perspectives" (¶ 19). In this case, the researcher analyzed the participants of the focus groups to see the themes that emerged regarding the integration of technology in their district regarding Collins' (2009) Technology Leadership, Management, and Policy Pyramid.

In reviewing the interview guide, specific questions were asked to in different ways to help the researcher understand the integration of technology in terms of specific research questions. Tables 1 through 6 feature an overview of the primary research questions and their alignment with the fifteen questions that were part of the interview guide used during the focus groups. Questions 1-15 pertain to research question 1 to unearth information about how teachers perceive the integration of technology in their school district in terms of the Technology Leadership, Management, and Policy Pyramid. Questions 1, 2, 3, 4, 11, and 13 pertain to research question 2 to uncover information about how teachers perceive the Technology Leadership, Management, and Policy Pyramid as having an effect on their instructional methods. Questions 1, 2, 3, 4, 10, 11, and 12 pertain to research question 3 to reveal how teachers perceive their school district in providing organizational integration

activities (curriculum integration and staff development). Questions 1, 7, 8, 9, and 11 pertain to research question 4 to learn about how teachers perceive their district in providing maintenance activities. Questions 1, 8, 9, 10, and 11 pertain to research question 5 to discover how teachers perceive their district in providing planning activities. Finally, Questions 1, 10, 11, 12, and 15 pertain to research question 6 to explain how teachers perceive the leadership in their school district in regard to all sides of the Technology Leadership, Management, and Policy Pyramid.

The researcher reviewed all of the participants' responses to the fifteen questions asked during the focus group interviews and aligned the questions and responses to the primary research questions as identified in Tables 1 to 6. The researcher then revealed common patterns and themes from the responses to understand the integration of technology across the district in terms of Collins' (2009) Technology Leadership, Management, and Policy Pyramid. Chapter 4 contains a discussion of the research findings.

Summary

With the approval of Seton Hall University's Institutional Review Board, the researcher conducted three focus group interviews comprised of 27 elementary, middle school, and high school teachers from a school district in Essex County with a District Factor Group of J. The focus groups were conducted to determine the teachers' perceptions of the integration of technology in their district in terms of Collins' (2009) Technology Leadership, Management and Policy Pyramid. The questions asked in these interviews were test piloted by a jury of experts that consisted of an assistant superintendent for curriculum and instruction in a J district and former director of technology, a college professor in the area

education who spent many years of his life dealing with technology integration and preparing administrators in this area, a science teacher and former chairperson who was involved with technology integration, and a science teacher who frequently incorporates technology into his classes for instructional purposes. The pilot group members were not associated with or were part of the focus groups. All jury members agreed that the questions aligned with the researcher's topic and were well stated. They also offered suggestions to improve the questions, and the researcher revised the questions based on their recommendations.

The researcher then analyzed the written transcripts from the three focus group interviews in search of common themes and patterns that would help depict their perceptions about the integration of technology in their district in terms of Collins' (2009) Technology Leadership, Management and Policy Pyramid. Thorough interpretations explaining the findings, attaching significance to particular results, and arranging patterns into an analytical framework were completed from analyzing the common themes and patterns that emerged from the transcripts. The transcripts from the three focus group interviews are included in Appendix B. A discussion of the research findings are in Chapter IV.

Chapter IV

RESEARCH FINDINGS

Introduction

The purpose of this study was to analyze the integration of technology at the school district level. Collins' (2009) Technology Leadership, Management, and Policy Pyramid was the conceptual framework that was used in this research. This pyramid has the following, three sides: Organizational Integration Activities, Maintenance Activities, and Planning Activities. According to this conceptual framework, schools need to utilize all of the following components of the pyramid in their vision in order to attain excellence in educational technology: (a) provide activities in organizational integration, (b) provide activities in maintaining the infrastructure, and (c) provide activities in planning for the future. Collins (2009) notes that all of these steps must be done simultaneously with committed leadership in order to see improvement and attain excellence. The researcher hopes that the information learned from this study can be of value to benefit other school districts as they begin to integrate technology into their learning communities.

The researcher utilized qualitative measures in this study to capture the perceptions of elementary, middle, and high school teachers in regard to the integration of technology in their district in terms of Collins' (2009) Technology Leadership, Management, and Policy Pyramid. A qualitative approach was necessary to understand the perceptions of these individuals because after all, the teachers are the primary people who are working with the students on a daily basis and are using the technology to enhance instructional methods, so their insight was extremely valuable to shed light on this issue. In a sense, they were able to

explain the integration of technology at the district level through their own experiences with the district and how all of this was being carried out at the classroom level. A structured interview protocol that consisted of 15 questions was used in this study to understand the integration of technology at the district level in terms of Collins' (2009) Technology Leadership, Management, and Policy Pyramid. The researcher asked follow-up questions and clarified the responses of the participants (elementary, middle, and high school teachers) to ensure that their responses were understood. The interviews were tape recorded and then transcribed. The researcher reviewed the audio tapes and the transcribed sessions to reveal common themes and patterns that emerged from the discussions to provide insight on the research questions in this study. The following research questions were addressed in this study:

1. How do elementary, middle, and high school teachers perceive the integration of technology in their school districts in terms of the Technology Leadership, Management, and Policy Pyramid?
2. How do elementary, middle, and high school teachers perceive the Technology Leadership, Management, and Policy Pyramid as having an effect on their instructional methods?
3. How do elementary, middle, and high school teachers perceive their school district in providing organizational integration activities (curriculum integration and staff development)?
4. How do elementary, middle, and high school teachers perceive their school district in providing maintenance activities?

5. How do elementary, middle, and high school teachers perceive their school district in providing planning activities?

6. How do elementary, middle, and high school teachers perceive the leadership in their school district in regards to all sides of the Technology Leadership, Management, and Policy Pyramid?

Results of Discussions

Research Question 1

How do elementary, middle, and high school teachers perceive the integration of technology in their school district in terms of the Technology Leadership, Management, and Policy Pyramid?

The main purpose of this first research question was to gain an overall sense of the integration of technology in the district in terms of the Technology Leadership, Management, and Policy Pyramid. The responses from questions 1-15 (see Appendix A and B) of the question route pertain to Research Question 1. Since all of these questions will be revisited again in more detail through the other research questions, the researcher will only provide a quick summary of the main responses to these questions to unearth this information.

The first question asked was, “How does your district’s technology plan address the following components of technology integration: integrating activities, maintenance activities, and planning activities?” The majority of the teachers did not know what was in their district’s technology plan, but they were happy to share many strengths of what was happening with technology in their district in terms of integration, maintenance, and planning activities. The teachers spent a great deal of time discussing how they integrate technology

into their classes and how fantastic the support systems are in their district. Two technology teachers were the only people who really knew anything about the actual technology plan. They explained that the individual departmental supervisors and the district's technology instructor handle the integration component, and the technology department deals with the maintenance and planning activities.

The second question asked was, "Discuss the professional development opportunities provided by your district. For example, are they primarily hands-on or informational, how many occur per year, and who conducts these professional development opportunities (outside professionals, teachers, or curriculum specialists)?" The majority of the teachers were very pleased and enthusiastic about the professional development opportunities provided by their district, and they explained that the district employs a full-time person to work with all of their needs and problems regarding technology. Several courses are offered throughout the year and the summer to help the teachers to properly integrate technology into their classes. It was very clear that the district has a very strong professional development program in place.

The third question asked was, "Explain how these opportunities facilitate teachers in aligning the technology to the curriculum." Many of the elementary school teachers thought that these opportunities are very helpful in aligning the technology to their curriculum, but the middle school teachers did not agree with this. The majority of the middle school teachers felt that they did not take the time to analyze how to integrate a lot of technology into their classes. They explained that they have a tremendous amount of support in learning the technology, but they thought it would be a great idea to have someone in place to help

them learn how to integrate it into their classes. Many of the high school teachers did not comment on this issue.

Question 4 asked, "Evaluate if these professional development opportunities are useful and practical in helping teachers use the technology and integrate it into the classroom." Many of the elementary and high school teachers felt that these opportunities are useful, but they wished that they had follow-up courses to help them when it was actually time to use the technology in the classroom. They found that they are sometimes a bit overwhelming because there is so much information to learn, and they sometimes forget some of the information, especially if they don't use it for a long period of time. The middle school teachers felt that the courses are helpful, but access to the technology is sometimes difficult, and it is not easy for teachers who travel from room to room to use it on a regular basis.

Question 5 addressed the concept of technical support. "Please evaluate how your district provides technical support to maintain the infrastructure and address problems." The majority of the teachers agreed that the technical support is fantastic in their district. They have a strong system in place to address the problems with the district's computers. For example, there is an online work order system with various levels of troubleshooting. The computer teachers in the building deal with the issue first, and then the district has four full-time technicians to deal with the problems.

Question 6 asked, "How is the technology support system/service for the district organized, and who is involved in the maintenance activities?" The teachers said that there is a director of technology, and he is the one who is responsible for assigning the maintenance activities. The district also has the technicians who do the actual repairs and maintain the

system, and then there are the computer teachers. There is an online work order system in place.

For question 7, “When there is a problem with the computer system, how long does it usually take before the repair is performed?” The majority of the teachers agreed that the district works very well in repairing their problems, and it is generally done very quickly. Loaner laptops are available while their repairs are being made if their computers must be sent out for the repair.

Question 8 dealt with the concept of planning for the future. “How do you perceive your school district in providing activities in planning for the future in terms of technology? Please be very specific. The elementary school teachers spoke about having more things computerized in the future in terms of mailings and the district’s web site as a way to provide information to the parents and the students. They see this as a way to also help the environment. The middle school teachers explained that their district is trying to replace old equipment, as many of the teachers have old laptops and desktop computers in their classrooms, but they see the process bound by financial issues. However, this appears to be a top priority for the district. Many of the teachers were recently sent an email asking them if they needed their laptop replaced. The high school teachers see that the district is planning for the future, but they are sometimes embracing policies before they determine whether or not they are truly beneficial.

Question 9 asked, “Explain how your district’s technology plan addresses the issue of “planning for the future” to ensure that the technology remains up-to-date in future years and how this is actually being accomplished in your district.” Many of the teachers did not know what was in their district’s technology plan, so it was a little difficult for them to answer this

question. One of the elementary school teachers who is a member of the technology department explained that there is a 5 year replacement plan for the computers in the libraries and the various labs throughout the district, but there is no plan to replace classroom' computers. The classrooms acquire the old computers from the labs and libraries. However, the 5 year replacement plan for the libraries and labs all depends upon the district's budget. One of the middle school teachers was on a technology committee at one point, and this teacher was able to confirm this information. The high school teachers really could not comment on this issue.

Question 10 addressed the issue of leadership and technology. "Overall, how would you describe the leadership in your district in supporting the integration of technology into the school buildings?" The majority of teachers felt that technology is very important to the administration, but the leadership needs to be improved to better integrate technology into the district. Some of the teachers felt that the leadership was bound by the budget.

Question 11 was also dealt with the issue of leadership. This question asked, "Specifically, how is the leadership in your district involved in the following areas of technology integration: (1) integrating activities, (2) maintenance activities, and (3) planning activities?" Many of the teachers agreed that the leadership needs to be improved. The teachers explained that the technology department does all of the maintenance and the planning, but only a few of the subject area supervisors are truly involved with integrating technology into their curricula. Many of the teachers stated that they do not see clear leadership in this area.

Question 12 asked, "How is the leadership reflected in your school district's technology plan, and how is this communicated to the school communities?" This question

was difficult for the teachers to answer because they did not have knowledge of their plan. However, the elementary teacher who is part of the technology department explained that once the long range plan is completed, the supervisors and the building principals are given a presentation about the plan. The principals and supervisors are asked to have their faculty embrace the technology. One of the middle school teachers explained that some of the plan is explained to the community through various “Web Nights” held every so often for the various departments to explain what they have been doing with technology.

Question 13 dealt with the issue of technology and instructional methods. The question asked, “How do you use technology in the classroom for instructional methods/teaching? Please be very specific.” Many of the teachers at all levels explained various ways in which they use technology in the classroom. Many of the uses ranged from PowerPoint presentations, podcasts, use of the Internet for research and presentations, Excel, use of probes in science, for showing video and other audiovisual uses, and other applications. The teachers used the technology in very creative ways. Some of the veteran teachers admitted that they hardly ever use technology in their classes.

Question 14 asked, “Is there anything that you would like to add to the discussion to provide the researcher with additional insight on how your district integrates technology into the learning community?” One elementary teacher explained that it is very important to talk about technology, and they gain valuable ideas from the discussions. Many of the middle school teachers agreed that they would like to do more with technology, but they are sometimes confronted with budgetary and access constraints. Some of the high school teachers explained that they do not have the time to learn all of the technology and

implement it into their courses, and when they use it, it is always on their free time. They said that the technology takes up too much of their free time.

Question 15 asked, "In closing, identify one word that captures technology integration in your district." The majority of the teachers felt that the integration of technology in their district was exceptional or evolving to become exceptional. A few of the teachers had negative perceptions regarding technology in their district. Here are some of the positive words that the teachers used to describe technology in their district: exponential, exciting, progressive, supportive, and well-intentioned. The following words were used to describe that the technology in this district is on the way to becoming exceptional: moving forward, evolving, advancing, increasing, and progressing. The following words were used to describe a few of the teachers' negative perceptions regarding technology integration in their district: slow, secondary, needs improvement, struggling in some ways, and uneven. Overall, it appeared that the majority of the teachers had many positive things to say about the integration of technology in their district and recognized that it is evolving all of the time.

Brief Summary of the Results of Question 1

Overall, the majority of the teachers are pleased with the integration of technology in their district, and they feel that they are ahead of other districts. They also see that improvements are needed in certain areas. They see that leadership is present, but it also needs improvement to make the integration of technology even stronger in their district. In terms of organizational integration activities, the teachers agreed that there are strong professional development opportunities in place with hands-on activities, the district employs a full-time trainer to instruct the teachers with technology through courses and individual

lessons, and a peer leader group consisting of students is available to train the teachers in this area. It is apparent that many of the teachers involved with this study want to use technology in the classroom to support their lessons, and many of them are already embracing it in creative ways. The teachers would like to improve the area of integrating activities by having more time and opportunities to learn how to integrate technology into their courses and align it to the curriculum, and they would like more follow-up courses to review and practice the material that they learned in previous courses. Overall, the teachers were pleased with the manner in which maintenance issues are addressed in their district. In terms of maintenance activities, there is a basic 5-year maintenance plan in place, routine maintenance is performed to the system, extensive maintenance is performed to the system over the summer, there is a great electronic work order system in place, repairs are performed very quickly, there is a strong support system in place, and the district has a fine technology department to address and repair the problems with the technology. In terms of planning activities, the teachers explained that it is done on a 5-year replacement plan for the labs and libraries throughout the district, but there is no clear plan in place for the classrooms. The classrooms acquire the older equipment from the labs and libraries on a random basis when these rooms receive new equipment. Many of the teachers would like to see a plan developed for the classrooms, and they would like more people to be involved with the planning process throughout the district. Many of the teachers were also not familiar with what was in their district's technology plan, and they agreed that this plan should be better communicated throughout the district.

Research Question 2

How do elementary, middle, and high school teachers perceive the Technology Leadership, Management, and Policy Pyramid as having an effect on their instructional methods?

The responses from questions 1, 2, 3, 4, 11, and 13 (see Appendix A and B) of the question route pertain to Research Question 2.

Question 1 from the question route asked, “How does your district’s technology plan address the following components of technology integration: integrating activities, maintenance activities, and planning activities?” Many of the teachers were not familiar with their district’s technology plan except for the computer teachers, but they were happy to explain their perceptions of what was happening in the district in terms of technology. One elementary teacher who is a computer teacher stated,

“I was going to say that I think I am the only person who has seen the district’s technology plan. So our integrating activities are really a composite of things. Um, the plan addresses technology instruction in the district. We’re very fortunate that we have technology classes K through 7, and then there are electives K-12. So the plan addresses those core curricular classes. Um, the maintenance activities are on a five year replacement plan, and the planning activities are also on a 5 year plan.” It is important to note that the plan covers all three areas of the Technology Leadership, Management, and Policy Pyramid: integration, planning, and maintenance. Another elementary teacher stated that, “Um, I also find that, um, the technology program, um, also tries to coordinate with the media, where quite a bit of computer usage occurs also, and that they try and match what is being done at grade level, so that there is integration of what is

happening in the classroom, the subjects that are going on in the classroom happen in those rooms as well.” The majority of teachers at all levels discussed positive things that are happening in the district such as a strong professional development program, a support person who is available all of the time for assistance, a peer leader group which consists of the students teaching the faculty about the technology, and many creative things that they use computers for in their own classrooms. Another elementary teacher explained that, “My impression is that the technology program has two components, one – towards increasing the knowledge for the students, and then also for the teachers. It’s really both ways.”

Question 2 of the question route asked, “Discuss the professional development opportunities provided by your district. For example, are they primarily hands-on or informational, how many occur per year, and who conducts these professional development opportunities (outside professionals, teachers, or curriculum specialists)?” All of the teachers had fantastic things to say about the professional development opportunities offered in their district. This was one area that the teachers loved to talk about. It is apparent that the district employs a full-time person to provide staff development all year long and to help the teachers solve their problems to implement technology into the classroom. The teachers explained that there are opportunities for everyone at various levels. One middle school teacher stated that, “There’s one, um, teacher in the Board Office who is her full time job to do professional development training for teachers, and she does a fabulous job, and she’s been doing it for many, many years, and I think, you know, that might be one of the main reasons why I think our district might be ahead in that area of technology.” Most of the courses are taught by the district’s full-time instructor, but sometimes outside professionals are asked to conduct the workshops. When questioned about this, another middle school teacher stated that, “There

are some. Um, and all of the one's that I've gone to have been hands-on. And since we each do have our own computers, um, you bring your computer and they teach you how to function on your own computer." In addition to formal courses, the technology instructor also provides individual support. For example, a high school teacher explained that,

"Our, our technology educator at the Board of Ed is always available to help with any applications or any kind of, um, learning new applications, and I was just there yesterday asking how to be able to put up a website online for, um, a visual, a graphics program, a website, so, a gallery-like style, which is, I have an appointment, so, it's easy. We ask her, then she schedules you and will help you."

A middle school teacher elaborated on this point and explained that,

"In addition to the more formal workshop, she also provides the time, I believe, in each of the buildings in the district where she just kind of sits in the teachers' room or library as a trouble-shooting session so then we know that she is in the building, and during, you know, any moments that we have off, we can go to her and get specific questions answered. So she makes herself readily available. It's not just a formal workshop."

Some of the students are also involved in assisting the faculty in understanding the technology through a peer leader group which is supported by the district. The students volunteer to do this, and they are very helpful to the teachers. One teacher stated, "I have taken these courses, attended those, and had one-on-one attention to learn." The professional development opportunities provided by this district are outstanding.

Question 3 asked, "Explain how these opportunities facilitate teachers in aligning the technology to the curriculum." The high school teachers really did not comment on this

question, but the elementary and middle school shared valuable perspectives. One of the elementary school teachers who is a member of the technology department explained that during these opportunities, they are often planning the curriculum, and the computer is used as a valuable tool to find research available for staff. This teacher also stated that their department is also aware of what everybody is teaching in the classroom, and then they align the technology with their curriculum. Another elementary school teacher involved with technology stated,

“I kind of look at it from a little different perspective because of my position and in my technology integration, I’m really trying to create more of a performance-task assessment or an authentic assessment. I’m trying to move away from the pencil and paper test and get teachers to accept PowerPoint projects or um, photo essays, that kind of, um, product as an assessment, rather than just kind of testing at the end of a chapter with a paper and pencil.”

Many of the middle school teachers agreed that they would like to do more with technology, but they stated that they would be better served if they had more opportunities that helped them integrate it into the classroom in addition to the “instructional” professional development opportunities provided by their district. One middle school teacher stated,

“It would be really helpful to have someone that could give us, that could actually help us integrate the technology even more organically so it would be a natural flow, like sometimes you have to kind of have to stop, like you said you have to stop, do the technology part and come back. Like, it would be great to have something to make it more natural flowing.”

Another middle school teacher explained that it would be great if they had some in-service days to help them do this, and this teacher thought that it might be a good thing to suggest to their administration. She explained that the administration is always looking for meaningful topics for these in-service days that their faculty would like to do.

Question 4 asked, "Evaluate if these professional development opportunities are useful and practical in helping teachers use the technology and integrate it into the classroom." The majority of the teachers at all levels thought that the professional development opportunities are really fantastic in their district, but they find that if they do not immediately use the technology, they sometimes forget it or forget how to use it when it is time for use in the classroom. Here is what an elementary school teacher stated,

"Sometimes, um, yeah, I have found that I have gone down to the district for, um, different things of learning how to use them, and so, I mean it's great, but unfortunately, you learn it in isolation. I understand it when I'm there, I've got it! (laughter). But then, when I come back, and I'm now trying to use it in the classroom and/or teach it, it can often become overwhelming. I know that we've discussed this before that, you know, as the teacher, you almost have to say, I don't know, you have to be comfortable enough to say that I don't know how to do this, and um, that can be really difficult, and you know, like I said, I know it when I'm there, but when I come back, I don't always find that I am capable of integrating it into the classroom and the same high level that I thought I was going to."

A middle school teacher agreed with this statement,

"The training that I have had from the district has been exactly on target, like, it's exactly what I need to know, just the notes I need to know, very hands-on, very

focused, really the teacher is doing an excellent job of doing that, um, very practical.

And then the one issue probably is if you don't get a chance to use it right away because there isn't access to computers, then you forget it (laughs), you know, like so, so that's, you know, probably the biggest issue."

There is so much information presented in these courses that the teachers often forget it or would like a follow-up course. A high school teacher also agreed by stating,

"I mean, cause it's funny, every time I took a course over at the Board of Education, they ask you for an evaluation, and we say that we need a follow up course (laughter) because it is just so much information, and I don't tend to use it that often, um, that I wind up forgetting by the time that I actually want to use it. So, but I also know that I can call the director of the technology or whatever she is, the teacher of the technology, and she will come over, as she did with Ed-Line. She was available on several days this fall, those who used Ed-Line, that if you wanted to, if you were having problems, she was in the library all day long, so you could go in at any time on a series of days, and go to her with your problems."

The teachers are pleased with the professional development opportunities provided by their district, but many of them would like more opportunities to integrate, perfect, and practice their skills.

Question 11 of the interview asked, "Specifically, how is the leadership in your district involved in the following areas of technology integration: (1) integrating activities, (2) maintenance activities, and (3) planning activities?" The majority of the teachers agreed that the leadership needs to be improved in terms of the integration of technology in their district. The teachers explained that they can see clear leadership in the district and it is in

favor of technology integration, but the leadership in all of these specific areas needs to be improved. One elementary teacher involved with technology explained,

“One supervisor out of how many supervisors that we have, 6, 7, not a lot. The maintenance activities are really left up to the technology director, as is the, um, the planning. Well, the planning is really part of the department, which is the director, the four technicians, and I think there are seven of us that are considered technology employees.”

The teachers think that more administrators should be involved with this process to benefit the entire district. A middle school teacher made the following statement about the leadership in the district,

“The head supervisor in the, um, technology department oversees, um, I’m trying to remember how she phrased it before, oversees the more of the managerial pieces and it is not a curriculum piece. Like it’s, I think that the individual technology teachers in the buildings are just, kind of, they’re given the hardware and they’re given the software and they’re given the labs and the set-up and stuff, but I don’t think the support is there for them regarding their curriculum, what the students need to know to address the State standards in that area. It’s not an educational piece, it’s more of a managerial piece, at least, in that department.”

The teachers think that the technology department is primarily involved in maintaining and planning, but the individual departments are involved with the integration component, and this needs to be improved.

Question 13 addressed the individual teaching practices, and it asked, “How do you use technology in the classroom for instructional methods/teaching? Please be very

specific.” The majority of the teachers explained various creative ways in which they use technology in the classroom. Many of the uses ranged from PowerPoint presentations, podcasts, use of the Internet for research and presentations, Excel, use of probes in science, for showing video and other audiovisual uses, and other applications. One elementary teacher stated, “For research, I guess, really? I think that’s a valuable tool when you’re teaching the children how to research for any subject area. It’s invaluable. The information, the wealth of knowledge that is right at their fingertips.” Some of the teachers use games as reinforcement exercises. Another elementary teacher explained, “Even with the children, when you are instructing a classroom, they have a lot of different games where a lot of their skills can be reinforced, whether its *Time to Learn*, whether its *Oregon Trails*, there’s a big integration of the curriculum into these games.” Another elementary school teacher uses it to teach computer etiquette, and others use it for reinforcement exercises and as a way to show the illustration of things for the visual learners in their classes. One teacher stated,

“But I think that technology probably is the biggest component of differentiated instruction because you really can go to either end. And not just computers, but the programs that are available , the keyboards that are available, we have students who really have difficulty with fine motor coordination who do a lot better with keyboarding than they do with writing with pencil or pen, so to allow them to do their assignments on a computer or a personal keyboard, the thing gets plugged in and downloaded, the thing is really enabling their learning styles, it just makes like a lot easier for them, and the same thing with programs that another teacher was talking about.”

This teacher also explained that technology is a tool that should be used as “jumping off” point. She explained that, “It works great with the gifted children, as well. What I see from my position is not just using the Internet and saying I’m integrating technology, it needs to be a lot more hands-on than let’s look at a website. Where is this website going to lead you to?”

This teacher also explained that computers could be used to pinpoint exactly what the students know and do not know in terms of content. A middle school teacher explained that she sometimes uses PowerPoint presentations to present new vocabulary terms or the integrated online component of their textbook, and it is great because the students can then practice these components at home on their PC’s. Some of the math teachers at the middle school level have their classes go to the labs to use Excel and other math programs, and they do specific math labs with the technology. A high school English teacher explained that she uses it to show films, show student work, for writing labs, and also for going online and then projecting certain educational websites to the class. A special education teacher stated, “I think for special education, um, I have desktops in my classroom, and the students are welcome to and do use them everyday for research, or, um, their assignments, and then I have Inspiration, which is a graphic organizer I can use for making study guides, and then, um, I do in-class support, and in other classes we do PowerPoint Presentations, so I think that’s about it.” It is also used heavily in the science courses in this district. A high school science teacher explained,

“In science, we do have, um, you know, a little bit more of the technology. Um, we’ve used probes that are technology-based that go into the laptops, um, Logger Pro, which is a program allowing you to, like, use the probes for temperature readings, or in physics the use it for measuring velocity and such, um, PowerPoint

presentations which the kids are able to access them online, so they can print it out before them come to class and use it as a basis for their notes, um, posting assignments online for the students to get to, posting review materials online for the students to get to. Um, I sometimes have students email me assignments.”

Another high school teacher explained that technology is sometimes used to help the students develop their visual imagery through the creation of graphics, illustrations, manipulating photography, and for their film classes to edit and create movies. The majority of the teachers also explained that they use computers for clerical purposes. A few of the veteran teachers admitted that they do not use computers at all or that they use them for only for selected activities once and a while.

Brief Summary of the Results of Question 2

The teachers perceived that the Technology Leadership, Management, and Policy Pyramid as having both positive and negative effects on their instructional methods based on the integration of technology in their district. The teachers identified the following, positive effects: there is are strong professional development opportunities offered in the district with hands-on learning experiences, the district supports the integration of technology in the classrooms, there is a full-time technology trainer available all of the time for assistance, and there is a peer leader group consisting of students in place to help train the teachers with technology. Many of the teachers interviewed in this study explained that they use technology in their classrooms in the following ways: email assignments, excel and spreadsheets for math lessons, pod casts, assess student abilities, use of the Internet for research and presentations, reinforcement activities, to help the students develop visual

imagery skills, use of PowerPoint presentations, language labs, math labs, and science labs with the use of electronic probes for data collection. The teachers also identified the following, negative effects: some of the teachers have old laptop computers, there are old computers in the classrooms, the majority of the teachers are not familiar with their district's technology plan, it is difficult for teachers to travel from room to room with laptop carts, it is also difficult to schedule lab time, and the teachers cannot always use the computers in school as they did when planning activities at home due to fire walls on the network. The teachers agreed that they would like more time and opportunities to integrate technology into their courses in addition to more review opportunities so they can practice the material that they learned in their technology courses. Many of the teachers explained that if they do not immediately use the skills that they acquired in the courses that they often forget the material, and it is then difficult to integrate the technology into the classroom.

Research Question 3

How do elementary, middle, and high school teachers perceive their school district in providing organizational integration activities (curriculum integration and staff development)?

The responses from questions 1, 2, 3, 4, 10, 11, and 12 (see Appendix A and B) of the question route pertain to Research Question 3.

Since the responses to questions 1, 2, 3, 4, and 11 have been analyzed in great detail in the previous research questions, a summary of the responses will be provided in this question. A summary of the analysis of how the teachers' responses relate to question 3 follows.

The majority of the teachers did not know about their district's technology plan, but a few of the computer teachers explained that the integration activities are left up to the individual departmental supervisors and the district's technology trainer. The maintenance and planning activities are done by the technology department. There are regular maintenance activities performed, and the planning is done on a 5 year replacement program for all computer labs and library computers. The professional development opportunities provided by this district are fantastic. It is apparent that the district employs a full-time person to provide staff development all year long and to help the teachers solve their problems to implement technology into the classroom. The teachers explained that there are opportunities for everyone at various levels, and all of these activities are hands-on. Outside professionals are sometimes brought in to instruct the computer teachers who then help in instructing the staff, and sometimes outside professionals are used to help everyone. Many of the teachers thought that these activities are helpful to them in aligning the technology to the curriculum, but they stated that they would be better served if they had more opportunities that helped them integrate it into the classroom in addition to the "instructional" professional development opportunities provided by their district. Some of the teachers thought that it would be great if they could have more in-service days to address this issue. The majority of the teachers at all levels thought that the professional development opportunities are really fantastic in their district, but they find that if they do not immediately use the technology, they sometimes forget it or forget how to use it when it is time for use in the classroom. Many of them would like to have a refresher course from time to time because there is so much information that they need to know; however, the technology instructor is always readily available for assistance. The teachers are pleased

with the professional development opportunities provided by their district, but many of them would like more opportunities to integrate, perfect, and practice their skills. The majority of the teachers agreed that the leadership needs to be improved in their district in terms of integrating, maintenance, and planning activities. The integration is primarily done through the departmental supervisors and the technology instructor, whereas the maintenance and planning is done through the technology department. The teachers would like to see more administrators involved with this process and to have everyone “on the same page” with these areas throughout the entire school district.

Question 10 of the question route asked, “Overall, how would you describe the leadership in your district in supporting the integration of technology into the school buildings?” After listening to the teachers’ responses, it is clear that there is leadership in the district that supports the integration of technology, but this leadership needs to be improved. One of the middle school teachers stated, “Um, to my knowledge, the leadership is very supportive and wants us to use it and encourages us, but again is bounded by monetary constraints.” A high school teacher had this to say,

“I think, it’s, um, a point that is very important to them. I think that they have a genuine interest, and I think we are very, kind of, I think there’s probably more technological equipment in this district than most districts, so I think it has to be something that the leadership of the school feels is very important, and I can’t speak for the grammar school, but I think we have more computers here than most of the schools, I would think, more equipment, I mean, we are always getting new stuff, I mean, so it’s got to be on somebody’s agenda.”

It is clear that the administrators in the district are working to integrate technology into their schools. Another high school teacher stated,

“You know, we have three labs, fully outfitted labs, now, an English department has an entire lab, um, with Macintoshes, the art department and science and technology has um, (The English teacher holds up 2 fingers) you have two in English, that’s all of Mac’s, and then we have a Science and Technology lab that’s all PC’s, and then up in the art department, we have one lab that’s all PC’s that can sit about 22 students, so, that’s a considerable amount of computer labs, four.”

However with all of these fantastic things happening in the district, the elementary teachers explained that the leadership needs to be improved. One elementary teacher stated,

“Well, I adore our principal; however, there has really been no, I don’t feel that there has been leadership. He will say whatever you want to do is fine. I mean, there’s, If I were to come to my principal and say I want to do this, he’d go, great, go for it, and you know, see this person, see that person, and he’d give me names, and he would encourage me, but is the leadership saying to me I want you, this is the plan, and I think that this is what we need to do for all our children because our world is technology, and we – absolutely not.”

Another elementary teacher agreed with this statement and explained,

“When I first started in the district a number of years ago, under a different Superintendent of schools, um, one of the two professional improvement plans that everyone is required to file each year had to be technology integration. Once that superintendent left, that plan was gone, and at that point, there are very few principals that require that. I don’t think there’s a principal in any of the seven

buildings who requires that anymore because it is not coming from the very top, that you have to.”

Some of the teachers would like to see the leadership improved so they can better serve their students with the integration of technology in the district.

Question 12 of the question route asked, “How is the leadership reflected in your school district’s technology plan, and how is this communicated to the school communities?” This was a difficult question for many of the teachers to answer because the majority of them did not know what was written in their district’s technology plan. An elementary teacher who had knowledge of the plan and the process explained that,

“What happens with the long range planning committee is that the supervisors and building principals are, um, given a presentation once the plan has been completed, and they are encouraged to embrace the plan and to ask their, uh, faculty to integrate technology, but beyond the asking, there is no requirement, and at the end of the presentation, everybody kind of goes in their own direction.”

However, the district is working to have all of the teachers use technology through the Ed-Line website. The district is using this website to keep the students and parents abreast of homework, assignments, announcements, class information, and to have the capabilities to download class documents. All of the teachers are required to use this site. The leadership is there to facilitate the teachers in using this site and by making it mandatory. This is communicated to the teachers through their principals and supervisors. One high school teacher explained, “I mean, I think that the whole thing that the district did was, Ed-Line. And that was, like, an overriding district theme, and then, that’s being implemented within the schools actually, pretty well, but they’re likely to work on it for themselves to really

embrace it with whatever they can embrace it with.” One of the middle school teachers explained that each department has web nights where they present what they have been doing with technology to the community. Another middle school teacher explained that a few years ago there was a type of vision committee that presented its findings to the public. However, the majority of the teachers agreed that the district needs to do a better job of communicating the technology plan to its faculty and staff.

Brief Summary of the Results of Question 3

The majority of the teachers perceived various strengths and weaknesses in terms of their district providing organizational integration activities. The following strengths were identified: the teachers explained that there are fantastic professional development opportunities provided by their district that are offered all year long and even during the summer months, there is a full-time support person employed by the district to train and coach the teachers with the technology, the district supports technology integration activities, and many of the teachers want to use technology in the classroom to enhance their instructional methods. The teachers also identified the following weaknesses: the integrating activities are solely done by the departmental supervisors and the technology trainer instead of involving the entire school district with this process, the technology plan needs to be better communicated throughout the district, and there is a lack of time and opportunities to integrate technology into the classroom, and the teachers would like to see more review courses to help them remember all of the information that they learned in their courses when it is time for them to implement it in their instructional methods.

Research Question 4

How do elementary, middle, and high school teachers perceive their district in providing maintenance activities?

The responses from questions 1, 7, 8, 9, and 11 (see Appendix A and B) of the question route pertain to Research Question 4.

Since questions 1 and 11 have been analyzed in prior questions, a summary of the analysis will be provided in relation to this question. The majority of the teachers did not know about their district's technology plan, but a few of the computer teachers explained that the integration activities are left up to the individual departmental supervisors and the district's technology trainer. The maintenance and planning activities are done by the technology department. There are regular maintenance activities performed, and the planning is done on a five year replacement program for all computer labs and library computers. The majority of the teachers agreed that the leadership needs to be improved in their district in terms of integrating, maintenance, and planning activities. The integration is primarily done through the departmental supervisors and the technology instructor, whereas the maintenance and planning is done through the technology department. The teachers would like to see more administrators involved with this process and to have everyone working on the same plan in regard to technology integration throughout the entire school district.

Question 7 of the question route asked, "When there is a problem with the computer system, how long does it usually take before the repair is performed?" The majority of the teachers at all levels agreed that the repairs to the network or individual computers are done very quickly. A high school teacher stated,

“It depends, I think, also on what, like, what sort of things happen. I think on one of the last few weekends, our emails actually went down, so I think they went down on over Sunday, or maybe like Saturday, but then when we came in on Monday morning, I think some of us did notice it, Monday morning it was still not working, but as the morning progressed, it was eventually remedied. So, I guess in that sense, you know, as soon as reasonably possible they came through.”

The same high school teacher explained, “You know, I also mention my laptop when it did breakdown at one point, I brought it over, and within 24 hours it was repaired.” A middle school teacher agreed with the efficiency of the repair system and stated,

“Okay, um, well sometimes our network is down, and it seems like it’s the end of the world. You can’t print anything, or (laughter from the group). They usually, like, an hour or two, usually if their network is down right first thing in the morning, by like 9:00 it’s going to be up and running again. I mean, it’s really fast, so I’ve never had something last all day.”

Another middle school teacher stated, “Um, when my computer has something wrong with it, like hardware wise or software, I just bring it to the Board Office. They can fix it there. They’ll fix it immediately. If they have to send it away, they send it express mail, and it gets expressed mail back, and I have it very fast. Like, in a few days.” An elementary teacher explained that, “My impression is it doesn’t take very long. Maybe days?” A middle teacher stated, “I can contrast this with other districts where it can be 6 weeks or 6 months before certain issues are taken care of.” Overall, the teachers are very pleased with the way in which repairs are managed in the district.

Since questions 8 and 9 will be analyzed in great detail in the next research question dealing with planning, a quick analysis of the responses will be provided in this paragraph. Planning is critical to the success of maintaining the infrastructure. Question eight of the interviews asked, "How do you perceive your school district in providing activities in planning for the future in terms of technology? Please be very specific." Many of the teachers perceived that the planning needs to be improved. The teachers explained that they are using older laptops in their classrooms, and they need to be replaced. There are plans in place to replace the technology, but many teachers talked about the fact that they can only spend so much money each year to replace computers. The plans are basically governed by the budget. Question 9 asked, "Explain how your district's technology plan addresses the issue of "planning for the future" to ensure that the technology remains up-to-date in future years and how this is actually being accomplished in your district." The majority of the teachers did not know what was written in their district's technology plan. One middle school teacher knew about the plan, and she explained that the district has a 5-year replacement plan, but this plan depends upon funding from the Board of Education. This teacher then explained that some years more technology is replaced than others because it all depends upon the budget. The computers in the libraries and labs are replaced on a 5-year replacement plan on a rotating basis, and then the classrooms acquire the older computers from the labs and libraries. The majority of the teachers agreed that the planning component needs to be improved.

Brief Summary of the Results of Question 4

The majority of the teachers agreed that the maintenance activities are exceptional in this district. They explained that the technology department is in place to handle the repairs and address the issues with the computers. The teachers also explained that there is a clear chain of command in place for repairs and service. The teachers must first go to the computer teacher in their building for problem solving, and then if the computer teacher cannot solve the problem, he/she then turns it over to technical support in the technology department. There is an electronic work order system in place called "Computer Dude" that the technology teachers use to request service or maintenance to be performed. When repairs must be made to the network or individual computers, they are usually performed very quickly, and the teachers are very pleased with the manner in which the repairs are accomplished. If repairs take too long or laptops need to be sent out for service, they are always sent via express mail to and from the district, and loaner computers are available to the teachers. Routine maintenance is performed to the system, and major work is performed on the network over the summer.

Research Question 5

How do elementary, middle, and high school teachers perceive their district in providing planning activities?

The responses from questions 1, 8, 9, 10, and 11 (see Appendix A and B) of the question route pertain to Research Question 5.

Since questions 1, 10, and 11 have been analyzed in previous questions, a summary of the analysis will be provided for this research question. The majority of the teachers did

not know about their district's technology plan; however, few of the computer teachers explained that the integration activities are handled by the departmental supervisors and the district's technology trainer. The maintenance and planning activities are primarily done by the technology department. The current system is in great shape due to regular maintenance activities performed by the technology department. The majority of the teachers agreed that the leadership needs to be improved in their district in terms of integrating, maintenance, and planning activities. The integration is primarily done through the departmental supervisors and the technology instructor, whereas the maintenance and planning is done through the technology department. The teachers would like to see more administrators involved with this process and to have everyone working on one plan with a common vision in regard to technology integration throughout the entire school district.

Question 8 of the interviews asked, "How do you perceive your school district in providing activities in planning for the future in terms of technology? Please be very specific." Many of the teachers perceived that the planning needs to be improved. Some of the elementary teachers see that the district is moving in the right direction with the website and emailing notices to parents, but they didn't really speak about the actual hardware. The teachers are pleased that their district wants to go "Green" to save paper and protect the environment. Some of the high school teachers see the district moving into the direction of providing parents with easy access to grades and assignments online, but some of them are skeptical about providing these all of this information online. The middle school teachers really addressed this question regarding the actual planning of the hardware. Many of the middle school teachers explained that they see that the district is trying to replace older computers, but they have work to do in this area. Many of the teachers agreed that they have

older laptops, and the plans to replace them are always bound by budgetary constraints. One middle school teacher explained,

“Um, about 3 years ago, I was on a technology committee which was district wide, and that committee looked at three areas: access, curriculum, and professional development. And, um, we made recommendations, and as a result of that, um, you know, steps have been taken to make sure that there have been enough computers added and so forth, but the limitation was budget and money, of course. Like, you know, the plan was limited because there is only so much money that you can spend on computers every year. There is only so much money you can spend, like, they were calling for much more to be spent than what could actually be in the budget, so. Um, I believe that the current plans incorporate parts of that, but I believe that it’s been limited, and I think that there are issues of computers becoming out of date and not being replaced.”

Many of the middle school teachers thought along the same lines. One teacher explained that the district is trying to replace older equipment as all of the teachers received an email this year asking them if they need their laptops replaced. All of the teachers agreed that the planning is restricted somewhat so because of budgetary issues.

Question 9 asked, “Explain how your district’s technology plan addresses the issue of “planning for the future” to ensure that the technology remains up-to-date in future years and how this is actually being accomplished in your district.” The majority of the teachers did not know what was written in their district’s technology plan. Some of the middle school teachers reported problems with upgrading everyone’s software, and they felt like they are always slightly behind. One middle school teacher knew about the plan, and she stated that,

“I would be a little bit out of date on that, but for a few years ago, we were supposed to have a 5-year cycle. Like, we were supposed to be updating every 5 years.” An elementary teacher confirmed the plan by stating, “Right, the plan that was submitted to the county and to the State calls for a 5 year replacement plan, but a lot of that depends upon funding from the Board of Education.” This teacher went on to explain the 5-year replacement plan by stating that,

“Every 5 years computers should be replaced. Uh, and sometimes that is financially feasible, other times it is not. Well, what we have been doing in District X, is the director has been replacing certain areas of equipment on a rotating basis, so all of the libraries had their equipment replaced, and then the high school lab was just replaced, and then the middle school lab, and then the five elementary school labs, so by that point, it is time to start again with the libraries, and what happens is that the equipment that is being moved out of a lab situation then gets dispersed among classrooms. So right now there is no classroom plan in place.”

The 5-year replacement plan works well for the district’s labs and libraries, but the plan must be expanded to address the classroom computers. This teacher went on to explain about the situation in the classrooms by stating,

“They just get whatever is passed off, and um, in some cases, if we can stay with the 5-year plan, which has only been in place for, I think 3 years, um, then, you would never have equipment that is more than 5 years old, you know, in a lab situation, and in a classroom it could be as old as ten years old before you get a replacement again. At which point, the company considers it obsolete. So, it is somewhat a bit of a “Catch 22” without funding for classroom replacements.”

The majority of the teachers agreed that the planning for the future of the integration of technology in their district needs improvement, and planning is critical to maintaining the infrastructure.

Brief Summary of the Results of Question 5

The majority of the teachers identified both strengths and weaknesses in the area of planning activities, but they also recognized that improvements must be made in this area. The teachers in this study identified the following strengths: there is a 5-year replacement plan in place for the computers in the district's libraries and labs, many of the labs and the libraries have been furnished with new computers over the past year, the laptops are currently being replaced for the teachers, and the teachers would like to see and use more updated equipment in their classrooms. The teachers also identified the following weaknesses with the planning for technology in their district: the majority of the teachers do not know what is written in their district's technology plan and what the plan has written in it about planning activities, many of the teachers have been using older laptop computers, the 5-year replacement plans are based on budgetary constraints and scheduled replacements may not always take place based on funding issues, and there is no replacement plan in place for the classrooms. The classrooms currently obtain the older computers from the libraries and labs throughout the district on a random basis when these facilities are upgraded with new equipment.

Research Question 6

How do elementary, middle, and high school teachers perceive the leadership in their school district in regard to all sides of the Technology Leadership, Management, and Policy Pyramid?

The responses from questions 1, 10, 11, 12, and 15 (see Appendix A and B) of the question route pertain to Research Question 6.

The responses from questions 1, 10, 11, and 12 have been addressed in previous research questions. It has been determined that the majority of the teachers were not familiar with their district's technology plan, but a few of the teachers who were involved with technology explained that the individual departmental supervisors and the district's technology instructor handle the integration component, and the technology department deals with the maintenance and planning activities. In terms of leadership, the majority of teachers felt that technology is very important to the administration, but the leadership needs to be improved to better integrate technology into the district. Some of the teachers felt that the leadership was bound by the budget. Again dealing with the issue of leadership, the integration is primarily done through the departmental supervisors and the technology instructor, whereas the maintenance and planning is done through the technology department. The teachers would like to see the leadership improved to allow more administrators to be involved with this process and to have everyone working on one plan with a common vision throughout the entire school district. Since the majority of the teachers did not know what was in their district's technology plan, they agreed that the communication of this plan needs to be improved so the whole district can be familiar with it. However, one elementary teacher who is part of the technology department explained that once the long range plan is

completed, the supervisors and the building principals are given a presentation about the plan. The principals and supervisors are asked to have their faculty embrace the technology. There is a plan in place for this, but the teachers would like to have it readily available to them.

Question 15 of the question route asked, “In closing, identify one word that captures technology integration in your district.” The majority of the teachers felt that the integration of technology in their district was exceptional or evolving to become exceptional. A few of the teachers had negative perceptions regarding technology in their district. Here are some of the positive words that the teachers used to describe technology in their district: exponential, exciting, impressive, progressive, supportive, and well-intentioned. The following words were used to describe that the technology in this district is on the way to becoming exceptional: moving forward, evolving, advancing, increasing, and progressing. The following words were used to describe a few of the teachers’ negative perceptions regarding technology integration in their district: slow, secondary, needs improvement, struggling in some ways, and uneven. Overall, it appeared that the majority of the teachers had many positive things to say about the integration of technology in their district and recognized that it is evolving all of the time.

Brief Summary of the Results of Question 6

The majority of the teachers perceived that leadership is in place, but it needs improvement. In terms of organizational integration activities, the teachers explained that they are solely accomplished by the departmental supervisors and the district’s technology trainer. The maintenance activities are solely accomplished by the technology department,

and the teachers would like to be updated on these and future activities. The teachers also explained that the planning activities are solely accomplished by the technology department, and they would like to see clear technology plans in place and the district's technology plan so they know where they will be going with technology in the future. Overall, the teachers would like to see the leadership improved and have more administrators and the school community involved with this process to have everyone working on one plan with a common vision in regard to the integration of technology throughout the entire district.

Analysis of Qualitative Research

The researcher conducted three, in-depth focus group interviews with elementary, middle, and high school teachers from one exceptional school district in New Jersey to analyze the teachers' perceptions of the integration of technology in their district in terms of Collins' (2009) Technology Leadership, Management, and Policy Pyramid. An identical question route was used in all of the focus group interviews, and this consisted of 15 prescribed questions. The teachers' responses were tape recorded during the interviews. The researcher occasionally asked for elaboration on certain items when things were unclear in order to acquire a valid understanding of the topic. The interviews were transcribed, and each group's responses to the questions were then clustered together by research question to generate common themes and patterns regarding the integration of technology in their district.

Various themes and patterns emerged from the analysis of the teachers' responses, and these are outlined in Figures 2-7 in Chapter V. The following themes and patterns emerged from this research: (a) overall, the teachers thought that integration of technology in

their district was exceptional or evolving to become exceptional, but they recognized that improvements are needed to make the technology more available to the teachers and students and to provide up-to-date equipment in the learning environments, (b) the teachers found that their district has a very strong professional development program, but they would like to have more opportunities to learn how to actually integrate the technology into their lessons, (c) the maintenance activities used to sustain the computers and computer network are fantastic in this district, (d) the planning for the replacement of computers in the libraries and computer labs is satisfactory, but the planning for the replacement of computers in the classrooms needs to be improved, and (e) the integration of technology is extremely important to this district, but the leadership needs to be improved in order to have a common vision for technology in place throughout the system, and the district's technology plan must be better communicated to the administrators, faculty, and staff working for the district. The common themes and patterns and the research questions are discussed in greater detail in Chapter V. The themes are identified here as part of the analysis.

It is important to note that the results reported in this study are from a limited sample of elementary, middle, and high schools from one school district. Furthermore, the information in this study only represents a school district with a District Factor Group, DFG, of J. Caution should be exercised when applying this information to other school districts and educational settings.

Chapter V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

The purpose of this study was to analyze the integration of technology at the school district level. Collins' (2009) Technology Leadership, Management, and Policy Pyramid was the conceptual framework that was used in this research. This pyramid has the following, three sides: Organizational Integration Activities, Maintenance Activities, and Planning Activities. According to this conceptual framework, schools need to utilize all of the following components of the pyramid in their vision in order to attain excellence in educational technology: (a) provide activities in organizational integration, (b) provide activities in maintaining the infrastructure, and (c) provide activities in planning for the future. Collins (2009) notes that all of these steps must be done simultaneously with committed leadership in order to see improvement and attain excellence. The results of this research study were analyzed in comparison to other research findings dealing with the integration of technology in schools, and the outcomes gained from this study will contribute to the growing literature base on this topic. The researcher hopes that the information learned from this study can be of value to benefit other school districts in developing best practices as they begin to integrate technology into their learning communities.

The researcher presented an introduction to the study in Chapter I. This chapter identified the problem, significance of this research, and the purpose of the study. The main research questions, limitations of the study, definitions of terms, and an overview of the study were also included in the first chapter. Chapter II reviewed the literature base on the

integration of technology in schools. The following topics were explored in this chapter: beneficial uses of technology in the classroom, barriers to the integration of technology, professional development, integrating activities, integration processes, maintenance activities, planning activities, and leadership. Chapter III addressed the methodology of the study. This chapter included the following elements: an introduction, a discussion of the population, the instrument design, the research procedures, data collection techniques, background information on the participants, a discussion of the jury of experts used to validate this study, and a discussion of how the data would be analyzed. Chapter IV presented the results of this study from the use of qualitative analysis research procedures. A predetermined question route was used, and many of these questions were clustered together to provide information on the main research questions addressed in this study. This chapter included specific quotations from the teachers regarding the integration of technology in their district, and the researcher identified the common patterns and themes that emerged from this research. Chapter V presents a summary of the information obtained from the research questions, an analysis of the questions in relation to the current literature base on this topic, conclusions, and recommendations for policy, practice, and future research.

Summary and Analysis of the Study

Research Question 1

Research question 1 asked, how do elementary, middle, and high school teachers perceive the integration of technology in their school district in terms of the Technology Leadership, Management, and Policy Pyramid? Overall, the majority of the teachers are pleased with the integration of technology in their district, and they felt that they are ahead of

other districts. They also see that improvements are needed in certain areas. They see that leadership is present, but it also needs improvement to make the integration of technology even stronger in their district. In terms of organizational integration activities, the teachers agreed that there are strong professional development opportunities in place with hands-on activities, the district employs a full-time trainer to instruct the teachers with technology through courses and individual lessons, and a peer leader group consisting of students is available to train the teachers in this area. It is apparent that many of the teachers involved with this study want to use technology in the classroom to support their lessons, and many of them are already embracing it in creative ways. The teachers would like to improve the area of integrating activities by having more time and opportunities to learn how to integrate technology into their courses and align it to the curriculum, and they would like more follow-up courses to review and practice the material that they learned in previous courses. Overall, the teachers were pleased with the manner in which maintenance issues are addressed in their district. In terms of maintenance activities, there is a basic 5-year maintenance plan in place, routine maintenance is performed to the system, extensive maintenance is performed to the system over the summer, there is a great electronic work order system in place, repairs are performed very quickly, there is a strong support system in place, and the district has a fine technology department to address and repair the problems with the technology. In terms of planning activities, the teachers explained that it is done on a 5-year replacement plan for the labs and libraries throughout the district, but there is no clear plan in place for the classrooms. The classrooms acquire the older equipment from the labs and libraries on a random basis when these rooms receive new equipment. Many of the teachers would like to see a plan developed for the classrooms, and they would like more people to be involved

with the planning process throughout the district. Many of the teachers were also not familiar with what was in their district's technology plan, and they agreed that this plan should be better communicated throughout the district.

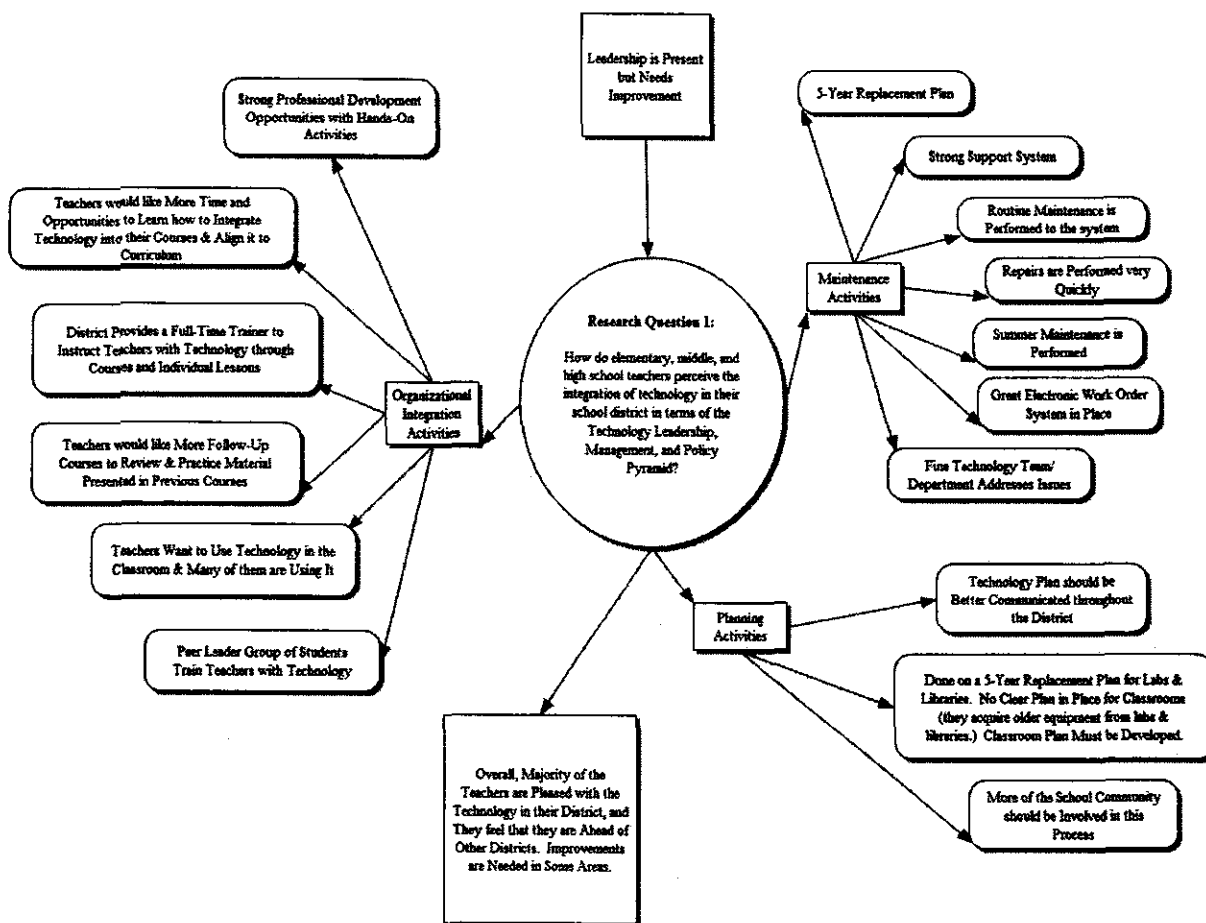


Figure 2. Analysis of research question 1.

Brush and Hew (2007) conducted an extensive literature review on technology integration into K-12 schools, and they have identified the following barriers to the successful integration of technology in today's schools: (a) the lack of resources, including technology, access to available technology, time, and technical support; (b) the lack of knowledge and skills; (c) institutional barriers, including leadership, school timetabling

structure, and school planning; (d) teacher attitudes and beliefs, (e) assessment, and (f) subject culture.

The information learned in this research study is both consistent and inconsistent with the findings revealed through the work of Brush and Hew (2007) in terms of barriers to technology integration. In regard to the lack of resources identified by Brush and Hew (2007), the majority of the teachers in this study agreed that some of the technology is outdated and needs to be replaced, it is sometimes difficult to have access to the computers in the labs and libraries, it is sometimes difficult to find the time to integrate technology into the classroom, but the technical support is fantastic in this district. In terms of the lack of knowledge and skills identified by Brush and Hew (2007), the majority of the teachers explained that the professional development opportunities are excellent in this district, and they are taught exactly what they need to know. Many of the teachers would like to see more review opportunities to help them practice their skills that they learned in their technology courses. Many of the institutional barriers identified by Brush and Hew (2007) are consistent the findings of this research study. For example, the majority of teachers agreed that improvements are needed in the areas of leadership and planning in their district, and they would like to see these areas strengthened. In terms of teacher attitude and beliefs identified by Brush and Hew (2007), the majority of teachers in this district want to use technology in their classrooms, and many of them are currently integrating it into their courses to enhance their instructional methods. Subject culture identified by Brush and Hew (2007) is a another barrier to technology integration, but again, the majority of teachers interviewed in this study feel that it is not a problem, and they would like to use more technology in the classroom to support their teaching methods. It is important to note that this district is working hard to

integrate technology into the system, and many of the barriers identified by Brush and Hew (2007) are not barriers to the integration of technology in this district.

Li and Achilles (1999-2000) conducted research to determine the factors that contributed to teachers' integrating technology behaviors in a school environment. The study was conducted in a middle school in Michigan that was successful in the early-adoption of technology, and it was located in a reasonably wealthy community. The results of this case study show that the following, four variables emerged from this research: (a) Institutional Expectation for Integrating Technology Behaviors (Drive), (b) Organizational Support Systems (Facilitators), (c) Classroom Adjustment for Integrating Technology Behaviors (Strategies), and (d) Pattern of Teachers Integrating Technology Behaviors (Outcome) (Li & Achilles, 1999-2000). This study revealed that the variable *Pattern of Teachers Integrating Technology Behaviors* depended on the other three variables (Li and Achilles, 1999-2000). In other words, in order for teachers to take the time to utilize the technology, there must be a drive or institutional need for it, there must be support systems in place to guide these teachers through the process, and there must be time for classroom adjustment to successfully integrate the technology. According to Li and Achilles (1999-2000, p. 17), "Thus, to integrate technology effectively in schools, school administration needs to work on creating new social conditions to facilitate teachers' learning and using behaviors."

The research findings with this study are consistent with many of the findings of Li and Achilles (1999-2000). There is an institutional drive for the integration of technology in this district. The district is doing a fantastic job in providing organizational support to the faculty and staff by having a full-time person employed for training purposes and by offering numerous professional development activities throughout the entire year. In terms of the

classroom adjustment for integrating technology behaviors (strategies), the full-time trainer works with the teachers along with their departmental supervisors, but the teachers would like more in-service opportunities to learn how to better integrate technology into their classes and to practice their skills. According to the Pattern of Teachers Integrating Technology Behaviors (Outcome) identified by Li and Achilles, 1999-2000, there are many teachers using technology in this district due to the following behaviors identified by Li and Achilles (1999-2000): institutional drive, organizational support systems (facilitators), and classroom adjustment for integrating technology behaviors (strategies).

There is also a digital divide in terms of computers and the Internet between high and low resource schools. Duran and Valadez (2007) conducted research on this topic. In this study, teachers were surveyed from six southern California schools. Five of these schools were low resource schools, and one school was identified as a high resource school. Duran and Valadez (2007) found that the high resource school teachers significantly had more access to the computers and the Internet, more frequent use of computers and the Internet, more creative uses of computers and the Internet for instruction, communicated with the students via email more frequently with the students, and engaged more frequently with other teachers through online activities. Funding certainly plays a major role in the successful integration of technology.

The information learned in this study is consistent with the research findings of Duran and Valadez (2007). This study was conducted in a district in Essex County with a District Factor Group, DFG, of J. This is a high resource school district. All of the teachers in this district have access to computers and the Internet. Many of the teachers in this district also integrate technology into their classes in very creative ways and communicate with students

and other colleagues via email. This study did not examine technology in low resource schools, but it is apparent that technology is prevalent in this high resource school.

This school district does a great job in providing professional development programs and opportunities, the teachers have access to technical support all of the time, and many of the teachers want to integrate technology into their courses to enhance their instructional methods. The information found in this research is consistent with the findings of another study done by Penuel (2006) that addressed the initiatives to make laptops with wireless connectivity available to all students in schools. Penuel (2006) found that successful implementation included extensive teacher professional development, access to technical support, and positive teacher attitudes toward the use of technology. All of these components of integration are occurring in this district.

Research Question 2

Research question 2 asked, how do elementary, middle, and high school teachers perceive the Technology Leadership, Management, and Policy Pyramid as having an effect on their instructional methods? The teachers perceived that the Technology Leadership, Management, and Policy Pyramid as having both positive and negative effects on their instructional methods based on the integration of technology in their district. The teachers identified the following, positive effects: there is are strong professional development opportunities offered in the district with hands-on learning experiences, the district supports the integration of technology in the classrooms, there is a full-time technology trainer available all of the time for assistance, and there is a peer leader group consisting of students in place to help train the teachers with technology. Many of the teachers interviewed in this

study explained that they use technology in their classrooms in the following ways: email assignments, excel and spreadsheets for math lessons, pod casts, assess student abilities, use of the Internet for research and presentations, reinforcement activities, to help the students develop visual imagery skills, use of PowerPoint presentations, language labs, math labs, and science labs with the use of electronic probes for data collection. The teachers also identified the following, negative effects: some of the teachers have old laptop computers, there are old computers in the classrooms, the majority of the teachers are not familiar with their district's technology plan, it is difficult for teachers to travel from room to room with laptop carts, it is also difficult to schedule lab time, and the teachers cannot always use the computers in school as they did when planning activities at home due to fire walls on the network. The teachers agreed that they would like more time and opportunities to integrate technology into their courses in addition to more review opportunities so they can practice the material that they learned in their technology courses. Many of the teachers explained that if they do not immediately use the skills that they acquired in the courses that they often forget the material, and it is then difficult to integrate the technology into the classroom.

Many studies in the literature identified barriers to technology integration and a number of reasons why teachers do not use technology into the classroom. For example, the following studies illustrate these points:

Bauer and Kenton (2005) performed a qualitative study that examined the classroom practice of 30 "tech-savvy" teachers. All of these teachers were proficient in technology, and they taught at the elementary, middle school, and high school levels. The purpose of the study was designed to determine how often these teachers used technology in their instruction, the obstacles that they had to overcome, and their general concerns or issues

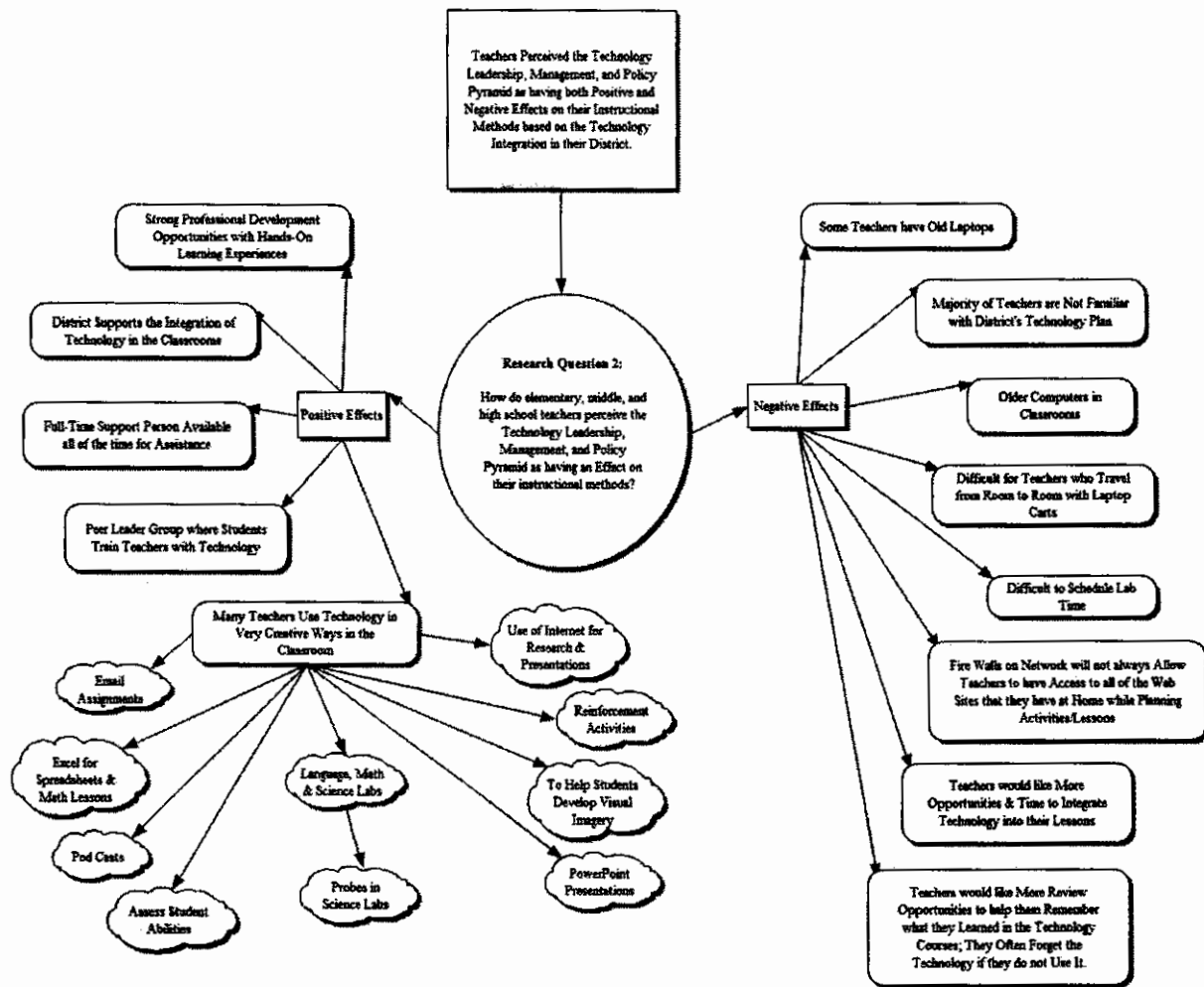


Figure 3. Analysis of research question 2.

regarding the technology. Bauer and Kenton (2005) learned that these teachers were innovative and were able to overcome obstacles, but they did not integrate technology into their classrooms on a regular basis because (a) the students did not have enough time at the computers, and (b) teachers needed extra planning time to structure lessons that involved technology. The teachers also had the following concerns: out-dated hardware, lack of appropriate software, technical difficulties, and various student skill levels (Bauer & Kenton, 2005).

Okojie, Okojie-Boulder, and Olinzock (2006) explained that common excuses why teachers do not use technology to support instruction is due to a shortage of computers, lack of computer skill, and computer intimidation.

Li (2007) found that most of the teachers perceived computers as nothing more than “souped-up typewriters” and were primarily for demonstration purposes. Li (2007) also found that even though the teachers acknowledged that the students like technology, they found it to be an extra work load and perceived computers were not worth the time investing because they have little educational value.

The information learned in this study is both consistent and inconsistent with some of the barriers and problems identified in the previous research studies. Even though Bauer and Kenton (2005) reported that teachers do not integrate technology into the classroom because (a) the students do not have enough time and the computers, and (b) the teachers need more planning time, the majority of teachers in this district identified some of these concerns, but they still try to work around these barriers and integrate technology into the classroom. It was determined that the teachers in this school district use it at different levels and to different degrees, but many of them are trying to use it to enhance their instructional methods. This district does a fine job of training the teachers through various professional development opportunities so this work is in opposition to the information learned from Okojie, Okojie-Boulder, and Olinzock (2006) where it was determined that teachers do not use technology due to a shortage of computers, lack of computer skill, and computer intimidation. The majority of teachers identified that they have a full-time person to help them with all of their computer problems, and they can attend numerous courses throughout the year to help them learn how to use the technology. However, many of the teachers would

like more time and review opportunities to practice their skills, but they still try to integrate it into the classroom. The school district also has a peer leader group of students available to train their teachers with the technology. Many of the teachers think that technology is a valuable educational tool to enhance their teaching methods, and this is in opposition to the work of Li (2007) where it was determined that computers as nothing more than “souped-up typewriters” and were primarily for demonstration purposes.

This district provides many beneficial opportunities that help the technology integrate technology into their classrooms. For example, the district supports the integration of technology by providing numerous professional development opportunities for the faculty and staff with hands-on learning activities to help them learn how to use the technology, and there is a full-time support person available and a peer leader group of students to help train the teachers in this area. These conclusions are consistent with some of the finding of Franklin (2007) in terms of personal support, philosophy and preparation, and leadership to a degree. Franklin (2007) identified the following factors that influence computer use for teachers: (a) leadership, (b) access and availability, (c) incentives, (d) personal support, (e) external constraints, and (f) philosophy and preparation. This district needs to improve in the areas of leadership and providing access and availability to the technology for the teachers who travel from room to room. Franklin (2007) worked with elementary teachers who were willing to integrate technology into the classroom, and they felt that computers enable students to discover and construct ideas for themselves.

Research Question 3

Research question 3 asked, how do elementary, middle, and high school teachers perceive their school district in providing organizational integration activities (curriculum integration and staff development)? The majority of the teachers perceived various strengths and weaknesses in terms of their district providing organizational integration activities. The following strengths were identified: the teachers explained that there are fantastic professional development opportunities provided by their district that are offered all year long and even during the summer months, there is a full-time support person employed by the district to train and coach the teachers with the technology, the district supports technology integration activities, and many of the teachers want to use technology in the classroom to enhance their instructional methods. The teachers also identified the following weaknesses: the integrating activities are solely done by the departmental supervisors and the technology trainer instead of involving the entire school district with this process, the technology plan needs to be better communicated throughout the district, and there is a lack of time and opportunities to integrate technology into the classroom, and the teachers would like to see more review courses to help them remember all of the information that they learned in their courses when it is time for them to implement it in their instructional methods.

Professional development is another critical factor to the successful integration of technology in schools. Okojie, Okojie-Boulder, and Olinzock (2006) explained that technology is a device or tool that is used to enhance instruction, and using it for educational purposes requires understanding pedagogical principles that are specific to the use of

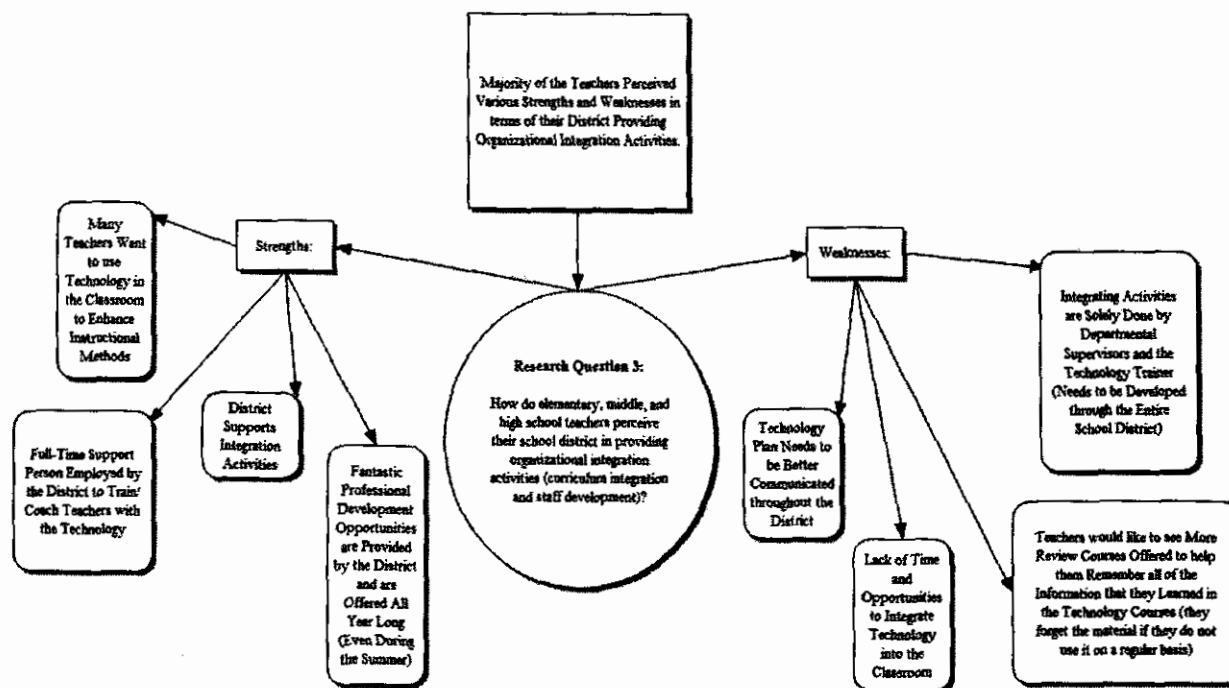


Figure 4. Analysis of research question 3.

technology in instructional settings and proper training for teachers. Evmenova and King-Sears (2007) stated, “Just having computers and software in the classroom is not significant; how the educators use those computers and that software to promote learning is far more important” (§ 2). Franklin (2007) explained that, “Teacher efficacy is essential to the integration of technology, and teacher efficacy is linked to electronic pedagogical content knowledge and skill” (§ 51).

Many studies in the literature identified beneficial outcomes and the importance of professional development opportunities in helping teachers integrate technology into the classroom. For example, the following studies illustrate these points: Howland and Wedman (2004) conducted research to see the effects of a training program where teachers were involved in a 2-year individualized professional development program to (a) develop technology and skill efficacy, and (b) integrate technology into teaching. The results of the study indicated significant change in faculty skill and efficacy in the areas of communication,

inquiry-based learning, feedback and metacognition, and problem solving (Howland & Wedman, 2004). In another study, Martinez-Pons and Rosenfield (2005) tested the following two hypotheses: (a) that participation in a course providing theory and practice in the classroom use of technology promotes its use and results in gained competence in technology use; and (b) that functional relations exists among the availability of technology in the classroom, technology utilization, and competence in technology use. Martinez-Pons and Rosenfield (2005) found that these technology interventions were successful, and they also learned that competence in the use of technology in the classroom was a direct function of the degree that the technology was used. In another study, Zhao (2007) researched the perspectives and experiences of 17 social studies teachers regarding technology after they went through a technology integration training program. The research showed that the teachers had a variety of views about technology integration, and their views played a role in how they used technology and computers in the classroom. Zhao (2007) observed the following, four categories of technology-related activities from the teachers: (a) teacher-centered, (b) structured inquiry, (c) teacher-student negotiated, and (d) student-centered. Zhao (2007) found that many of the teachers were willing to use technology, expressed positive thoughts about the training program, increased their use of technology in the classroom, and they used it more creatively. Zhao (2007) also learned that the more the teachers used the technology, the more willing they were to use it in the classroom; however, the integration training did not ensure that the teachers would completely replace their teaching with technological methods.

The literature also identified a study where a professional development program did not seem to appear to achieve the goals that it was created to do. The following study by

Brinkeroff (2006) addresses this point: Brinkeroff (2006) researched the concept of professional development in terms of the integration of technology. Brinkeroff (2006) explained that many barriers such as resources, institutional and administrative policies, skills development and attitudes can often result in underutilized technology resources and lack of integration of these resources within instruction. In this research, teachers went through a professional development academy to address these barriers and to promote their use of technology for instructional methods. Brinkeroff (2006) found that the teachers had significant gains in their self-assessed technology skills and self-efficacy; however, there was little or no change in their self-assessed technology integration beliefs and practices in terms of technology integration despite interview data where the teachers felt that their teaching methods changed. Brinkeroff (2006) found the technology integration academy to be a successful experience for the teachers; however, it did not address all of the intended objectives of the professional development program.

It was determined through this research that the professional development opportunities provided in this district are exceptional. Many of the teachers thought that they were exposed to very comprehensive courses, and they learned exactly what they needed to know to use the technology. The courses are also offered on a regular basis throughout the entire year, even over the summer months. The teachers explained that they are very pleased that they have a full-time person employed by the district who is extremely knowledgeable and approachable who conducts these courses and is available for individualized instruction. With all of this stated, the teachers would like even more opportunities to review and practice their skills. Many of the teachers felt that they often forget the information if they do not immediately use it, and then it is sometimes difficult to integrate it into the classroom.

Hughes and Ooms (2004) conducted research where they established and sustained content-focused technology inquiry groups. They used this as a teacher professional development model where groups of teachers came together with similar courses and grade levels to identify problems with the integration of technology into their courses and to offer solutions to the problem. The research of Hughes and Ooms (2004) proved to be successful because as time went on, the teachers used the information they were learning in the groups to integrate technology into their classes and lesson plans. This process was based on teacher collaboration.

Teacher collaboration is another approach that works well in helping teachers integrate technology into the classroom. It was determined through this research that teacher collaboration is apparent and is working well in this district. Many of the teachers explained that they work together with each other, the library-media specialists, and the technology teachers to enhance their instructional methods with technology. This was really evident at the elementary school level. The teachers were very pleased with the support that they provide for each other, and they felt that these opportunities help them use technology in their courses.

Mentoring is another great way to help teachers learn and successfully integrate technology into the classroom. It was determined through this research that mentoring does not happen in this district; however, Grove, Odell, and Strudler (2004) conducted a study that showed the beneficial effects of this practice. Grove et al. (2004) investigated the mentoring practice of 16 cooperating teachers as they mentored student teachers to integrate technology into their teaching and learning practices. This study found that in order for student teachers to integrate technology into their classes and create student-centered lessons through

technology, they needed skillful mentors as well as access to technology (Grove, Odell, & Strudler, 2004). Grove et al. (2004) also found that mentors should attend frequent professional development programs to frequently acquire skills to teach in reform-minded ways and the knowledge to help new teachers teach through these reformed standards.

It was determined that many of the teachers would like more time and review opportunities to help them practice and hone their skills that they learned through their technology courses. The use of Performance Support System (EPSS) and scaffolding techniques is a wonderful way to help the teachers review what they learned in their courses to help them remember what they need to do with the technology once in the classroom. Cagiltay (2006) performed a study that explored the concept of providing an Electronic Performance Support System (EPSS) and the use of scaffolding techniques to assist or support the learner in developing the skills needed to use the technology. The EPSS is done through an online tutorial system, and it provides opportunities for the learner to acquire the information needed to use the technology in their careers. Cagiltay (2006) identified the following components of an EPSS: (a) it is comprised of a collection of integrated software components; (b) it is part of an organization's knowledge management system; (c) it is user-controlled and is easy to use; (d) it provides support at the moment it is needed; and (e) it presents relevant and context-focused information that a task performer needs in a real work environment. Cagiltay (2006) identified the following types of scaffolding that were investigated in this study: (a) conceptual (supportive) scaffolding, (b) metacognitive (reflective) scaffolding, (c) procedural scaffolding, and (d) strategic-intrinsic scaffolding. This study revealed that there are challenges to form this type of support system due to the fact that it is time consuming and demanding, but Cagiltay (2006) found that these systems

are beneficial because scaffolding provides the right amount of material in the right amount of time to help employees succeed in their jobs and enhance quality and proficiency in terms of technology. School districts could adopt such systems to help educators learn how to implement technology into the learning environment.

Research Question 4

Research question 4 asked, how do elementary, middle, and high school teachers perceive their district in providing maintenance activities? The majority of the teachers agreed that the maintenance activities are exceptional in this district. They explained that the technology department is in place to handle the repairs and address the issues with the computers. The teachers also explained that there is a clear chain of command in place for repairs and service. The teachers must first go to the computer teacher in their building for problem solving, and then if the computer teacher cannot solve the problem, he/she then turns it over to technical support in the technology department. There is an electronic work order system in place called "Computer Dude" that the technology teachers use to request service or maintenance to be performed. When repairs must be made to the network or individual computers, they are usually performed very quickly, and the teachers are very pleased with the manner in which the repairs are accomplished. If repairs take too long or laptops need to be sent out for service, they are always sent via express mail to and from the district, and loaner computers are available to the teachers. Routine maintenance is performed to the system, and major work is performed on the network over the summer.

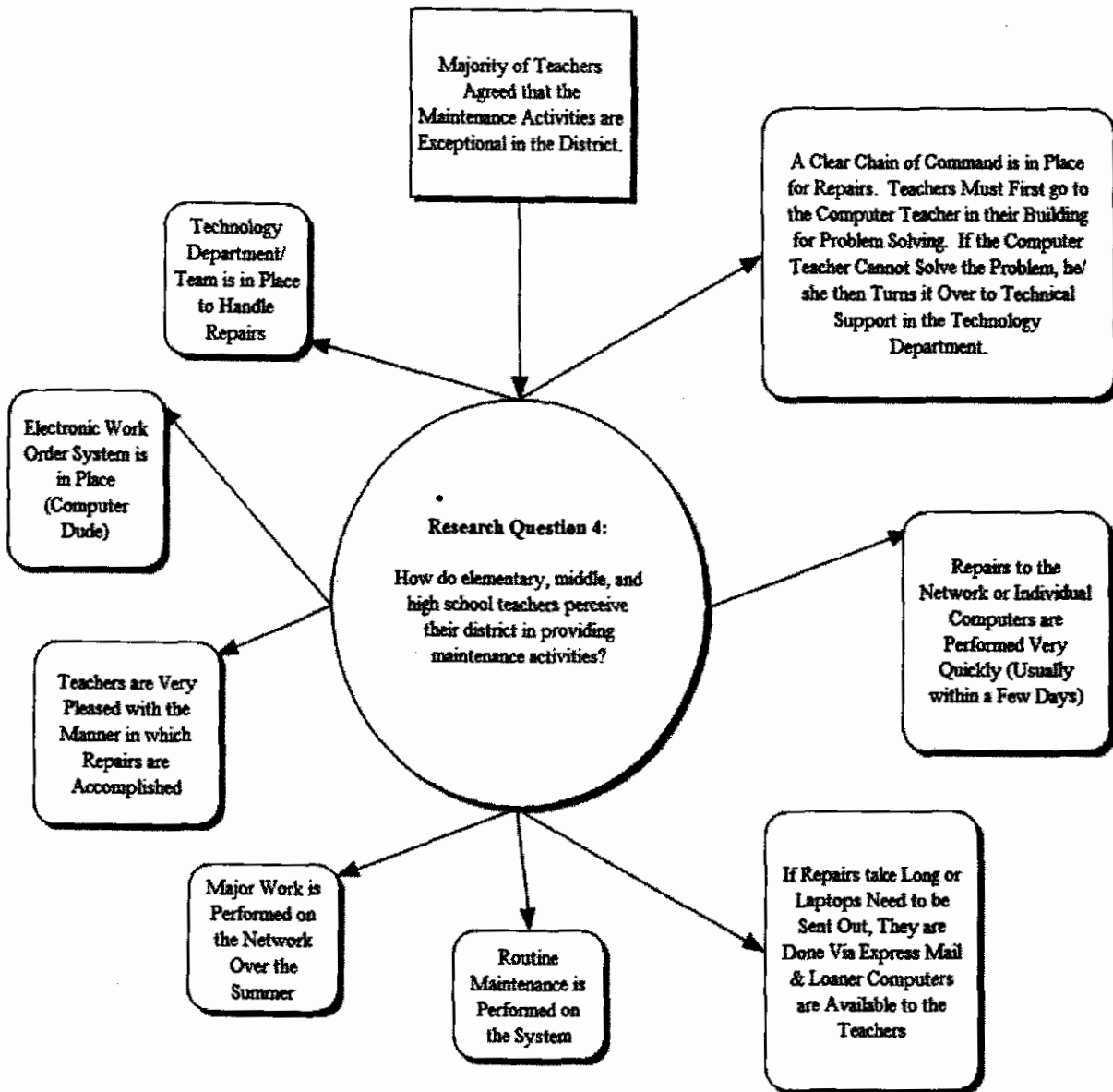


Figure 5. Analysis of research question 4.

Collins (2009) stated that, “Maintenance implies that the technology needs to be preserved and continue in operation” (p. 49). Collins (2009) explained that maintenance is an on-going and never-ending routine that must constantly be done in order to keep the technology in good working order. There are different types of maintenance activities that should be performed at various times during the year. Collins (2009) identified the following types of maintenance activities: daily maintenance, weekly or monthly maintenance, and

semi-annual maintenance, and annual maintenance. Daily maintenance includes doing the following simple activities each day to ensure that the technology remains functioning: make sure that there is a barrier between computer and liquids, dust, make sure that all of the connections are in place, backup data files, and update important protection software such as antivirus and spyware guards (Collins, 2009). All of these activities can be performed very quickly, and they will help prevent the computer from experiencing mechanical problems and having parts replaced. Collins (2009) explained that the inspecting, testing, adjusting, servicing, and repairing the technology should be done during the weekly or monthly maintenance. During semi-annual maintenance, Collins (2009) explained that the following items should be performed: semi-annual maintenance activities should be placed on the calendar, filters should be changed, toner cartridges should be replaced, and frayed wires or cables should be located and replaced. According to Collins (2009), "Annual sustainment activities are tougher to describe. I like to think of this one as the 'good ole spring cleaning.' This is the capstone and integration of all the maintenance intervals and activities" (p. 55). Collins (2009) recommended having an "Annual Maintenance Day" in the organization where staff development sessions can be offered, hands-on demonstrations and exhibits could be provided, and the idea that it is important for all employees to take care of the technology can be communicated. Routine maintenance activities will allow the technology to last longer and continue to serve us well.

It was determined that the maintenance activities performed in this district are consistent with the ideas of Collins (2009) discovered through the literature review. The majority of the teachers explained that they were very pleased with the manner in which repairs and service are handled within their district. The teachers also identified that routine

and summer maintenance activities take place in their district similar to the following maintenance activities identified by Collins (2009): daily maintenance, weekly or monthly maintenance, semi-annual maintenance, and annual maintenance. The maintenance activities in this district are exceptional, and the technicians work very hard to keep the system up and running.

Research Question 5

Research question 5 asked, how do elementary, middle, and high school teachers perceive their district in providing planning activities? The majority of the teachers identified both strengths and weaknesses in the area of planning activities, but they also recognized that improvements must be made in this area. The teachers in this study identified the following strengths: there is a 5-year replacement plan in place for the computers in the district's libraries and labs, many of the labs and the libraries have been furnished with new computers over the past year, the laptops are currently being replaced for the teachers, and the teachers would like to see and use more updated equipment in their classrooms. The teachers also identified the following weaknesses with the planning for technology in their district: the majority of the teachers do not know what is written in their district's technology plan and what the plan has written in it about planning activities, many of the teachers have been using older laptop computers, the 5-year replacement plans are based on budgetary constraints and scheduled replacements may not always take place based on funding issues, and there is no replacement plan in place for the classrooms. The classrooms currently obtain the older computers from the libraries and labs throughout the district on a random basis when these facilities are upgraded with new equipment.

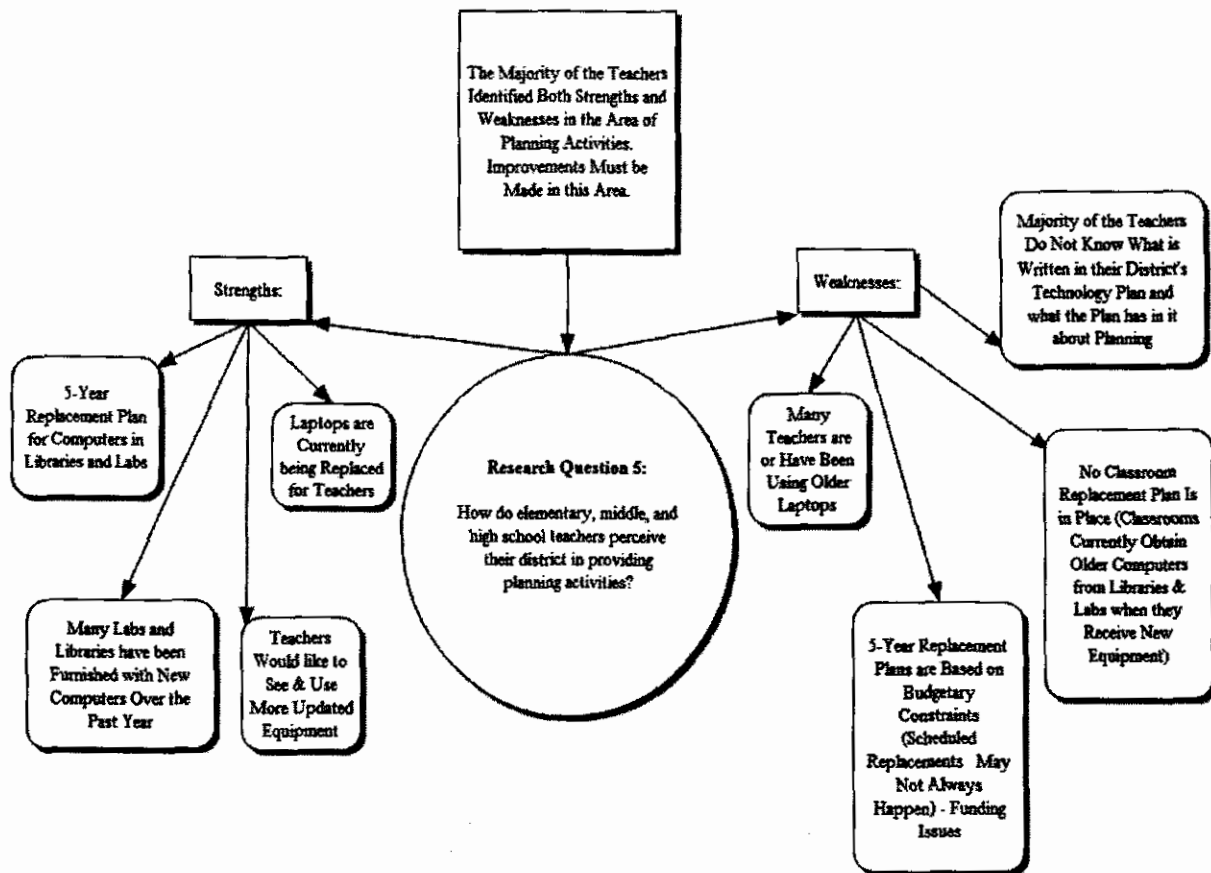


Figure 6. Analysis of research question 5.

Collins (2009) recognized the fact that good planning is hard work, but it is very important to plan for the future in terms of technology. "Plans are designed to be beginning frameworks. Things happen. Technology causes shifts in the plan. As James Feldman (as cited in Collins, 2009) would say, 'Shift Happens.' If we create a plan and fail to periodically review the document we are sure to lose our ability to adapt in a proactive way" (p. 56). The plans are critical to help the organization move forward in the right direction. Brooks-Young (2002) explained that administrators must examine what practices are already in place, consider what needs to be done, and what areas need to be developed. It is very important that Collins (2009) explained the concept that organizations must constantly

review and update their plans to make sure that they are moving in the right direction. The technology keeps changing very quickly, and Collins (2009) explained that planning is one way that will allow us to anticipate the changes without them happening before our eyes and then be expected to deal with it. Collins (2009) also explained that planning for the future also requires financial resources, and organizations must make sure to account for this in their annual budgets. According to Collins (2009), there is usually a 4 to 5 year window of opportunity for most technology, and then it should be replaced. Finally, Collins (2009) explained that the entire organization, where every office is represented, should be involved with the planning process, the planning must be done with the organization's mission in mind, and committed leadership must be a part of this process in order for it to be successful. The research of Li (2007) also supports this idea as it was determined that a technology-enhanced environment can be viewed as a system that emerges from the interaction of its components, and the components are the critical stakeholders in this process. These stakeholders include the students, the parents, and the administrators.

Dickard (2003) explained that there are a number of actions that must be taken in order to sustain the technology infrastructure in our schools and take it to the next level. According to Dickard (2003), the top ten list includes the following recommendations:

- (1) Accelerate teacher professional development,
- (2) 'professionalize' technical support,
- (3) implement authentic ed-tech assessments,
- (4) create a national digital trust for content development,
- (5) ensure that all Americans have 21st century skills,
- (6) make it a national priority to bridge the home and the community divides,
- (7) focus on the emerging broadband divide,
- (8) increasing funding for the federal ed-

tech block grant, (9) share what works, and (10) continue ed-tech funding research” (p. 12-14).

According to Collins (2004, p. 58), “In educational technology, our efforts are especially imperative. We are preparing students for their futures, which involve using technology in their lifelong learning, most vocational fields, and leisure-time activities.”

The majority of the teachers explained that planning for acquisition of future technology occurs in their district, but improvements must be made to these activities. The findings of this study in terms of planning activities are not completely consistent with the ideas of Collins (2009), and both the teachers and the research of Collins (2009) suggest that this district needs to improve in this area. The teachers explained that there is a 5-year replacement plan in place for the computer labs and libraries throughout the district; however, these plans are dependent on the annual school budget. Even though replacements may not always take place, the teachers reported that many of the computers are currently being replaced in these areas. The teachers would also like to see more updated technology in the classrooms. This district does not have a current replacement plan for the computers in the classroom other than the fact that the classrooms acquire the older computers from the labs and libraries when they are replaced. Even when this occurs, the classrooms are still acquiring older machines. They still function well, but the teachers would like their students to be able to use newer technology in their rooms. The teachers would like to see a plan developed for the classrooms. The majority of the teachers also identified that they do not know what is written in their district’s technology plan, and they would like to see this to know where they are going with technology in the future. They also identified that the

technology department is solely responsible for the planning activities in their district, and they would like the entire school community to be involved with this process.

Research Question 6

Research question 6 asked, how do elementary, middle, and high school teachers perceive the leadership in their school district in regard to all sides of the Technology Leadership, Management, and Policy Pyramid? The majority of the teachers perceived that leadership is in place, but it needs improvement. In terms of organizational integration activities, the teachers explained that they are solely accomplished by the departmental supervisors and the district's technology trainer. The maintenance activities are solely accomplished by the technology department, and the teachers would like to be updated on these and future activities. The teachers also explained that the planning activities are solely accomplished by the technology department, and they would like to see clear technology plans in place and the district's technology plan so they know where they will be going with technology in the future. Overall, the teachers would like to see the leadership improved and have more administrators and the school community involved with this process to have everyone working on one plan with a common vision in regard to the integration of technology throughout the entire district.

It was determined through the literature review that barriers to the integration of technology sometimes exist at the district level, and these findings are closely related to school leadership. In a case study by Ausband (2006), the job responsibilities of district-level instructional technology specialists that related to curriculum work and their perceptions concerning their job responsibilities and relationship to curriculum work were

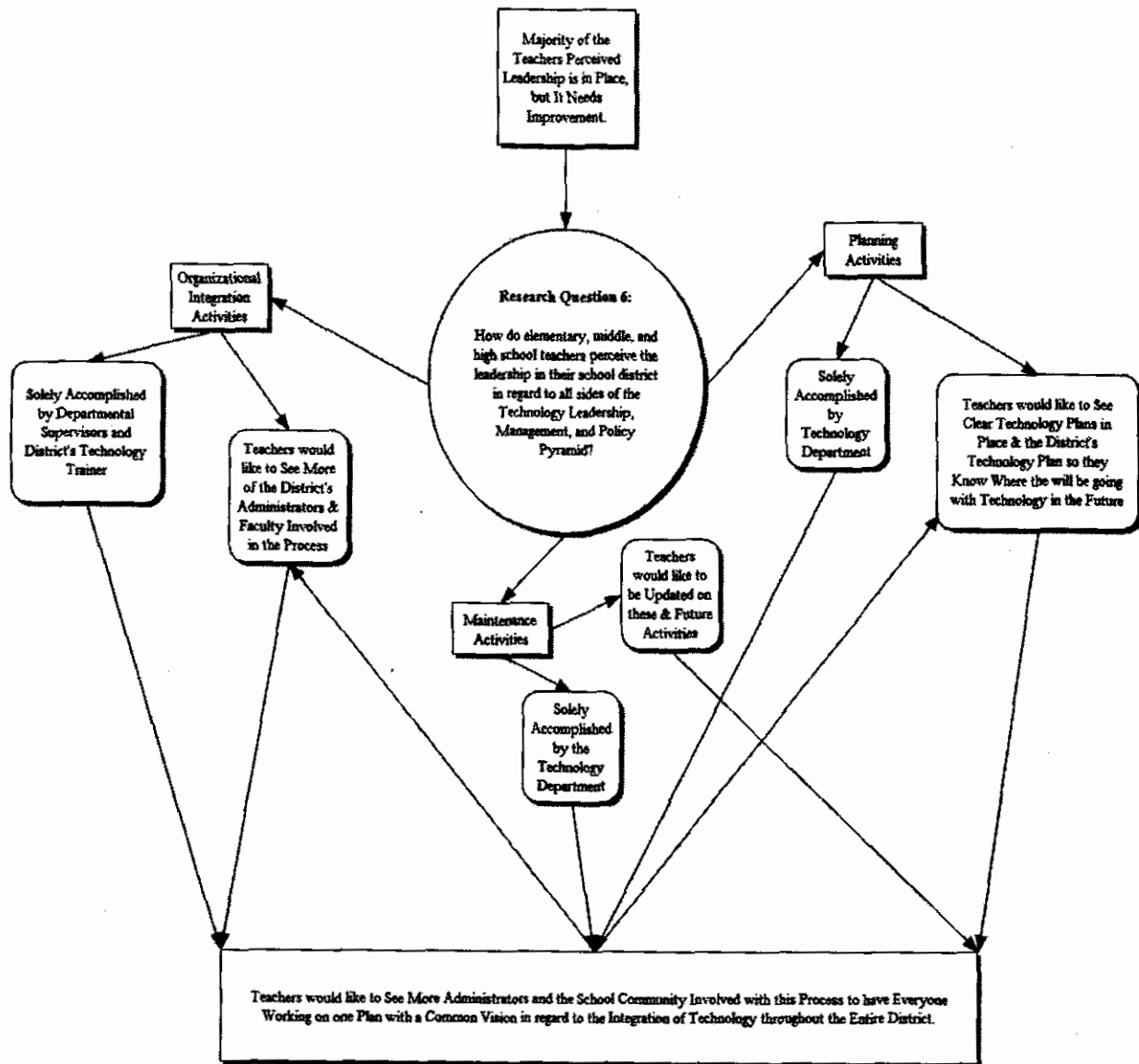


Figure 7. Analysis of research question 6.

investigated. Ausband (2006) explained that central office has technology specialists and curriculum workers to improve and support technology instruction and student achievement for the students. The data was collected through document analysis, shadowing, interviews, and a focus group. Many barriers were identified that contributed to reasons why technology is not successfully integrated into schools. Ausband (2006) found that there were communication problems between the instructional technology specialists and the curriculum

workers for the district, accountability issues for teacher technology portfolios, leadership issues in terms of technology, and a lack of time to work with the teachers. Ausband (2006) found that there is a gap between many parts of the central office staff and information is often not coordinated between the departments of the district, and the instructional technology specialists find it difficult to find the time to work with the teachers to successfully integrate technology and document their portfolios.

The literature review also identified several research findings that can be utilized by school leaders to have a positive impact on the integration of technology in their districts. Collins (2009) explained that in order for the Technology Leadership, Management, and Policy Pyramid to be successful in helping schools integrate technology, all three sides of the pyramid (organization integration activities, maintenance activities, and planning activities) must be done simultaneously with committed leadership. Brzycki and Dudt (2005) concluded that in order for integration to be successful, change facilitators need to offer multiple forms of support and incentives, tie incentives to desired outcomes, involve faculty in the decision making process to allow for buy-in to take place, use faculty models, supplement technical support with peer support and well trained student assistants, and develop strong administrative support. Li (2007) explained that a technology-enhanced environment can be viewed as a system that emerges from the interaction of its components, and the components are the critical stakeholders in this process. These stakeholders include the students, the parents, and the administrators.

Abdelraheem (2005) found that the goal of producing high quality electronic learning systems that truly benefits learners could only be achieved through collaboration among instructional technologists and information technologists. Adamy and Heinecke (2005)

found that the integration of technology is a social process, and teachers must have administrative and institutional support in order to succeed. Franklin (2007) identified the following factors that influence computer use for teachers: (a) leadership, (b) access and availability, (c) incentives, (d) personal support, (e) external constraints, and (f) philosophy and preparation.

Lim (2007) examined effective integration of information and communication technologies (ICT) in Singapore schools. 10 schools were analyzed in this study. From this research, Lim (2007) offers pedagogical and policy implications that can be used to successfully integrate technology into schools. Lim (2007) offers the following pedagogical recommendations: (a) address classroom management issues to create conducive environments for effective technology integration in schools, (b) availability of ICT tools, (c) establishment of disciplinary and educational rules and procedures for ICT mediated lessons, (d) division of labor among teachers, (e) design and implement orienting activities to support learner autonomy with technology, (f) recognize the teacher's role to engage students in ICT lessons, (g) revisit and revise activities, (h) adopt scaffolding strategies in all ICT-mediated lessons, and plan training sessions for the students to use the technology. Finally, Lim (2007) offers the following policy recommendations at the school level: (a) set a clear vision of ICT strategies for the school and this vision must be shared by all members of the school community, (b) develop frameworks for teachers to collaborate within departments regarding ICT, (c) plan regular sessions for demonstrations of exemplary ICT-mediated lessons by teachers, mentors, or seasoned practitioners, (d) create platforms to showcase the relevance and usefulness of CD-Roms bought by schools, and (e) setup a mechanism that provides teachers and students with incentives and empowerment in the use of ICT for teaching and

learning. All of these recommendations are very useful and practical for the successful integration process of technology into schools.

It was determined through this research that leadership exists in this district, but improvements must be made in this area. The teachers explained that they currently only have their departmental supervisors and the district trainer working on the organizational integration activities, and the technology department is solely responsible for maintenance and planning activities. There are sometimes times communication problems taking place within the district similar to the findings of Ausband (2006). For example, many of the teachers do not know what is written in their district's technology plan. The teachers would like to see more of the school community involved with this process working toward a common vision to improve the integration of technology in their district and make it even stronger than what currently exists. This is consistent with the literature base on this topic. In summarizing the work of Tichy and DeVanna (1986), Yukl (1998) explained that once a leader recognizes the need for change, a common vision must be formed.

“Before people will support radical change, they need to have a vision of a better future that is attractive enough to justify the sacrifices and hardships the change will require. The vision can provide a sense of continuity for followers by linking past events and present strategies to a vivid image of a better future for the organization. The vision provides hope for a better future and the faith that it will be attained someday” (Yukl, 1998, p. 442).

In explaining the work of Tivhy and DeVana (1990), Northouse (2001) stated, “The vision acts as a conceptual road map for where the organization is headed in the future and what it will look like” (p. 144). The common vision should motivate employees or subordinates to

change in an effective manner. The faculty members would like to be involved in the decision making process similar to what Brzycki and Dudt (2005) found where teachers should be involved in the decision making process to allow for buy-in of the technology to take place. The leadership and vision must be improved in this district to better integrate technology through organization integration activities, maintenance activities, and planning activities as identified by Collins (2009) that will allow the entire school community to benefit from the powerful tool of technology.

Conclusion

This study analyzed the perceptions of elementary, middle, and high school teachers in regard to the integration of technology in their district in terms of Collins' (2009) Technology Leadership, Management, and Policy Pyramid. This pyramid has the following, three sides: Organizational Integration Activities, Maintenance Activities, and Planning Activities. According to this conceptual framework, schools need to utilize all of the sides of the pyramid in their vision in order to attain excellence in educational technology. Collins (2009) noted that all of these steps must be done simultaneously with committed leadership in order to see improvement and attain excellence. One school district in Essex County with a District Factor Group, DFG, of J was used in this research. Qualitative procedures were used to analyze the results of this study. Overall, the majority of the teachers are pleased with the integration of technology in their district; however, they recognized that improvements are needed in certain areas.

In terms of organizational integration activities, the teachers agreed that there are strong professional development opportunities in place with hands-on activities, the district

employs a full-time trainer to instruct the teachers with technology through courses and individual lessons, and a peer leader group consisting of students is available to train the teachers in this area. It is apparent that many of the teachers involved with this study want to use technology in the classroom to support their lessons, and many of them are already embracing it in creative ways. The school district is right on target with past research studies indicating positive effects of professional development opportunities in regard to technology training. The teachers would like to improve the area of integrating activities by having more time and opportunities to learn how to integrate technology into their courses and align it to the curriculum, and they would like more follow-up courses to review and practice the material that they learned in previous courses.

In regard to maintenance activities, it was determined that the majority of the teachers were pleased with the manner in which maintenance issues are addressed in their district. It was revealed that there is a basic 5-year maintenance plan in place, routine maintenance is performed to the system, extensive maintenance is performed to the system over the summer, there is a great electronic work order system in place, repairs are performed very quickly, there is a strong support system in place, and the district has a fine technology department to address and repair the problems with the technology. The district's activities in this area are also consistent with the literature base in terms of utilizing best practices in maintenance activities to support and maintain the infrastructure.

In dealing with planning activities, the teachers explained that it is done on a five-year replacement plan for the labs and libraries throughout the district, but there is no clear plan in place for the classrooms. The classrooms acquire the older equipment from the labs and libraries on a random basis when these rooms receive new equipment. Many of the

teachers would like to see a plan developed for the classrooms, and they would like more people to be involved with the planning process throughout the district. The literature base also suggests that many people such as administrators, teachers, parents, students, and other community members should be involved with this process. Many of the teachers were also not familiar with what was in their district's technology plan, and they agreed that this plan should be better communicated throughout the district.

It was determined that leadership is present in this district in terms of technology integration, but improvements are needed in this area to make the integration process stronger in providing organizational integration, maintenance, and planning activities. The literature base suggests that a clear vision needs to be established to help the district successfully integrate technology, and this district needs a little work in this area.

Overall, the district is doing an exceptional job in the area of technology integration. Educational technology is a fairly new concept, and this school system has appeared to utilize many best practices in embracing it and making it available as a powerful tool to be used by the learning community. Even though several barriers to technology integration in schools were identified through the literature base, it was determined that only a few of these barriers apply to this district, and the school system is working hard to overcome these obstacles to successfully integrate technology throughout the school system.

Recommendations for Policy, Practice and Future Research

Recommendations for Policy

Based on the results and conclusion of this research, the following areas are recommended for policy:

1. Policy makers need to set a clear vision for the integration of technology in schools that will enable superintendents, administrators, teachers, and students know what is expected of them in their learning communities and to utilize best practices when working with technology in educational settings.
2. Policy makers need to develop the frameworks to support the integration of technology in school districts, and these frameworks should include organizational integration activities, maintenance activities, and planning activities.
3. Policy makers must develop strategies to help administrators and other school officials develop the leadership that is needed to foster the integration of technology in their school districts.
4. Policy makers must develop procedures to increase the funding for educational technology to enable school districts to have and maintain replacement plans for the acquisition of newer technology.

Recommendations for Practice

Based on the results and conclusion of this research, the following areas are recommended for practice:

1. Principals and administrators must encourage and support teachers in utilizing technology in the classroom by providing them with opportunities for them to develop and

practice their skills in this area. The opportunities could include the following types: professional development courses on technology, time for the teachers to integrate technology into their courses, time for teachers to receive individual training from technology specialists, and time for teachers to collaborate with each other on this topic.

2. Principals should try to develop schedules for teachers that will allow them to have one classroom, and if this is not feasible, the schedules should be designed to try to allow teachers to remain in a classroom for at least a few periods in a row to enable them to utilize computers in one setting without having to move heavy laptop carts from room to room. This change in scheduling would also be beneficial to the teachers who want to integrate technology into their courses because they would not have waste valuable class time to set up the technology each period.

3. Superintendents, principals, and administrators must communicate their district's technology plan to all members of the faculty and staff so they know what is expected of them and to provide the teachers with a sense of where they are going with technology in the future.

4. Superintendents, principals, and other administrators should involve teachers in the decision making process as they plan and integrate technology into the district. The teachers are the people who will actually be using the technology in the classroom with the students, and their voices should be heard. The teachers have great insight, and they know what activities will work and the things that will be challenging to implement. This important step would also help teachers buy in and integrate technology into their instruction because they were a part of the process.

Recommendations for Future Research

Based on the results and conclusions of this study, the following areas are recommended for future study:

1. Three focus group interviews consisting of elementary, middle, and high school teachers from one district with a District Factor Group (DFG) of J were used in this study. It is recommended that additional focus group interviews be conducted in other districts with a DFG of J in order to analyze the integration of technology in similar districts in terms of Collins' (2009) Technology Leadership, Management and Policy Pyramid.

2. It is recommended that additional focus group interviews with elementary, middle, and high school teachers be conducted in other districts with different DFG groupings in order to analyze the integration of technology in similar districts in terms of Collins' (2009) Technology Leadership, Management and Policy Pyramid.

3. It is recommended that focus group interviews consisting of administrators be conducted in various DFG groupings to determine their perceptions regarding the integration of technology in these districts in terms of Collins' (2009) Technology Leadership, Management and Policy Pyramid.

4. It is recommended that focus group interviews consisting of community members, parents, board members, and students be conducted in various DFG groupings to determine their perceptions regarding the integration of technology in these districts in terms of Collins' (2009) Technology Leadership, Management and Policy Pyramid.

5. It is recommended that quantitative research procedures with a survey instrument be conducted in addition to a qualitative research design to allow for a mixed methods approach in unearthing information regarding the integration of technology in districts with

various DFG groupings in terms of Collins' (2009) Technology Leadership, Management and Policy Pyramid.

Concluding Remarks

The purpose of this study was to determine the perceptions of elementary, middle, and high school teachers in regard to the integration of technology in their district in terms of Collins' (2009) Technology Leadership, Management, and Policy Pyramid. This pyramid has the following, three sides: Organizational Integration Activities, Maintenance Activities, and Planning Activities. According to this conceptual framework, schools need to utilize all of the sides of the pyramid in their vision in order to attain excellence in educational technology. Collins (2009) noted that all of these steps must be done simultaneously with committed leadership in order to see improvement and attain excellence. The researcher utilized focus group interviews to obtain the teachers' perceptions about this topic, and these results were analyzed through qualitative research procedures. This research reveals that this district is utilizing many best practices in integrating technology throughout the system, and improvements are needed in some areas, but this is the case with any new concept. This study is consistent with the literature base on this topic, and it was determined that this school district is utilizing many of the best practices identified by past research on successful technology integration. Overall, the district is doing a great job in this area, and hopefully, the information learned through this study can be of value to other districts that are in the process of integrating technology.

Educators and policy makers must develop the leadership and vision that will allow for the integration of technology to be used as a powerful tool by its learning communities. It

appears that society is acting as a driving force for the integration of technology in our schools, and our communities expect to see computers used in education. Schools must be ready to accept the responsibility of providing this type of learning in the curriculum to enhance instructional methods. Today, policy makers and administrators must have a plan in place to develop this process, educate teachers, and hone their skills. It appears that technology is here to stay, and schools must utilize the research and best practices that will enable this implementation process to be successful.

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APPENDIX A

Question Route

Script of Question Route for Focus Group Interviews

Thank you for attending and volunteering your time to be a part of my research for my dissertation towards my doctorate degree in education. I really appreciate all of your assistance with my research. Today, you will be taking part in a focus group interview regarding the integration of technology in your district in terms of the Technology Leadership, Management, and Policy Pyramid, a theoretical framework developed by Dr. John Collins. This pyramid has the following, three sides: Organizational Integration Activities, Maintenance Activities, and Planning Activities. According to this model, all of these activities must be done simultaneously with committed leadership. This interview will take approximately 90 minutes to complete. All of your responses will be kept confidential and amassed in the report. Please know that your names or the name of the school district will not be used in the dissertation or any report. After the data is analyzed, a summary of the important findings will be sent to all of the participants involved with this research.

I ask that you please sign the Consent Form that you received in the mail and pass them forward. I will send you a copy of your signed and dated form for your files. This form indicates your consent to this interview and for it to be tape recorded. Do you have any questions at this time before we begin?

You will find an index card in front of you folded in half with a letter on it. The letter will be used for identification purposes during the interview. Please know that all letters were randomly assigned. Please write your full name on the inside of the card. I am asking

you to do this so I can send you a copy of your signed and dated consent form and a report of the major findings of this research. I will mail these reports to your school address.

I am going to distribute an information form to you, and I ask that you take about 5 minutes to complete it. The purpose of this form is to collect some background information on you. Are there any questions?

Please pass these forms forward.

I am going to ask you 15 questions regarding the integration of technology in your district in terms of the Technology Leadership, Management, and Policy Pyramid that was developed by Dr. John Collins. Please respond freely to these questions in an informal matter.

Questions: .

Q01: How does your district's technology plan address the following components of technology integration: integrating activities, maintenance activities, and planning activities?

Q02: Discuss the professional development opportunities provided by your district. For example, are they primarily hands-on or informational, how many occur per year, and who conducts these professional development opportunities (outside professionals, teachers, or curriculum specialists)?

Q03: Explain how these opportunities facilitate teachers in aligning the technology to the curriculum.

Q04: Evaluate if these professional development opportunities are useful and practical in helping teachers use the technology and integrate it into the classroom.

Q05: Please evaluate how your district provides technical support to maintain the infrastructure and address problems.

Q06: How is the technology support system/service for the district organized, and who is involved in the maintenance activities?

Q07: When there is a problem with the computer system, how long does it usually take before the repair is performed?

Q8: How do you perceive your school district in providing activities in planning for the future in terms of technology? Please be very specific.

Q9: Explain how your district's technology plan addresses the issue of "planning for the future" to ensure that the technology remains up-to-date in future years and how this is actually being accomplished in your district.

Q10: Overall, how would you describe the leadership in your district in supporting the integration of technology into the school buildings?

Q11: Specifically, how is the leadership in your district involved in the following areas of technology integration: (1) integrating activities, (2) maintenance activities, and (3) planning activities?

Q12: How is the leadership reflected in your school district's technology plan, and how is this communicated to the school communities?

Q13: How do you use technology in the classroom for instructional methods/teaching? Please be very specific.

Q14: Is there anything that you would like to add to the discussion to provide the researcher with additional insight on how your district integrates technology into the learning community?

Q15: In closing, identify one word that captures technology integration in your district.

Thank you again for your time and participation today in the focus group interview. I appreciate all of your help with my research. As you leave, I will give you a stamped, self-addressed envelope to send me any personal messages or statements that you may want to add. Thanks again and have a great evening.

APPENDIX B

Data Collection Instrument: Background Information

Data Collection Instrument: Background Information

Information Form – Focus Group Interviews

Length of Focus Group Interview: 90 Minutes

As you answer the questions in the interview, please base your responses on technology integration in your district over the last **FIVE** years.

Please complete the following questions:

1. Letter on Tent Card: _____
2. How many years have you been teaching? _____
3. How many years have you been working for your school district? _____
4. Please identify your age range. Circle the correct response.
22-30 31-40 41-50 Over 50
5. Please write one word that explains how you perceive technology is being integrated and used in your school district over the past five years.

APPENDIX C

Transcripts of Interviews

Transcript of Elementary School Focus Group Interview:

Date: June 3, 2008

Time: 3:30-4:30 PM

Exact Time of Recording: 60 Minutes and 33 Seconds

Researcher: Thank you for attending and volunteering your time to be a part of my research for my dissertation towards my doctorate degree in education. I really appreciate all of your assistance with my research. Today, you will be taking part in a focus group interview regarding the integration of technology in your district in terms of the Technology Leadership, Management, and Policy Pyramid, a theoretical framework developed by Dr. John Collins. This pyramid has the following, three sides: Organizational Integration Activities, Maintenance Activities, and Planning Activities. According to this model, all of these activities must be done simultaneously with committed leadership. This interview will take approximately 90 minutes to complete. All of your responses will be kept confidential and amassed in the report. Please know that your names or the name of the school district will not be used in the dissertation or any report. After the data is analyzed, a summary of the important findings will be sent to all of the participants involved with this research.

I ask that you please sign the Consent Form that you received in the mail and pass them forward. I will send you a copy of your signed and dated form for your files. This form indicates your consent to this interview and for it to be tape recorded. Do you have any questions at this time before we begin?

You will find an index card in front of you folded in half with a letter on it. The letter will be used for identification purposes during the interview. Please know that all letters were randomly assigned. Please write your full name on the inside of the card. I am asking you to do this so I can send you a copy of your signed and dated consent form and a report of the major findings of this research. I will mail these reports to your school address. If you are not going to be here, please put another address where I can contact you.

I am going to distribute an information form to you, and I ask that you take about 5 minutes to complete it. The purpose of this form is to collect some background information on you. Are there any questions?

Please pass these forms forward.

I am going to ask you 15 questions regarding the integration of technology in your district in terms of the Technology Leadership, Management, and Policy Pyramid that was developed by Dr. John Collins. Please respond freely to these questions in an informal matter.

Researcher: We will begin with the first question. How does your district's technology plan address the following components of technology integration: integrating activities, maintenance activities, and planning activities? You can just respond accordingly at any time.

Letter? Well, you do the planning.

E: I was going to say that I think I am the only person who has seen the district's technology plan. So our integrating activities are really a composite of things. Um, the plan addresses technology instruction in the district. We're very fortunate that we have technology classes K through 7, and then there are electives K-12. So the plan addresses those core curricular classes. Um, the maintenance activities are on a five year replacement plan, and the planning activities are also on a five year plan.

Researcher: Okay, thank you E. Would anybody else like to elaborate on question one?

A: I found that the computer teachers have been terrific in instructing us from the absolute basics, how to plug in the computer. I remember you doing that "E," and um, and then also, you know, helping us improve our skills. They have summer programs also, instructional.

Researcher: Where you can acquire some additional skills.

A: And during the school year, also.

Researcher: Okay, thank you "A."

H: Um, I also find that, um, the technology program, um, also tries to coordinate with the media, where quite a bit of computer usage occurs also, and that they try and match what is being done at grade level, so that there is integration of what is happening in the classroom, the subjects that are going on in the classroom happen in those rooms as well.

Researcher: Okay, thank you "H." Would anybody else like to expand.

D: Well, I think our professional development is mostly hands-on, rather than informational, and it occurs, um, probably pretty heavily twice a year, and then definitely in the summer where classes are offered, and they are always conducted from the staff inside so that we develop a personal relationship and a little more of the knowledge of the person that is teaching us, we can always go back to them for instruction.

Researcher: Okay, thank you "D." Anybody else for question one? Anytime, please help yourselves to the food. There is plenty of it.

A: My impression is that the technology program has two components, one – towards increasing the knowledge for the students, and then also for the teachers. It's really both ways. Are we focusing on one or the other right now, or considering both?

Researcher: Um, considering both from a district perspective.

A: Uh hum, okay.

Researcher: Okay, shall we move on to question two?

E: I already feel like I answered question two.

Researcher: Okay, question two. Discuss the professional development opportunities provided by your district. For example, are they primarily hands-on or informational, how many occur per year, and who conducts these professional development opportunities (outside professionals, teachers, or curriculum specialists)?

C: We have a staff development person at the Board Office who does that. (Voice from the group: a computer specialist.) I believe that she is also staff development, and she is a trainer just for technology. So she does that all year.

Researcher: Okay, thank you "C."

C: And, we have our computer specialist in the building, "E," who is happy to help us, and what happens is that, um, she also is hands-on, informational, the same way.

Researcher: Thank you, "C."

F: Pretty much one on one staff development, "E."

C: Yes, that's a one on one on per needs basis. (Laughter)

F: Yeah, it is.

C: Yeah, some of us have a greater need than others. It is.

Researcher: Thank you, "F."

B: When I was new to the school, and I had to do report cards for the first time, "E" helped me pretty much one on one, you know, my free time, she helped me on her free time as well

Researcher: Okay, thank you "B."

E: But because I do a lot of the instruction, I am, um, privileged to receive staff development, professional development, from outside professionals, and then I am expected to turnkey that information.

Researcher: Okay, so once you receive the information from the outside, then you can relay that to the faculty members.

E: Right.

Researcher: Okay, thank you, "E."

H: I believe that twice a year the district person puts out a brochure offering a variety of different classes that you can take, um, usually spring, actually fall, spring, does she do it spring? (Group: yes.), and summer, um, and then additionally during the year she will occasionally come in for some special training for a specific program like the um, she came in for the um, United Streaming, or special things like the EdLine. I remember her coming in a couple of times this year. Occasionally, though, we will get somebody outside the district, like I am thinking about the woman from Study Island who was just there. We incorporated through, um, through the PTO this special program for the kids to use at home over the summer, so we had training from the woman outside with that company that came in to show us how to use it.

Researcher: Okay, thank you "H." Anybody else?

C: And I do have to say that last summer the media specialists were trained by Jamie McKenzie, but it was not in technology, it was in research, using technology.

H: You know, come to think of it, another place that we got some, was when we were doing curriculum writing. I mean we did curriculum writing, you were there to help us (referring to "E"), with you know uses of the computer and resources that we would have there and, I know science you weren't there, but we learned how to do a bunch of stuff, and actually that's where we learned the United Streaming was last summer, so happens during curriculum writing with really no body in particular in charge of doing it, just, I know how to do it or let me show you how to do that kind of thing.

Researcher: Okay, so through a peer review or peer process, peer coaching, I guess?

H: Uh hum.

Researcher: Okay, thank you "H." Okay, anybody else? Shall we move on to question three? (Group nods yes.) Okay, explain how these opportunities facilitate teachers in aligning the technology to the curriculum.

C: Well, there you go. There's your answer. As your planning the curriculum, you're also using the computer to find research that's available for staff when you're writing the curriculum, and then what "E" and I ("C") do, is when we're very aware of what everybody is teaching in the classroom, so what we do, is we align what we do with their curriculum, and then what happens is I sometimes think that it kind of keeps everyone focused on the same curriculum.

D: I think that there is a lot of resources that we put into the curriculum that use technologies such as, you know, video clips that do this for us, and um, when we write the curriculum, when we are asked to do it, one of the focuses is to bring in more and more technology to the

classrooms, so into the lab, the technology lab, and also into our classrooms with, um, videos of the pertinent types of cognates, especially in science, that we are asked to explore.

Researcher: Excellent, thank you “D.” “I”.

I: Yes, and we also collaborate, I was using the library once, and using the equipment here to teach a lesson on how to select a book using Amazon.com, and “C” jumped right in and helped me with the lesson, and actually did a better job, and took it into directions that I wasn’t even prepared to go in, and not only that, but the lesson that she took to greater heights, also we did a whole book because of that, that was the Fringle, so it’s this collaboration where we don’t even plan it and we help each other.

Researcher: Excellent. There is a lot of peer coaching going on.

I: Exactly, peer coaching, yeah.

Researcher: Thank you, “I.”

E: I kind of look at it from a little different perspective because of my position and in my technology integration, I’m really trying to create more of a performance-task assessment or an authentic assessment. I’m trying to move away from the pencil and paper test and get teachers to accept PowerPoint projects or um, photo essays, that kind of, um, product as an assessment, rather than just kind of testing at the end of a chapter with a paper and pencil.

Researcher: So, you are looking for some electronic assessments. Okay, great “E.” Anybody else?

(Laughter in the group)

C: That’s another doctoral dissertation.

Researcher: Okay, shall we move on to question 4? Okay. Evaluate if these professional development opportunities are useful and practical in helping teachers use the technology and integrate it into the classroom.

H: Sometimes, um, yeah, I have found that I have gone down to the district for, um, different things of learning how to use them, and so, I mean it's great, but unfortunately, you learn it in isolation. I understand it when I'm there, I've got it! (laughter). But then, when I come back, and I'm now trying to use it in the classroom and/or teach it, it can often become overwhelming. I know that we've discussed this before that, you know, as the teacher, you almost have to say, I don't know, you have to be comfortable enough to say that I don't know how to do this, and um, that can be really difficult, and you know, like I said, I know it when I'm there, but when I come back, I don't always find that I am capable of integrating it into the classroom and the same high level that I thought I was going to.

C: Is it the application or the use?

H: (slight sigh) It's, it's sometimes both. I mean, where would it make sense to use it? You know?

C: That's the application.

H: Right, and then, okay, so now I got where I am going to use it and it makes sense and it's going to go for my goals that I am trying to get to, but then when it's now the use of it, and I'm trying to, one teacher, and I'm trying to instruct to twenty students who have such a wide range of variety of knowledge of the computer, and that's what I am saying, you have to be willing to either say I don't know to the student because I don't, half of them probably know more than me (voice from the group – they are much more savvy), half of them don't know

more than me, and I have to, you know, work to allow this one to teach that one, and I lose a lot of control, and I have to be comfortable with that, and that's difficult.

Researcher: So you would like some more reinforcement exercises to help to –

H: Right, not to just do it in isolation once, I don't know if there's always time, I mean that's in a dream world, I understand.

B: My own kids, when I am writing lesson plans and doing things at home on my own computer, I had to have my fifth grader, she is much more savvy than I am, she knows how to cut and paste and do all kinds of things, I mean, she is just more sophisticated and savvy than I am.

Researcher: Okay, thank you, "B." Um, "D."

D: Well, I was just going to say that, I still think that, the opportunities that we have are very useful, um, I would just agree with "H" that, um, you know, for us, we don't get enough practice in applying some of those, and I, you know, coming from a slightly different generation, this isn't the way we were raised, your children and perhaps our younger colleagues have comfort with using the computer just because they were exposed to all of those possibilities earlier on.

B: I'm not intimidated by it. I love it. I mean when I sit there and I'm doing a report or a lesson plan, anything, compared to typing when I was in high school, I mean, that's a nightmare. Now, I'm not intimidated at all. There is so much to learn, and you take it in when you are in a session, and it's hard to remember it when you are a long way past it.

D: And then if you don't come back and use it that day –

B: Yes, right away, then you lose it

Researcher: Then it's difficult?

B: Yes, but I am not intimidated by it at all. I love the computer.

Researcher: Thank you.

A: I was very appreciative of the, um, the specialist that, um, in the district with what she did because I attended a group Ed-Line course, and then she also made the rounds of the elementary schools to help people if they needed help, one of my main issues.

Researcher: Okay, thank you, "A." Anybody else for that question? Okay, we will move on to Question 5. Please evaluate how your district provides technical support to maintain the infrastructure and address problems.

H: "E"! Are you available "E"?

E: We have various levels of troubleshooting. There's a building level troubleshooting which is generally the computer science teacher, and then if it's, the way it has been termed in the department, if it takes me more than 20 minutes, I then put in a work order, we have an online work order system, we have four full-time technicians who are divided among our 7 buildings, so, it's your guess as good as mine as to how long they are going to get here.

Researcher: Okay.

E: Generally if it's really a huge problem, they will come within 3 hours, other times it may not be for three days.

Researcher: Okay. Thank you "E."

B: That seems like 5, 6, and 7.

Researcher: That's okay. They're related.

D: Well, I just wanted to say that having someone in the building who actually can take your problems verbally almost clarifies what the problem actually is because most of the time we're just guessing and it's really beneficial to have someone in the building.

Researcher: Yes, right at this level to help you.

C: Especially when it's a plug. (Laughter from the group.)

E: Yes!

Researcher: Thank you, "C."

C: You feel very foolish going over there.

Researcher: Okay, thank you, "C." Anybody else for the maintenance aspect?

G: "E" always comes running very patient and kind to your assistance.

Researcher: Thank you, "G."

G: (Laughter in the group – to the seasoned and unseasoned staff people and the new comers)

Truly so, she is always there, she is always patient, and she does come one on one whenever we need help, and she has been wonderful.

E: Thank you.

G: She goes above and beyond.

Researcher: Thank you, "G." And thank you, "E." Okay, moving on to Question 6. How is the technology support system/service for the district organized, and who is involved in the maintenance activities?

E: We have a technology, the director of technology, on the administrative level, and he is responsible for, um, assigning all of the maintenance activities, he is the one who sets up the five year replacement plan upon approval of funding from the Board of Education, and he also is the, um, supervisor for all of the technicians.

Researcher: Okay.

C: And we have work orders.

E: And we have the online work order system.

Researcher: Online work order system. Okay, anybody else? Okay. We will move on to Question 7. When there is a problem with the computer system, how long does it usually take before the repair is performed?

I: My impression is that it doesn't take very long. Maybe days?

Researcher: Thank you, "I."

F: "E" had said that 3 hours if it's really important and then a few days if it is not so important.

Researcher: Thank you, "F." Okay, it doesn't take that long.

D: Sometimes you just call and she is there next period that she is free. If it has to do with our stupidity, then "E" can come very quickly. (Laughter from the group.) She tells us that we must first all of these applications, and then you'll be able to run it, so. You know, the printer not working, that kind of thing.

Researcher: Okay.

E: I think that because we don't have a building based technician, it is a teacher who is responsible for the initial troubleshooting, and my priority is teaching, not troubleshooting, so it really comes second to my students, and that's why the wait time could occasionally be more than 40 minutes,

Researcher: Sure, thank you, "E." Uh, "H"?

H: Occasionally, um, like there's a problem with the email, I don't know if this is the kind of thing you are talking about, but I have a terrible problem with my email, getting improper emails, and they're having a hard time addressing that and fixing that, and I don't know if it ever will be fixed or having to circumvent and go around and do other things to delete these improper messages, so unfortunately, I don't know that everything will ever be fixed in that

way?

A: I also just discovered last night that all of the emails that I had received prior to February had been deleted from my computer.

I: They just changed something around.

C: Well, they sent out an email to tell you that would happen.

I: Oh yeah, they did.

A: I just wondered why the end of February?

Researcher: Okay, thank you “H” and “I” and “A” and “C.” Anybody else? Okay, we will move on to Question 8. How do you perceive your school district in providing activities in planning for the future in terms of technology? Please be very specific. (So in terms of planning for the future.)

I: I think that we are moving to having Ed-Line, and I know the high school is much further along in that process than the elementary, but we are moving towards having all of our parent notices on the computer to save paper than to, so I would say that they keep telling us almost warning us that we’re moving in that direction. They do give us professional development so that we can get prepared for it, but they are definitely letting us know that we’re moving in that direction.

Researcher: Okay, thank you, “I.”

B: Um, my children go to one of the elementary schools in the district, and I know the weekly is called the “Green Sheet at School X,” and they said the green sheet went green, and it literally went green, you get it via Ed-Line, and um, a lot of the mailings are now done via email through the Ed-line.

Researcher: Thank you, “B.”

A: At this school and um, another school that I teach at besides School X (school previously mentioned), fewer than fifty percent of the students of the fifth graders have signed up for it, their parents have signed up, so thus, it is impractical to go straight to notices being sent home that way. Maybe the -

B: But they give an option. I mean, they sent a notice on paper and gave you the option if you wanted to go green or you didn't, or if you wanted receive a hard copy on paper

I: But are they saying to staff and parents that we are moving towards the goal?

B: Yeah, right. They gave you an option.

I: So they are letting us know.

B: Yeah, right.

Researcher: Thank you. "F"?

F: I mean, I sent out a weekly newsletter, and I used to print them out every single week and send them out, and parents started saying to me, email them – what are you wasting that paper for?, and out of 18 students, 15 get it emailed, and only 3 get paper copies. So I think it is going that way. And then next year we can do it through Ed-Line.

Researcher: Okay, thank you.

I: I just have to figure out what to do with the photos.

E: That's why it is not on Ed-Line.

I: But I know there's a way to do it.

E: Not legally.

I: Oh, really?

E: Not according to the state.

I: You mean not of the children, but even if we wanted to show a project?

E: There's a lot of conversations about it. Certainly not the children, and there are some people in the state department who also feel that their work should not be displayed. So, it depends on how you interpret what is coming out of Trenton.

Researcher: Thank you, "E."

C: Everything is confidential.

Researcher: "C," thank you.

B: There is something that the district uses, and it is called Art Sonia, and the kids' art work is displayed.

E: It is not district-wide.

B: What about if it is on the bulletin board?

E: You can't get into the building unless you are signed in, so...

B: Oh, I see. Oh, I see. Yeah, that makes sense.

Researcher: Okay. Please help yourself. There is plenty of food. Okay, so we will move on to Question 9. Okay, Question 9. Explain how your district's technology plan addresses the issue of "planning for the future" to ensure that the technology remains up-to-date in future years and how this is actually being accomplished in your district.

C: Didn't you just say that it was a five year plan?

E: Right, the plan that was submitted to the county and to the State calls for a five year replacement plan, but a lot of that depends upon funding from the Board of Education.

A: What does a five year replacement plan mean?

E: Every five years computers should be replaced. Uh, and sometimes that is financially feasible, other times it is not. Well, what we have been doing in District X, is the director has been replacing certain areas of equipment on a rotating basis, so all of the libraries had

their equipment replaced, and then the high school lab was just replaced, and then the middle school lab, and then the five elementary school labs, so by that point, it is time to start again with the libraries, and what happens is that the equipment that is being moved out of a lab situation then gets dispersed among classrooms. So right now there is no classroom plan in place.

Researcher: They just get whatever –

E: They just get whatever is passed off, and um, in some cases, if we can stay with the five-year plan, which has only been in place for, I think 3 years, um, then, you would never have equipment that is more than five years old, you know, in a lab situation, and in a classroom it could be as old as ten years old before you get a replacement again. At which point, the company considers it obsolete. So, it is somewhat a bit of a “Catch 22” without funding for classroom replacements.

Researcher: Funding is the biggest issue. Thank you, “E.” Would anybody else like to elaborate on Question 9? “C”?

C: Does that have any bearing on carts?

E: The carts get replaced when your library gets upgraded.

C: Got you.

H: Um, I am going to address it from another point of view, not from just the computers.

Researcher: Okay.

H: But in terms of what is available for me to use in my classroom and um, I am not sure that I feel that there is a plan set for classroom teachers and um, you know, from any supervisor, I can think of any supervisor that comes in to, whether its math, science, social studies, who ever, their concerned with what books I have, everything is books, no one ever talks about try

and integrate this or try this program, whether its something that I can find on my own or it's a program to or a little disk to slip in, something. The only place that I know about anything is through "E" who I have gone to, and I have sat down and said, "What do you have available for me, for my grade level, that I can use."

Researcher: Thank you, "H." "I"?

I: Our math supervisor, our former one named X X, always posted um, websites, extra websites, that we could go to in math, and our curriculum, um, *Everyday Math*, has websites that we can go to, and that you can even post your own students work on, and our reading supervisor also gives us websites, um, that we can go on for reading, supervisor named X X. So, it is out there. There is also a website for um, our books. As you say, everything is about books, reading that we can avail ourselves for um, to help us level the books. So we do through, um, our supervisors, they do clue us in to some valuable websites.

E: You know, that's not really integrating technology into your curriculum.

I: Oh, no, no, no. What I am saying is that they do mention it. They are mentioning it.

D: Here's a book. Here's a 500 page book, and it's got websites in it. That's not helping me integrate it because figure out what is good or have you checked it out, and is it still on there.

C: Yes.

D: Because I don't have three hours to go through it unless I am asked to, and then I have to.

C: Yes, that's another whole story. You can read this month's magazine, you can look at websites that in whatever magazine, and half of it will no longer be there. So, -

I: Right, but there's a few tried and truths that will always be there.

C: Of course; however, if you are looking at a particular piece of curriculum and you want a particular application, you almost have to preview it daily to make sure that it is still up there

by the time that you want to use it. And when we are talking about technology, this is an interesting thought, um, are we only talking about computers?

Researcher: It could be a variety of factors today.

C: Well every, every teacher has in their classroom an overhead projector, a DVD/VCR, is that correct?

E: In this school.

A: As a music teacher I don't have it.

C: As I understand it, you don't have a classroom. Am I correct?

A: That's true.

C: So let's get you the classroom first, and then I'll be happy to get you the equipment.

A: In another school that I am in, I do have a classroom, but I don't have those things.

C: You might want to, oh well, that I can't help you with.

A: (Laughter) But now I know that I can ask for that.

C: Well, no. I am only talking about in this school, "A." I can only speak about in this school. In this school, those things were ordered by me when I came starting, well, when I came here, okay? And what I started doing was replacing ancient overhead projectors with newer overhead projectors. And then DVD players. Correct? And I got rid of film strip projectors and replaced them with DVD players.

I: We have digital cameras. We all got flash drives this year.

C: That's right.

E: It's not the district. That was from our building, and the camera was from our PTO. Well, some district and some teaching.

I: But the question is how do you perceive your school district in providing activities. Um,

and I guess what I'm saying is that I'm not sure that I'm feeling that my district is. My colleagues are. We're all helping each other, but you know –

C: The district isn't ensuring you up.

E: To my knowledge there is only one academic supervisor who has requested that every person in her department integrate technology into one project per year, per grade level, and that is the World Language teacher. So that each year, second through fifth grade that she teaches, she must do some kind of a technology project within her World Language curriculum. But that is the only supervisor who I know of that required that.

Researcher: Okay. Thank you, "E." Shall we –

C: Can I just say one thing?

Researcher: Sure.

C: I just think that there is a fabulous way for people to learn to do that, is one project at a time you, you, synthesize it, you process it through, you debrief on it, and then you go next year, you make that better, and then you do another one. I think it's a great way to do that.

Researcher: Thank you, "C." Shall we move on to Question 10? Okay. Overall, how would you describe the leadership in your district in supporting the integration of technology into the school buildings?

H: This isn't going anywhere, right?

C: Well, you just said it.

H: Well, I adore our principal; however, there has really been no, I don't feel that there has been leadership. He will say whatever you want to do is fine. I mean, there's, If I were to come to my principal and say I want to do this, he'd go, great, go for it, and you know, see this person, see that person, and he'd give me names, and he would encourage me, but is the

leadership saying to me I want you, this is the plan, and I think that this is what we need to do for all our children because our world is technology, and we – absolutely not.

Researcher: Okay, thank you, “H.” “I”?

I: I think that idea of if a supervisor said that we’d like you to do one project per grade level integrating technology, that’s a great way to start.

Researcher: Okay, thank you, “I.”

E: When I first started in the district a number of years ago, under a different Superintendent of schools, um, one of the two professional improvement plans that everyone is required to file each year had to be technology integration. Once that superintendent left, that plan was gone, and at that point, there are very few principals that require that. I don’t think there’s a principal in any of the seven buildings who requires that anymore because it is not coming from the very top, that you have to.

Researcher: Thank you, “E.”

I: Our former principal was very much pushing for technology, I believe. Our former principal was heading us more in that direction. I agree with what “H” said that our principal is very open to any ideas, but is not steering us towards the ideas.

Researcher: Okay. Thank you, “I.” Would anybody else like to respond?

E: I also think that because we have technology instruction on a regular basis in kindergarten through seventh grade, it almost takes it, the burden off of the classroom teacher. They don’t feel like they have to do it. There are other districts where there is not a computer science teacher, and those classroom teachers are sent to the lab every week, so it is really put upon them to come up with some kind of a technology integrated project for their students. It is very easy to drop your kids off at the door of a computer lab once a week and walk away and

not have to worry about integrating technology, the kids are still getting it. The teachers are the ones that lose out on it.

Researcher: Okay, thank you, "E."

C: Except, I've seen the other, and I've seen this. What happens is, the classroom teachers who don't really know computers, I mean, I can get anything out of a computer, but if I had to put something in, my class would not receive the level of instruction that you give them.

E: Well, that's my job. I mean, that's what I am focused on. I agree with you. I don't think for students it's the best way to put it on the classroom teacher, but I also think that it takes that extra one less thing I have to worry about with all the other things the classroom teachers have to do today to throw that in as teach a skill is okay, I don't have to worry about that, they'll get that. What I would like to see is teachers embracing the technology and in addition to what the kids learn in their regular computer class, to find things that go along with their curriculum that they can pick up on in their classrooms, but that's, there's only so many hours in the day.

Researcher: Okay, thank you, "E." "D"?

D: Excuse me, how would that look? So, what you're saying is that if I'm teaching a unit on um, insects, your saying use video streaming on insects?

E: Or bring them up to the lab and have them create a slide on the life cycle on the butterfly or use the cameras to do a photo essay, the kinds of things that we did as a cross-curricular project, you could easily do with your colleagues. It doesn't, you know, that frees up the specialist to do even more involved skills.

D: All right. Something to think about.

Researcher: Thank you, "E." Thank you, "D." Anybody else on Question 10? Okay, we'll move on to Question 11. Specifically, how is the leadership in your district involved in the following areas of technology integration: (1) integrating activities, (2) maintenance activities, and (3) planning activities?

E: Well, I think we have pretty much addressed that. ("C" agrees.) One supervisor out of how many supervisors that we have, 6, 7, not a lot. The maintenance activities are really left up to the technology director, as is the, um, the planning. Well, the planning is really part of the department, which is the director, the four technicians, and I think there are seven of us that are considered technology employees.

Researcher: Okay, thank you, "E." Anybody else? Okay, Question 12. How is the leadership reflected in your school district's technology plan, and how is this communicated to the school communities?

E: What happens with the long range planning committee is that the supervisors and building principals are, um, given a presentation once the plan has been completed, and they are encouraged to embrace the plan and to ask their, uh, faculty to integrate technology, but beyond the asking, there is no requirement, and at the end of the presentation, everybody kind of goes in their own direction.

Researcher: Thank you, "E."

C: I'm sorry, can I ask a question? Has the technology plan ever been communicated to the teachers?

E: Uh, No. (Laughter in the group.) It gets communicated to, it gets communicated to the, um, board of education, to, uh, the administrators -

C: So if an administrator doesn't communicate it to teachers, then teachers don't know what

the technology plan is.

E: Exactly.

C: Need I say more.

D: Well, um, I'm sorry, but with like Ed-Line or anything that they are asking us to do, we just get directed, are classes get set up, we're asked to, um, attend, and the attendance is mandatory, you know there is leadership, but it isn't the kind of, um, leadership where -

C: That's not planned.

D: Right, but it isn't the kind where there's feedback and we say oh we don't like this part of it, or change this for the elementary grades, or you know, its mostly from top down I think when it does come to us.

Researcher: Thank you, "D."

C: But here's my problem, my problem is that's not a technology plan. That is communicating a particular task, that is not communicating a plan. As a media specialist, hello!, I ought to be let in on the district's technology plan! Where am I going to be 5 years from now? Where am I going to be 10 years from now? What are you expecting of me as a media specialist to fit into that in? How do you expect me to fit into that technology plan? That's what I think! Am I wrong?

E: No, I agree with you completely. I think that part of the problem is over the course of the 10 years that I've been a full-time employee, I have now worked for 6 different director of technologies.

Various voices from the group: Six? Six?

E: Yes.

Researcher: Thank you, "E."

C: Some of them have been my supervisor, too. (Laughter.)

E: True. We shared for awhile (Laughter from "C.")

C: And some have not. So, we can't answer you.

Researcher: All right. (Laughter.) Thank you. Question 13. How do you use technology in the classroom for instructional methods/teaching? Please be very specific.

B: For research, I guess, really? I think that's a valuable tool when you're teaching the children how to research for any subject area. It's invaluable. The information, the wealth of knowledge that is right at their fingertips.

Researcher: Thank you, "B." "I"?

I: And the teachers use it to research for us, as well, for us to find different ideas, different lessons –

B: And methods of teaching certain subjects –

I: And also to find books, and to show the kids how to go on different websites to search for books. It has been helpful that way, too.

Researcher: Thank you, "I" and "B." "A"?

A: For the last 2 years, my supervisor has asked me to instruct the students in how to download PDF files from the high school website and then from Ed-Line for learning their subject matter, and "E" has told me that it is not realistic to expect that every family own a computer at this time. So I found that last year, I was provided with, fortunately, CDs, CDs of the subject matter I teach so that the children could conveniently listen to these, but this year I was not. I was given maybe twenty copies, twenty CDs to be able to do this, and those were primarily the students that listened to it, and so I thought that it wasn't really that successful trying to do it through Ed-Line. I sent two notices home how to try to find out

what your Ed-Line authorization code is, and the classroom teachers have given the parents and students that information months before, also, but also how they could download it from the high school website, and I would say that it wasn't a huge participation.

Researcher: Okay, thank you, "A."

G: Even with the children, when you are instructing a classroom, they have a lot of different games where a lot of their skills can be reinforced, whether its *Time to Learn*, whether its *Oregon Trails*, there's a big integration of the curriculum into these games.

Researcher: Okay, thank you, "G."

I: I think a great little goal that I'm formulating now because of this now is to move beyond the research piece and have the kids actually use the technology in one particular project. I had a gifted student do a PowerPoint on a famous mathematician, but that was a gifted student, and there's no reason why the whole class couldn't do a PowerPoint project on a author, an author study, so that seems like that would be a good goal to have to move beyond research.

Researcher: Thank you, "I."

B: That a very good idea.

Researcher: "B" agrees with that. "H"?

H: I use it to teach them computer etiquette. We set up rules of the computer that they have to go through so that they understand how to be safe on the computer and what is appropriate. I use it for typing. I use it to teach them computer etiquette. We set up rules of the computer that they have to go through so that they understand how to be safe on the computer and what is appropriate. I use it for typing. You know, sometimes just take your paper and put it on there, learn how to type and learn how to do it that way. I use it for

modeling. If they want them to do something, I'll do it right on there. I use it for group activities. A lot of times I want to do something in groups, and I'll put them in groups and do you share and use the computer, as just another tool, like you would share a book or something like that. The Morning Show, to me, that's a great way to use the computer, that once a week the fifth grade students come on and they give us the news, they just give us all kinds of things, and that's integrating technology, definitely.

Researcher: And that happens right within this building?

H: Yes, just about every Monday morning.

Researcher: Wow.

E: Only two of the elementary schools broadcast an announcement show at this time.

A: Your's is on video, right?

Researcher: That's great.

E: School X also puts there's out on Comcast after it's been live, but we just go live. But I think that technology probably is the biggest component of differentiated instruction because you really can go to either end. And not just computers, but the programs that are available, the keyboards that are available, we have students who really have difficulty with fine motor coordination who do a lot better with keyboarding than they do with writing with pencil or pen, so to allow them to do their assignments on a computer or a personal keyboard, the thing gets plugged in and downloaded, the thing is really enabling their learning styles, it just makes like a lot easier for them, and the same thing with programs that "G" was talking about. When you come to reinforcing skills, some kids do fine with flashcards, others really need to have that interaction with a screen because those are the kinds of students that we have, children growing up today. They are very visual learners in a lot of senses. I say that

the various software programs that are available really help you to pinpoint where your students problems could be and how you could help them. It works great with the gifted children, as well. What I see from my position is not just using the Internet and saying I'm integrating technology, it needs to be a lot more hands-on than let's look at a website. Where is this website going to lead you to? Is it going to lead me to making a diorama down in the art room out of clay or out of figures that I have at home, or is it to encourage me to maybe write a story about something? So, the technology is really just a tool. It should be a jumping off point. So, it's there, you can't use it 24 hours a day. There are a lot of things that I do, and I teach technology all day long where sometimes you step away, and I still have scissors and glue and construction paper in my room. So, it's a combination of things.

Researcher: Thank you, "E." "B"?

B: I agree, and it's a very useful tool that needs to be incorporated.

C: Yeah, but I think you also have to be selective, like "E" said, you have to be selective and knowledgeable in where you apply it. I could use the Internet only to teach research, but the idea of research has nothing to do with what you're using, it has to do with what you're questioning and what you're thinking. So, I'm teaching the act using both modes is what I'm doing.

Researcher: Okay, thank you, "C." "D"?

D: I find on my level in the second grade that my biggest hole that I plug up with technology is just the illustration of things, whether we're studying American symbols, or we just need to know when some author was born, or when a figure actually lived so we can kind of get an idea of the timeline and where we are. That's one of the most marvelous moments for me when I can find something online, the kids can see it on the TV screen and it makes it so

much more real, and then we can talk about it more. They can't really do it basically having two computers with one that hardly works, you know, is great when they're doing games in math and the kids love doing that, but, um, I just see technology as filling in that hole when you can't get the book, you can't show an illustration of something, and that's the way I use it in most of my classrooms.

Researcher: Thank you, "D." "I," you wanted to respond?

I: In third grade across the district, I think it was added about six years ago, a keyboarding class so that all of the third grade could learn how to touch type, just to facilitate the application, so it's not really integrating technology, but at least they're learning how to use it. I think it's important that they learn. And that's a life skill.

A: I think it was started before that.

E: Yeah, it goes back fifteen years ago.

B: Fifteen? Really? Wow!

Researcher: Okay, thank you. Question 14 we'll do quickly. Is there anything that you would like to add to the discussion to provide the researcher with additional insight on how your district integrates technology into the learning community?

I: I would say that the more we talk about it, the way we're doing today, gives us ideas. It is important to talk about it because we brainstorm together and get ideas on how to implement it –

B: And use this valuable tool, the tool is really the key.

I: It is invaluable.

Researcher: Okay, thank you. Anybody else? Okay, Question 15. Finally, in closing,

identify one word that captures technology integration in your district. We'll go around the room and do that.

Researcher: "I"?

I: Moving forward.

Researcher: "D"?

D: Progressive.

Researcher: "C"? (Laughter.) ("C" does not answer out loud.)

Researcher: "A"?

A: Exponential.

Researcher: "E"?

E: I think Evolving.

Researcher: "G"?

G: Exciting.

Researcher: Okay, and "H"?

H: Slow. From where I'm coming from, I would like to see things move faster. I think that this is the future, and we are not preparing our children for it. And I worry. I worry about what is happening in the rest of the world, and I worry about what is happening here, I just don't think that it is happening fast enough. It's slow.

Researcher: Thank you, "H."

A: I really think that this school prepared my son very well in the area of technology. He had "I" to teach him how to keyboard in third grade, and he was able to participate this year in the pilot program for the fourth year of the computer science in the high school level, one year after AP, and he is going to be majoring in computer science.

Researcher: Thank you again for your time and participation today in the focus group interview. I appreciate all of your help with my research. As you leave, I will give you a stamped, self-addressed envelope to send me any personal messages or statements that you may want to add. Thanks again and have a great evening.

Group: Thank you.

A: This was very interesting. Thank you.

Researcher: Thank you again. Have a great evening.

Transcript of Middle School Focus Group Interview:

Date: May 12, 2008

Time: 3:30 – 4:43 PM

Exact Time of Recording: 73 Minutes and 16 Seconds

Researcher: Thank you for attending and volunteering your time to be a part of my research for my dissertation towards my doctorate degree in education. I really appreciate all of your assistance with my research. Today, you will be taking part in a focus group interview regarding the integration of technology in your district in terms of the Technology Leadership, Management, and Policy Pyramid, a theoretical framework developed by Dr. John Collins. This pyramid has the following, three sides: Organizational Integration Activities, Maintenance Activities, and Planning Activities. According to this model, all of these activities must be done simultaneously with committed leadership. This interview will take approximately 90 minutes to complete. All of your responses will be kept confidential and amassed in the report. Please know that your names or the name of the school district will not be used in the dissertation or any report. After the data is analyzed, a summary of the important findings will be sent to all of the participants involved with this research.

I ask that you please sign the Consent Form that you received in the mail and pass them forward. I will send you a copy of your signed and dated form for your files. This form indicates your consent to this interview and for it to be tape recorded. Do you have any questions at this time before we begin?

You will find an index card in front of you folded in half with a letter on it. The letter will be used for identification purposes during the interview. Please know that all letters were randomly assigned. Please write your full name on the inside of the card. I am asking you to do this so I can send you a copy of your signed and dated consent form and a report of the major findings of this research. I will mail these reports to your school address. If you are not going to be there or want it to go to a different place, please let me know.

I am going to distribute an information form to you, and I ask that you take about 5 minutes to complete it. The purpose of this form is to collect some background information on you. Are there any questions?

Please pass these forms forward.

I am going to ask you 15 questions regarding the integration of technology in your district in terms of the Technology Leadership, Management, and Policy Pyramid that was developed by Dr. John Collins. Please respond freely to these questions in an informal matter.

Researcher: Question 1 - How does your district's technology plan address the following components of technology integration: integrating activities, maintenance activities, and planning activities? (Researcher waits for responses.) Does anyone need me to repeat the question?

B: No. Well I'll go first.

Researcher: Okay.

B: I think for, um, integrating activities, maintenance activities, and planning activities, I know that there are a lot of workshops that are offered, um, so that teachers have opportunities to meet with professional and people in the field that have knowledge of integration, different types of planning, and different types of activities that go with that.

Researcher: Okay. "A"?

A: Like for instance, this Friday I am taking a class during my prep period about Smart Board training so that I can use that in the classroom next year. So it is something that is just validating what "B" said.

Researcher: Okay. Anybody else? "J"?

J: Um, for the World Language department, every one of our PIPs, so twice a year we are always evaluating how we use technology in our classrooms. So we always have to technology in every lesson, every thematic unit that we do. So, we really focus on it.

I: I would agree. This is "I" speaking. I agree with "J" in that we are strongly encouraged to use technology whenever possible. We're always trying to come up with new ways to make it interesting. We have a number of kinds of things some of us, whether its in our textbook and other things we come up with ourselves.

Researcher: Anybody else? "H"?

H: Um, there's in addition to the workshops that have been going on throughout the year, there's also summer workshops offered to all of the teachers, professionals in the entire district that are, um, from very basic to very in-depth kind of workshops, some for beginners, some for people that are much more proficient, and those are offered throughout the summer which you can sign up for.

Researcher: "F"?

F: I want to add to what "J" had mentioned. Um, the science department also requires one of the two PIPs to be technology. It hasn't, um, in the past few years, but looking forward to next year it has required that, and, um, the district also has a history in the past of doing that, as well. I started teaching about 12 years ago, and in the first few years I was here, one out of the two always had to be for technology.

Researcher: Okay. "E," did you want to say something?

E: Oh no, I just agree strongly with "J" and "I" since I work with them in the same department, and also, um, with "A" with the Smart Board training that's offered, and summer sessions like "H" mentioned. I took one last summer. Um, so it's great. It's not only during the school year. You could do it when you are not teaching, as well. So there's a lot of opportunities, um, for all of us to advance in our technology.

Researcher: So, basically I'm hearing that there are a lot of opportunities across the summer and across the board.

G: Um, and one other thing for those of us who are not as proficient technologically, um, as "H" said, there are opportunities at every level, and you're not forced into things where you are uncomfortable. Um, for instance, we do homework, Ed-Line, and there are lots of opportunities for people who want to do more with it and to be taught how to do more, but for those who are petrified of it (laughter in the group), they teach us what we need to know so that we can be proficient to do, you know, fulfill our requirements, but they've never made us feel, um, uncomfortable.

Researcher: And it is done in a non-threatening environment?

G: Yes.

Researcher: And it's open for people with a variety of skills?

B: They even have kids that teach lessons after school.

Researcher: Oh, that's interesting.

I: Yeah, this is "I" speaking. We have a peer leader group which specializes with having the kids take technology and apply it within their own peer groups and also make it available to teachers. And so, I think in 2 weeks, we have the PowerPoint presentation.

Researcher: So this is a course that they can take?

I: And the kids actually teach the course.

G: It's not a course that they take, it's a peer leader group.

B: It's the kids teach the teachers.

G: Yeah right, but it's not a course for the kids.

Researcher: They don't get credit for it.

G: No. They volunteer.

Researcher: Wow, that's interesting.

F: This is letter "F." I have taken these courses, attended those, and had one-on-one attention to learn –

I: Streaming?

F: No.

I: Flash?

F: No. Um, Photoshop. You know, if you don't have the time to take the courses yourself, it's very intricate, and even if you take the courses, you need a refresher, so.

Researcher: Yeah. I know the kids know so much more than, it's really amazing today.

Okay, so we are going to move on to Question number 2. Discuss the professional development opportunities provided by your district. For example, are they primarily hands-

on or informational, how many occur per year, and who conducts these professional development opportunities (outside professionals, teachers, or curriculum specialists)?

G: This is "G." I think that we touched on most of that. To my knowledge, most of it is taught by teachers, um, and as we said by students. I know that I've never gone to one from by an outside professional, but I don't know if there are –

Voice from the group: There are.

G: There are some. Um, and all of the one's that I've gone to have been hands-on. And since we each do have our own computers, um, you bring your computer and they teach you how to function on your own computer.

Researcher: So everyone has a laptop. Is that correct?

Voices from the group: Um, hum. Correct.

G: Which is huge.

Researcher: That's very important.

F: Um, also letter "F," the professionals in the district that, um, do the workshops are very good, as "G" had mentioned before, reaching all the levels of proficiencies, so you know, I feel like I kind of place myself in the middle. Questions can be answered at that level, more advanced, you know, lower levels, and at the same time (laughs) which is, you know, takes a talented teacher to do that.

Researcher: Sure. "D"?

D: There's one, um, teacher in the Board Office who is her full time job to do professional development training for teachers, and she does a fabulous job, and she's been doing it for many, many years, and I think, you know, that might be one of the main reasons why I think our district might be ahead in that area of technology because. And also the computer

teachers like, um, "B," and we have another computer teacher in our school, at school level, also do training, but I think they're also busy teaching classes. I think the important thing is having that dedicated professional who is excellent beyond belief, and she's been doing it for, you know, 7, 8 years, you know, just, and gradually over time, like, pretty much has touched with everybody, you know, everyone's been taking some kind of courses from her. So I think that that, you know, has helped a lot.

Researcher: There's a full time person in place for that?

Voices from the group: Yes.

B: Yes, just for technology.

D: For teachers. It's, um, application based. You know, she's teaching how to use the computers.

Researcher: "C"?

C: This woman that "D" is speaking about provides these workshops throughout the year and I believe even over the summer.

I: Yes.

H: In addition, this is "H" speaking, in addition to the more formal workshop, she also provides the time, I believe, in each of the buildings in the district where she just kind of sits in the teachers' room or library as a trouble-shooting session so then we know that she is in the building, and during, you know, any moments that we have off, we can go to her and get specific questions answered. So she makes herself readily available. It's not just a formal workshop.

Researcher: So she's a valuable resource at the same time.

H: Uh hum.

Researcher: Anybody else for Question # 2?

I: This is "I". I think we pretty much covered that.

Researcher: Okay. We've exhausted that question. Question # 3 - Explain how these opportunities facilitate teachers in aligning the technology to the curriculum.

Researcher: "D"?

D: Yeah, I think that that's, in my opinion, in the area of weakness in math. I don't know about other subjects. I'm a math teacher, but we don't have a lot of time to analyze how we can take time out of our curriculum to insert a technology-based lesson. Like, and not lose time, but actually even gain time. Like, there needs to be, um, a more focused effort to do that in terms of our curriculum work for teachers or outside materials brought in. Like, we can't, if we do a technology lesson in math, we lose time from our curriculum because we don't know how to replace it. Like, we don't know what to take out. It takes longer, in other words, than it would just doing the math lesson, and so, integrating technology, I think it's maybe one of the last frontiers, you know, like really making technology really useful to teach the mathematics.

Researcher: Without losing content at the same time?

D: Right.

B: Like having a training coach in the actual building that they've pulled for.

D: Right. Uh hum.

I: Yes, this is "I." I agree with what "D" said. It would be really helpful to have someone that could give us, that could actually help us integrate the technology even more organically so it would be a natural flow, like sometimes you have to kind of have to stop, like you said

you have to stop, do the technology part and come back. Like, it would be great to have something to make it more natural flowing.

B: They've made a lot of opportunities over the summer, but the summer I don't think is very good for teachers to come back. For example, we've had over 40 classes trying to run over the summer, and only 8 of them are going for attendance. So I think the opportunities are there, but you just have to make time.

G: This is "G." Um, I agree with that, especially as I've said several times, not being as comfortable with the computer, certainly as "D" is, um, or probably as anybody is (laughter from the group), that might be a nice in-service day to suggest to the administration because I hadn't really thought of it before, but that certainly seems really valuable, and as you say that even in the departments where you do a lot of work with the computer as opposed to, you know, our focus has been more on lesson study in math. Um, and we do have lot's of in-service opportunities and perhaps that if we suggested that to our administration so they can pick up on it, they are usually looking for valuable things that we want to do so that might be a really good suggestion.

Researcher: Thank you. "H"?

H: I think, um, I think the way that it has been, um, incorporated into the everyday lessons has been more of the, like, encouragements – maybe use the Smart Boards in the future, or encouragement to use, um, something maybe as a modeling tool in the classroom, but maybe not as much of the, you know, take the students to the lab to do this particular task, like, it's not aligned in the curriculum, but it's been encouraged in a different way, more of a display kind of tool, except for actual, you know, actual technology classes themselves where a kid is on a computer, but not as much with the other subjects, that's the difference.

Researcher: "A"?

A: Um, I agree that I think implementing technology can take a lot of time away from your lessons, so I, what I did, personally is I, um, at the beginning of the year I taught them how to blog and how to do podcasts, so that they can do that at home, so it would be kind of, um, you know, at home it would be a homework assignment to blog about that week's activities, what were some lessons?, what did you learn?, what were questions? So, it wouldn't be taking away from classes. I agree, I mean, I travel so I don't have my own class where I can have them blog on their laptops, you know, it's really hard for me, so having them do it on their own time, they really like it because they are already on the computer anyway, so this is just an easy homework assignment for them. So, um, I mean, I think if you implement it on their time, cause they all have computers pretty much in this district, they're always on, I think it's easier to do it that way.

Researcher: Are the students supplied with laptop computers?

A: No. We do have laptop carts.

Researcher: Okay.

A; That we can have them use, but it's hard to push that thing around.

Researcher: Yeah.

A: Someone might get hurt, like me (laughter from the group).

I: This is "I." I think we, the district make an excellent effort towards providing, you know, as much computer access in the building where students, is almost impossible, but still getting access, if you want to work in the computer lab or if you want to have a laptop come to your room, it can be tough. Often it can be booked up or it is hard to get it sometimes.

Researcher: Thank you. We'll move on to Question 4. Evaluate if these professional development opportunities are useful and practical in helping teachers use the technology and integrate it into the classroom.

Researcher: "B"?

B: Um, this is still a question that I deal with a lot. Just in the idea that the technology curriculum, there are standards just like an English curriculum would be, just like a mathematics, there are standards that have to be met for the state of NJ, um, that I think other teachers aren't aware of. We share, you know, how to write a paragraph, and different types of courses, and different mathematics of our course. Um, I think our district has, we would do a little better if you're evaluating it, in letting the other teachers know what technology standards they could be responsible for. There's a lot of things that can't get done in just 2 years.

Researcher: Thank you. Anybody else? "F"?

F: Um, I do think that they are very useful and comfortable, but I do think that there is a little bit of frugality right now for purchasing some technology. For example, the Smart Board. I think more people would use them if we had more access to them. Right now, I am not sure of the whole procedure, but I think you have to sign it out –

I: No. It's "T" speaking. You have to use it in the library.

F: Library only.

I: Because it's a very delicate instrument so you don't, they want to. Everyone talks about getting additional Smart Boards.

H: And there's one right now in our building?

B: No.

A: This is "A." I do know 2 teachers that have them in their class, but there's also 1 in the library, and yeah, so there's a few.

F: There's a few. You know, if you were using it, if I wanted to do something for 5 minutes, I would feel selfish, you know, looking at it for the whole day. You know, if there are a few more around, it might be better access.

B: And the computer labs don't even help.

H: Right. I mean, it seems as though a lot of the things that we're gonna maybe say are lacking are funding issues and space issues, which are the two biggest things in this issue right now, probably in most districts.

A: Yeah, I believe, this is "A," I believe almost every single teacher would use technology more if it was right in their classroom, readily available. We have a lot of workshops that explain how to use it, but sometimes we don't have access to the computer labs, or we don't have access to computers, so it's really hard to implement, using it and integrating it to your curriculum.

Researcher: Thank you, "D"?

D: In terms of the question about professional development, I think that that's Q 04 I think that we're doing now. Right?

Researcher: Yes, Question 4.

D: The training that I have had from the district has been exactly on target, like, it's exactly what I need to know, just the notes I need to know, very hands-on, very focused, really the teacher is doing an excellent job of doing that, um, very practical. And then the one issue probably is if you don't get a chance to use it right away because there isn't access to

computers, then you forget it (laughs), you know, like so, so that's, you know, probably the biggest issue.

Researcher: Access to the technology?

D: Yeah. Uh hum.

Researcher: Thank you, "D." Anybody else?

E: Um, just to probably bring all of the ideas together, this is "E" speaking, I think there's plenty of opportunities that are useful and practical, but really the 2 limits are, um, the space to use them, the amount of technology to use them, and the time for the teachers to use them in their lessons.

Researcher: Thank you.

I: I would say, this is "I" speaking, some, most of the teachers here are fortunate to have their own classroom, but there are some teachers who have to move from class to class all throughout the day, so, if you had to, you can't schlep something, you can't schlep a cart, it's hard to schlep a cart of laptops or a Smart Board around if you're going to use it in different classrooms.

Researcher: Okay, thank you, "I." Question # 5. Please evaluate how your district provides technical support to maintain the infrastructure and address problems.

F: Um, I think we consult our computer teachers, I'm sorry, this is "F" speaking, um, fill out some paper work, and if it needs to progress further than that, you have to meet with the tech department at the Board Office.

Researcher: And you would do that directly?

F: Yes. Well, it depends on, you know, if the computer teacher, you know, kind of like a, feels it is appropriate.

B: Right, right. I'm "B." Can I cut her off yet? (Laughter from the group). A teacher can come to a computer teacher if they have a free period or have an opportunity to, you know, to fix it, and they can fix it, they encourage that. If not, we have a work order system, um, it's called Computer Dude (laughter), and they use that to input any information – the computer's numbers, all the serial numbers, the problem it has, and there's a tech team of 4 people at the Board Office that are assigned to different schools. So, we have one person traditionally assigned to us to work with computer problems, with a trouble-shooter. The gentleman will come here, pick up equipment. If you want it done quicker, you can drop it off there to them, but their stationed at different schools to help whatever problems, and there is one network man for the whole district that does network issues and web design.

Researcher: Thank you. Anybody else? "I"?

I: I'd say that the people that work with dealing with all of these issues are generally very, very responsive and very helpful. Rarely does a problem last more than a day, and like I said, they are excellent technicians. I know that I talk with other districts, and they can't believe how good our system is, and they just lament their own.

A: Um, this is "A" speaking, like for instance, if you had a computer issue that needs to be sent back, they'll give you a replacement computer to help you out for the time being. Like, they really make things easy for you.

B: See, we work for you.

A: Uh hum.

Researcher: That's great.

H: Recover. Recover your lost work.

G: Sometimes.

Voice from the group: Sometimes.

G: This is "G." I mean obviously sometimes it is impossible to, um, like when one crashes one's hard drive. Um, like the other first step that I sometimes take, and I think I'm supposed to, but sometimes I go to the math kids and then they go to the specific computer teacher.

B: That's the peer leader group.

G: Oh, that's the peer leader group. That's the, are they all eighth graders, "B"?

B: No, they're seventh and eighth grade for our school.

G: And I didn't even know that we only had one person assigned to our school because that's (person named) Person X –

B: No, (person named) Person Y.

G: Okay. Is that the tall gentleman?

B: Yes. (Laughter). There's two tall gentlemen.

G: Well, big. (laughter) Okay, but for instance, I very often go to a different gentleman, the shorter gentleman (laughter) at the Board Office, and it's not like he says to me, "G," I don't do your school, leave me alone.

H: Right.

Other voices: Yeah, right. Right.

B: Everyone is very willing to help you.

H: And I think even there are some staff members who are not even computer teachers that are always willing –

G: Like "I" and "D."

H: Yeah. There's various people, you know, around that just know more than other people, and we have a very, um, collegial staff here that really just helps everyone out, so, you know, that's – people turnkey, people turnkey workshops, you know, if not everyone can go, so I think that's really helpful.

Researcher: Are we ready to move on to Question 6? Okay. How is the technology support system/service for the district organized, and who is involved in the maintenance activities?

F: I guess we didn't mention we have a supervisor of technology.

B: There is a supervisor of technology.

F: Then what comes next?

B: That is not of instructional technology, but of functional technology.

Voices from the group: Right, Right.

B: No real instructional technology, but again, it's the computer teacher, it's the website, it's the hands-on gentleman, and then from there he has a supervisor if there's any problems.

That's how it seems.

Researcher: "I"?

I: This is "I" speaking. It seems like they're often doing maintenance things. You know, I see some of the guys in the building.

B: The summer is spent to really overhaul.

I: Yeah, but I also see them during the school year, too.

F: They fix little things, too.

I: You know, working on all the major things, all the network, um, all the wireless things are working properly and the printers and what not.

H: Yeah, we have printers all over the building, and so they try to come in and make sure that things are running the way that they need to be so that we can use it wireless. That's "H."

I'm "H." (Laughter from the group.)

Researcher: Anybody else for Question # 6? Okay, we'll move on to Question #7. When there is a problem with the computer system, how long does it usually take before the repair is performed?

Researcher: "A"?

A: Sometimes, well, does computer system mean network system, too? Can that be integrated?

Researcher: That would be fine.

A: Okay, um, well sometimes our network is down, and it seems like it's the end of the world. You can't print anything, or (laughter from the group). They usually, like, an hour or two, usually if their network is down right first thing in the morning, by like 9:00 it's going to be up and running again. I mean, it's really fast, so I've never had something last all day.

Researcher: Okay, from your perception it's a short amount of time.

A: Uh hum.

Researcher: "D"?

D: Um, when my computer has something wrong with it, like hardware wise or software, I just bring it to the Board Office. They can fix it there. They'll fix it immediately. If they have to send it away, they send it express mail, and it gets expressed mail back, and I have it very fast. Like, in a few days.

Voice from the group: Yes.

Researcher: That's great.

H: And they give you a loaner.

Researcher: Thanks, "H." "C"?

C: I had an experience once where my computer just died on me, and I brought it to the Board Office, and they had to send it out, and he was able to retrieve all of my documents off of it. So, he gave me the disk before he sent it out, and then it took about a week.

Researcher: Okay.

C: So that is that.

Researcher: And you were using the loaner during that time?

C: Um, I don't recall having a loaner.

B: Sometimes they can't give you a loaner.

C: Yeah, but it wasn't a big deal.

I: It wasn't crashed.

C: No.

G: I have to admit, now when I crashed my hard drive, I didn't ask for a loaner,

C: Right.

G: But I did not receive one. Um, I don't know if that's something if I would have asked for, they would have said of course.

C: Right.

G: And they only have a certain number, perhaps? So they ask for the people who really, you know, but I was not offered it, and I did not have one. But it didn't take that long. But again, they were unable to, but again, but, you know, they're not magicians, they were unable to retrieve my data. But I find, they are, the people at the Board Office are very responsive and are very, you know, generally, once, um, "B" puts in the work order, usually like a day.

Researcher: Thank you.

I: And this is "I" speaking. I can contrast this with other districts where it can be six weeks or six month before certain issues are taken care of.

Voice from the group: Woo.

Researcher: "H"?

H: I think one of the reasons is because we are really required to use the technology on a daily basis, especially with the whole Ed Line situation and Power School. That's the way we do our grades, our report cards. Like, we really have to, and so I think that that's just that we're all on the same page with what's expected of us, I think that that's why the support is there, and that's, that's good. That's exactly what we need.

Researcher: So basically from what I'm hearing is that it's a very quick recovery process of data, and the repair process is, um, very, it's a fast process. Okay, well move on to Question 8. How do you perceive your school district in providing activities in planning for the future in terms of technology? Please be very specific (with this question or answer).

Researcher: "D"?

D: Um, about three years ago, I was on a technology committee which was district wide, and that committee looked at three areas: access, curriculum, and professional development. And, um, we made recommendations, and as a result of that, um, you know, steps have been taken to make sure that there have been enough computers added and so forth, but the limitation was budget and money, of course. Like, you know, the plan was limited because there is only so much money that you can spend on computers every year. There is only so much money you can spend, like, they were calling for much more to be spent than what could actually be in the budget, so. Um, I believe that the current plans incorporate parts of

that, but I believe that its been limited, and I think that there are issues of computers becoming out of date and not being replaced. Like, there are some teachers in this school whose laptops are, you know, 8, 10 years old. I am not even kidding you, and like, if they don't complain enough or you know, like, it's usually the squeaky wheel or the one that uses it the most that gets a more up to date, you know, laptop, but some of the teachers do have pretty old ones. Or the new teachers, when they come, some of them get old ones. You know, so, there are issues, I think, that are more limited by money than by desire. You know, there is a plan in place, but it can't move forward that quickly.

Researcher: Thank you.

G: This is "G." I think that's probably true. I am one of the people that one of the, they can't be that old, though, because nobody had laptops my first, until my second year, so, I –

D: Some of them are eight years old, cause we came together.

G: I've been here eight, but they didn't have computers my first year.

D: Oh yeah, it wasn't that first year.

Voice from the group: It's six.

G: But they didn't have computers that first year. It's either six or seven.

D: Six or seven years, okay. That's still pretty old.

G: Um, but we also were asked this year, do you need your laptop replaced? Because when, by the administration, um, when I emailed back and said my laptop was really old, but I don't need it replaced, um, it was emailed back to me that we need to get a replacement for whoever is coming in for you. So, they're trying to address that.

D: They're trying.

G: But yes, like anything else, it certainly is bounded by money.

D: Well, they have been speaking of a five year replacement cycle, but I guess I'm just saying that of money, that doesn't happen.

G: Yeah.

Researcher: Sometimes financial issues play a role in that.

I: This is "I" speaking. There are some teachers with very old laptops, like the original G3, um, I-books, but I think there are a precious few of those still around the building.

H: I had one until December of this year.

I: Yeah.

H: There was. This is "H."

G: Isn't that what I have.

H: This is "H." Yeah, probably. This is "H" speaking. There was a laptop initiative under, under a former supervisor. So that's the other thing that just change in administration has also put a little kink just in the, um, vision of where they want technology to go in the district, and so we seem to be okay for the past couple of years with people, you know, saying it and having the same vision an trying to move it along except for financial issues, but um, it was about six or seven years ago where we started the laptop initiative, and that supervisor promised that it was going to be on a three-year rotation, and then, I guess with that person leaving and new superintendents, new, you know, everything. It just kind of, we don't even know, and that's why we ended up with six years later people using the same laptops that we were issued, you know, six years ago and crashing every other day and thank God the tech support is being so supportive, but um, they can only do so much, you know, and then you get to a point where not all your stuff can be retrieved and they can't fix it and so, I think that even as wonderful as they are, they're kind of stuck between a rock and a hard

place sometimes, you know, and its not anybody's fault. Nobody wants it to run that way, but I think that it just kind of happens.

Researcher: Thank you. "F"?

F: Um, I don't think this applies to the original question, but, um, they have not replaced desktop computers in the classrooms, and I think a lot of teachers are cautious to have their students use their laptops. Um, it's a more delicate piece of equipment, grades are on there. Um, you know, I'm a sixth grade teacher so I'd have kids literally just knock it down and was on a desk, and just walking by. They are just so clumsy with their things. Um, so I think that kind of hinders the in class a little bit. Some teachers, you know, just work with it and some are a little cautious with use with actual students.

Researcher: Thank you.

I: This is "I." I'd say, yeah that I don't let any kid use my laptop for all the main reasons that you mentioned.

F: Uh hum.

I: I have a seven year old, no eight year old desktop computer that the kids can use, and it functions pretty well, but it could certainly stand some rejuvenation as well. But again, it is a question of budget.

H: We got all the old, this is "H" speaking, we got all the old, um, computers from the technology labs, kind of, if they were still working and whatever, kind of, dispersed to our classrooms. So, you know, people might have one or two in their classrooms, but because there's only one or two, at least in my classroom, it's not used for classroom lessons or technology, but the kids can access it during study hall or some off times or whatever, you know, to try to work on a paper for a class or look something up real quick or, you know, that

kind of thing, but that's again, if it's really hooked up to the network well or hooked up to a printer, and all of that sometimes ends up being a little marginal.

Researcher: Thank you. "E"?

E: I just wanted to add one quick thing. This is "E" speaking. I have a specific answer what "D" mentioned in the beginning. I have an older laptop, I'm not sure how old, I just came to the district a few years ago, so I probably got one of the older ones, and, um, I was supposed to get the Smart Board installation program installed on my computer, um, so I could take the Smart Board training. Um, I got my computer back at the end of the day and they said that we cannot install it because it was too old –

Voice from the group: Yeah.

E: So, you know, when I take the training, I can't do anything on my own computer, so, I mean I can save something to a flash drive or whatnot, but, um, I am in the running, I guess you can say, for a new laptop next year because I did explain to the administration that I did have problems, it was older, I couldn't get some software on it, so they are trying, but just a specific example of what was mentioned.

Researcher: Thank you.

H: One more thing. This is "H" speaking again. Um, we actually don't have a representative here from the Special Ed department, and because of some specific software that they use for IEPs, um, in, specifically IEPs, um, they all have PCs.

I: Windows-based.

H: Dells, windows-based laptops that very often have that same issue that "E" mentioned that, you know, where there is a piece of software that is not compatible. They have, I think

a much more, I don't know, do they have a difficult time with Power School or Ed Line or anything that is different, I don't know.

F: I'm not sure.

H: Um, I don't know if it's those particular programs, but I know they have had issues with some specific programs that they have had trouble with.

I: This is "I" speaking. I don't think they have a problem with the Power School or the Ed Line because those are web based –

H: Oh, okay.

I: But the, but they do, I think sometimes some of the things they use don't work quite as well. I know they have a lot more problems with the hardware functioning properly.

H: And then of course, because that's a whole different department, then if they need technological support, I think sometimes the guys downtown who were fantastic kind of broke their arms because they're like, I don't know, it's a dell, I don't know how to work it. You know, I think they try really hard when they have issues with their laptops, but they are really experts with MACs, so.

I: Well, I'm sorry. I'm "I." I'm just going to jump in one more time. I think over at the high school, there are a couple of computer labs that have, that are populated by windows-based computers over there, so I think there is some, some people are pretty adept at the windows PCs.

H: But I think those might be the specific high school teachers in which case somebody from this building –

I: Yeah, somebody from this building is not going to get a Dell.

H: Yeah, but one of those can go to a high school teacher, but they don't know, whatever.

Researcher: Anybody else? There's a lot of food up there if anybody wants more, please go up. (Laughter from the group). Okay. We'll move on to Question number 9. Explain how your district's technology plan addresses the issue of "planning for the future" to ensure that the technology remains up-to-date in future years and how this is actually being accomplished in your district.

G: This is "G," but I think we just kind of addressed that.

Voices from the group: Yeah.

D: There's only one thing I would like to add to that, "D" speaking. In terms of software, like, it's not, unfortunately they don't, it's such a huge job to keep everybody's operating systems and software and everything up-to-date. That's it's more, um, as an as-needed basis. Like, they won't automatically update, upgrade you to the next level unless you need it or unless you ask for it, and part of it, once again, just, you know the, they don't buy enough licenses because of budgetary constraints, and they don't have them, the people power to go around and install it in everybody's computers, so -. Like, we haven't gotten the latest MAC updates unless you go and ask them for it, you know, or say that I need it, and even then, um, you would have to show that you would use it, like in the classroom that it would be a benefit to you. So, I think, um, there's sort of a cautious, like you know, because money is of concern, you know, and is limited, like they want to use it in the most advantageous way possible, and um, I believe, so are their computer labs. Like it would have been good if, you know, a computer teacher could say like how up-to-date the labs are. I don't know. I don't think that they've updated the computer labs either. Have they?

I: This is "I" speaking. I think they are running on 10.4, the latest generation.

D: But 10.4 isn't the latest, though.

I: No, but –

H: 10.5 is the latest.

I: Well, this addresses something that “D” has brought up. They haven’t made all the upgrades. For example, I was asking about getting my laptop upgraded to 10.5, the most recent operating system, and apparently there’s a compatibility issue with our wireless network. So at this point, they’re not doing it, but I think the many people, a lot of MAC users are still, you know, using the 10.4. But I would say there’s another issue, though, about updating, and they actively discourage people from doing that, that you can’t do updates. If you get a warning, a notice saying that you need to update this software, you aren’t really able to do it here at school because they want to discourage everyone from doing it because that would crash the network. You know, if every laptop started to upgrade the next security patch or the latest generation, 10.4, they are concerned about the network crashing, so. You know, a lot of people, I feel comfortable, and “D” feels comfortable and other people, they all do it at home, and they all feel perfectly comfortable upgrading, but a lot of teachers don’t feel comfortable. They don’t have a high-speed network at home, so you’ll, you know, some people running various versions of 10.3, 10.4, they’re all in different places.

D: And of course the danger of that is that once software gets sort of out of date, like, problems start occurring and bug fixes that the, you know, vendor has made don’t get incorporated in people’s hardware, and it’s discouraging, you know like, things to start to not work anymore, so. You know, I think that education is so different from business where business will just upgrade everybody’s computers to keep everybody up-to-date, but we have to deal with, and then people will say that MAC Apple is terrible. Apple is not terrible. It’s

the fact that we don't update, you know, all the time. We don't keep update. That's what's causing the trouble, not the Apple software.

I: "I" budding in one more time.

D: Yeah.

I: I worked in a corporate environment before I came here, and I, with one of my leas in my X department, as far as upgrading, and typically, corporations are very slow. If they got something that works, they're going to stick with it as long as they can. And then when they do decide to upgrade, then they'll upgrade everything. They are very cautious about the upgrading because they're talking about, you know, fine-thousand or ten-thousand computers and all of the applications that go with it.

H: Right, and I think that's again an issue, this is "H" speaking, that it seems like there's just never a level playing field, at least here in our department. There's not funding to back this up, but it's almost like we need a complete overhaul, get everybody on the same page, and then three years from now, a complete overhaul again. Um, where I know that our laptops are funded by the district Board of Ed, um, you know, it has to be voted on through the technology department, where there are other buildings, I know of at least one elementary school building where it wasn't funded through the district, it was actually raised through the PTO fund to provide every elementary teacher at that school with a laptop. So, I mean, the funds are so restricted, we're actually really lucky that we get it through the district. Um, I guess you're lucky no matter whether you get it from whatever, but the fact that the PTO had to step in, in the elementary schools to fund it, and I don't know if theirs is any better of a system, I don't know if they're more up-to-date than we are, um, but as you said, we're going from six or seven years of different laptops and different capabilities, and it just seems like

we're just making so much extra work for our tech department and each other. It's just like we're always trying to problem solve, and I don't know if that just comes with the territory of technology or whether that's just here, but it can be frustrating at times, but we're doing the best we can, I suppose.

Researcher: Thank you. Does anybody have insight in actually what's written in your technology district's plan?

Voice from the group: Only "B."

D: Um, in terms of keeping it up-to-date?

Researcher: Yes.

D: I would be a little bit out of date on that, but for a few years ago, we were supposed to have a five-year cycle. Like, we are supposed to keep updating every five years.

Researcher: Okay, thank you.

H: That's a pretty much, um, a curriculum-based number. You know, when you do any curriculum, math, social studies, whatever, you're always supposed to do the five-year overhaul on, you know, addressing textbook needs, or, you know, so I think it is probably on the same page as that.

Researcher: Okay. Anybody else for Question # 9? Okay, moving along. Question # 10 – Overall, how would you describe the leadership in your district in supporting the integration of technology into the school buildings?

G: This is "G." Um, to my knowledge, the leadership is very supportive and wants us to use it and encourages us, but again is bounded by monetary constraints. Um, it's not, I mean like, we have a Smart Board in our building now. I don't know how many schools have

those available? Um, so I think where they can, they are very supportive where they can be, but again, money is limited.

I: I know, this is "I" speaking, I know that our supervisor would like us to get some more Smart Boards and there's another, I forget exactly what it's called, but it's an overhead projector which actually takes a photograph –

J: The photo camera.

I: The photo camera or camera, so if you want to say, here, here's this page. You put up a page of the book, and it blows it up with something on the wall.

J: Oh, I've seen that. Yeah.

I: But again, these are very expensive items so we just, I mean she pushes for them, but she doesn't have the budget and sometimes the district doesn't have the budget either.

D: Yeah, this is "D." I think that, um, there's a desire to do it but probably not greater than other things, you know like, like you say you wonder how many schools have it, well I know my children go to another district named, District X, you know middle school, and um, my son's math teacher has one in her classroom. They're in all the math classrooms. They have Smart Boards in almost every classroom. My son who is in high school has Smart Boards in almost every classroom, so, I don't know, we might be behind. Like, you know, there's maybe –

H: I was just going to say that I can name for you a number of districts that have them in every classroom.

D: Yeah. Maybe where we feel lucky to have one, but I know that next year we are getting more. It won't be every classroom, but quite a number of them will have it. And I also think that the middle school is the poor orphan child of technology in our district. The high school

has wonderful computer labs, incredible, and a huge number of them, and different PCs and MACs, and the elementary schools have all been upgraded and they all have like PODs in their classrooms, and they have wonderful, you know, computer centers. I think that, you know, per teacher and per student in the middle school, we probably have less access than elementary or high school.

H: I do believe, this is "H" speaking. I do believe that the elementary school is largely funded by PTO.

D: Yeah, I could believe that.

H: Um, and I do know that a lot, some of the school districts that I know of that have, um, more Smart Boards than say we do, um, a lot of that's done by grants, so they maybe don't rely as much on, on and some grants are given more freely than others and some are given to, um, more needy districts and things like that. We don't always qualify for things like that, unfortunately.

Researcher: "J"?

J: This is "J." I would say there's a lot of talk about, um, especially in the world language department, what we could be doing and how we could be doing this, and to go along with what "D" was saying before, when you're computer is not updated to support the software to, even to, I cannot even show videos online. I teach French and Spanish, and I can, you know, I'll watch news clips on my home computer and be like oh this is perfect and make up vocab sheets, and then I'll get here and realize my computer is not updated to even show these video clips, and then the whole lesson is canned. So, it would be very helpful to even work with what we have rather than dreaming about, okay, when we have this, we should do this,

and work with, okay, here's what we have and what I have access to. At the moment, it might be more helpful for that, so getting more support on that.

Researcher: Okay, thank you. Okay, so let's move on to Question # 11.

Specifically, how is the leadership in your district involved in the following areas of technology integration: (1) integrating activities, (2) maintenance activities, and (3) planning activities? (So, in terms of leadership).

G: This is "G." I have a question about that. When you are talking about leadership, you mean our administration?

Researcher: Yes.

G: To my knowledge, this is to my knowledge, which is limited, they're not. Well, does anybody know differently than that?

D: Do, do you mean –

H: Our direct building administrators or the district?

Researcher: I mean from the district level.

H: District-level administrators.

Researcher: District-level.

J: Our supervisor, this is "J," our supervisor is very on top of the type of technology we use in world language.

Researcher: Okay, thank you.

J: Yeah, that's the only access I would say for district wide.

E: Yeah, this is "E" agreeing with "J." I'm in the same department as "J." Um, yes, our supervisor does know what she wants us to use, and she does encourage us to go to, um, you know, professional development things and tells us what she wants, um, what we could do.

And I do believe that people at the Board Office, that administration, is very knowledgeable, and the Board Office provides all those professional development activities and workshops.

Um, but as for the building administration, I think that's, um, a little different.

Researcher: Okay, but from the district level that's where you're seeing this take place?

E: The supervisor and the Board Office. That's my opinion.

G: This is "G." Do you think the leadership at the Board Office, or are you talking about the technology people?

E: Oh, that's a good point.

G: Because this says the **leadership** in your district. I don't see the leadership in our district at all.

E: Well, I mean those workshops are, you know, always offered. You know, I think the person can go –

G: Well offered and they **allow** them, but do you think they are **involved** in integrating them, maintaining them, or planning them?

F: I think, um, this is "F" speaking. I think that by the fact that we have a special department that does that, that takes care of that. Does every district have training in their administration? I don't know.

D: Yeah, like, they have to support it, right? To have the department –

G: I think they support it, but I don't think they're really involved with it.

D: Yeah because, you know, I think, um, and this is "D" talking, there's a traditional aspect of it that a lot of our leadership are older people, you know, and there's also, like were one of the top districts in New Jersey by doing what we've been doing, especially in the high school. Our district is very traditional, and you're not going to sacrifice curriculum for trying

out some funky technology program. Like, it's just not going to happen. Like, you know, you're going to do what's the tried and true. Like, the basic bottom line is, the kids have to perform on SAT's, and have to perform on all of the State-level tests. Like that technology is not being tested. Right? You know, except using a graphing calculator on an SAT, you know, they don't really test how they're doing with technology with the kids. So, you're not ever going to sacrifice curriculum or what you're doing in terms of traditional curriculum for technology.

G: This is "G." But you're talking about testing the kids on what the kids know about technology, as opposed to them being involved in getting us to use technology to enhance the learning of the kids, and that is tested.

D: That is tested?

G: The kids learning?

D: Oh, oh I thought you meant our using technology.

G: But using the technology, as you said before, to enhance the curriculum for better learning of the curriculum. To me that's more important, I mean, that would be a more important use of technology than using technology for the sake of technology.

D: Right.

G: I mean we are using the technology for the learning.

H: This is, um, "H." There was a point spoken before that there are technology standards just like there are English standards and math standards and whatever in the State, and I had no idea to tell you the truth, but it's an interesting piece when we have the State testing. I mean, we just finished a couple of weeks ago or last week, whatever, um, and yet, the math is tested, the language art's is tested, and science is tested, but that they don't test the

technology. So, I think, you know, that might be one of the reasons why I didn't even know that there were even standards for that point, but at the other point that was raised before that I think applies to this is when you talk about the leadership, um, in our district, the head supervisor in the, um, technology department oversees, um, I'm trying to remember how she phrased it before, oversees the more of the managerial pieces and it is not a curriculum piece. Like it's, I think that the individual technology teachers in the buildings are just, kind of, they're given the hardware and they're given the software and they're given the labs and the set-up and stuff, but I don't think the support is there for them regarding their curriculum, what the students need to know to address the State standards in that area. It's not an educational piece, it's more of a managerial piece, at least, in that department.

Researcher: Thank you. We'll move on to Question # 12. How is the leadership reflected in your school district's technology plan, and how is this communicated to the school communities? (Again, this is looking at the technology plan itself.)

E: Which is difficult since we don't really, you know, have one or not knowledgeable of one.

F: I do know, this is "F" speaking, but each department has web nights where they present to the community.

E: Right.

F: Would that be once a year or twice a year?

E: Yeah, it might even be more than once a year with our technology department.

F: So then, we have a presentation to the public.

H: Yeah, there was the committee that "D" was on a few years back that um, was a district-wide kind of vision committee, um, and that involves some people from the public, and then there was a public presentation with the findings and kind of that plan of where to go in the

future, um, but I guess, even with the way the community is, it would only have been a select few.

Researcher: Okay, thank you. "E"?

E: Yeah, our, "E", our supervisor, the world language supervisor, she mentions when there is going to be, um, programs at, like, a board meeting. Like, for example, an elementary school teacher did a podcasting assignment with fourth graders, and they communicated with children speaking Spanish somewhere else around the world. So, you know, she is trying to show the community what technology is being used, at least in that department. So, I would say what they said in the board meetings.

Researcher: Okay, thank you.

H: I suppose, this is "H," I suppose in the newspaper they would highlight, you know, if a teacher went out of her way to really do something innovative, you know, regarding technology, it would get written up in the newspaper.

Researcher: Thank you. We'll move on to Question # 13. How do you use technology in the classroom for instructional methods/teaching? Please be very specific.

I: Um, this is "I," and I use it to, I use PowerPoint a lot to present new vocabulary in all situations. Um, the textbook that we use also has some integrated online component and some various audio-visual things to tie in. So like, I use my computer a lot with that. Um, there are also some interactive components of this, so the kids can use it either at home or in the classroom to, you know, sample questions and games and what not. Um, I plan to do some things with podcasts with the kids to do audio-visual use in accordance with skits and things like that.

Researcher: Thank you.

G: This is "G." Are you considering technology also like graphing calculators?

H: I was going to say, we've been talking so much –

G: That's about as sophisticated, to be honest, I mean, I use my computer in terms of clerical things for my classroom – homework and grades and things like that, but in terms of enhancing curricula, I personally don't, but I do use the graphing calculator, and we do have classroom sets of those.

Researcher: Thank you. "C"?

C: Um, we did this project in seventh grade where um, we had the students, like depending on time and if possible, use with computer labs, where we had them, um, work with Excel.

So for at least the seventh grade level math, we do regular problems with some of the Microsoft Office applications such as Excel, and then other than that, I think graphing calculators is to the extent of what I would use technology for in my classroom.

Researcher: Thank you. Anybody else? "E"?

E: Um, I, we use the overhead projector to show transparencies, present vocabulary in Spanish class. Um, videos so they can watch and listen to the language, um, and see it as well, and I plan to use podcasting and Smart Board when it's available for me to use.

Researcher: Thank you. "F"?

F: I guess, um, primarily I would use it for myself for gaining content and researching and developing lessons. Um, within the classroom, I do use the TV projector to show them websites and video clips. We have a subscription to a resource that shows little cartoon clips that shows little science videos and it has other subjects, as well. Um, I have made Power Points in the past to make presentations, but I happen to be fairly new to the curriculum that I'm using now, so just kind of getting by day to day, some of those things kind of get pushed

aside, but in the future, once I'm, you know, working with this curriculum longer, I plan to use that. Um, I have used radio broadcasts in the past, just you know, like we're listening to different things. I think that covers it.

Researcher: Okay. "D"?

D: Yeah, I, um, you know, depending on the year and once again how far ahead I am or behind in the curriculum because I find it does take more time, but I've used, um, I use technology in two ways. One way is to give demonstrations like showing, um, I'll have it on my computer, and I have a projector in my classroom which is, you know, for the use of me and others, as well. And, um, I'll show, I use Excel. The programs I like to use are Excel and Geometer Sketchpad, especially for demonstrations in mathematics, and when I use Excel, I've done labs with, you know, all of the kids on graphing and on rounding. I have a lab on, you know, rounding to different decimal places. Um, the a, you know that coordinate lab project, when I use Geometer Sketch pad, I've actually done, um, the linear equations of the slope as a lab, um, and also graphing on Geometer Sketch Pad and similar figures and finding, like, the measures of angles and that kind of thing. And I have written, done computer labs, you know, which the kids do. And um, you know, the problem with it is that it's discouraging when the kids can't save their work easily and then retrieve it at home and work on it and then, you know, like some of the kids are really slow and some of them are really fast, so it's very hard. I think it's hard for them to save their work and work on it again outside of class, and then come back to class and be at the same place as everybody else, and that's the limitation that I have, so.

Researcher: Okay, thank you. We'll move on to Question # 14. Is there anything that you would like to add to the discussion to provide the researcher with additional insight on how your district integrates technology into the learning community?

H: This is "H." I think to kind of sum it all up, I think the climate here is such that people always want to do more. I've heard almost everybody here say I would like to do that, I would like to do that, I've been trained to do this, I plan to do this next year, and I think that everybody's got really great intentions and sometimes, unfortunately, we're kind of squashed a little bit in terms of access and budgetary constraints and time, um, and even signing up for the labs that are probably the most up-to-date and, you know, there's so many classes and so many teachers and it's not, we don't have labs that are only open for classroom sign-up. The labs also have their own classes in them throughout the day, so they're only open during certain time periods, um, and then the laptops that are on the cart are not always up-to-date, not always on the network, not always having the batteries charged, and I for one, you know, I've used Geometer Sketchpad in the past using for Pathagroom Theorem. I've used Green Globs. We've done Excel sheets. I done so many things, but I'm almost embarrassed to say that I haven't used any of the labs or the stuff in easily five years because there were so many times where I ended up getting discouraged form it and things didn't work right and it took so much longer than it would have otherwise, and I think people want to do it, um, and maybe the Smart Board is going to be one of those ways to help it even more, um, but I think people really want to do it, and the reasons are just out of our control sometimes.

Researcher: Thank you.

I: Yeah, I find that sometimes, this is "I" speaking, sometimes it is due to class utilization. Every room in this school is used every period, so even when the computer teacher, I mean, the labs, the computer labs are always have a class in them or something.

H: And now we're going to have an issue with class size –

I: Yeah.

H: Where I don't know how many laptops are, not laptops, well how many laptops are on a cart and

I: I think there are 16 on each cart.

H: Right, so even still, even at this point where class sizes are not so extraordinary, you still can't get a one on one for the laptops, and I just really believe that the kids need to do it individually. It's not like you can watch somebody else do it.

I: Right.

H: Um, and even the labs that are most up-to-date are not always accommodating. If you have a class of, if they have 24, I'm making this up, but I'm pretty sure that they have like 24-

I: That's right.

H: Computers in the lab, and we've got 25 or more in our classes, and so you might not want to sign up your class to go, um, to the lab and access that, so.

Researcher: Okay, thank you. Okay, Question # 15. In closing, identify one word that captures technology integration in your district. (And we'll just go around the room to do this.)

G: This is "G." I started out on my first form that you gave us writing impressive, and after listening to you (laughter from the group), impressive by my standards but I guess struggling in some ways now.

H: I was going to say, this is "H."

G: I was happier when I came in (laughter from the group).

H: I was going to say, like, good intentions. It's where everybody wants to be. We're trying so hard (laughter from the group).

F: I originally said steady with the idea of like slow but steady, like we're getting there, but you know, we're always making progress, um, but I don't know. I just keep thinking that frugal is in there, as well, and um, but yet, as we discussed with the professional development, supportive, so.

Researcher: "C"?

C: Um, I said thorough to begin with because I felt there were so many different opportunities available for learning. I don't necessarily, there are things that I would like to do further in my classroom, you know, where I would like things, um, available to me, but as "D" said, you have that restraint of time and curriculum, so I would also have to agree and say supportive because I feel like for what I need, it is there. It is available.

Researcher: Thank you, and "D"?

D: Um, I would say technology is not mainstream, I don't know how you would say, it is not one word, I know –

I: Secondary.

D: Secondary, yeah. That's what I would say. Like, you know, it's not my goal as a professional to do anything with technology. Everyone's perfectly happy if I don't do a

thing. You know, it doesn't help, it doesn't help me in any way except if it makes my classes easier and helps them to learn better, but it doesn't make my classes easier. It makes them harder, and you know, I still, you know, they learn more, but it's not what they necessarily have to learn according to, you know. So, I don't know. That's what I would say.

Researcher: Thank you.

D: Yeah.

Researcher: "E"?

E: Um, I wrote down advancing because I think we are advancing; however, now I, I know you're not supposed to use two words, I would also say advancing but limited. Like we said before, access, time, and budget.

Researcher: And finally "I"?

I: I can't do it in one word. (Laughter from the group). I would say well but needs improvement.

Researcher: Okay.

Researcher: Thank you again for your time and participation today in the focus group interview. I appreciate all of your help with my research. As you leave, I will give you a stamped, self-addressed envelope to send me any personal messages or statements that you may want to add. I do need to collect the tent cards from you. Thanks again and have a great evening.

Voices from the group: Thank you so much. Good night.

Transcript of High School Focus Group Interview:

Date: May 28, 2008

Time: 3:30 – 4:31 PM

Exact Time of Recording: 61 Minutes and 16 Seconds

Researcher: Thank you for attending and volunteering your time to be a part of my research for my dissertation towards my doctorate degree in education. I really appreciate all of your assistance with my research. Today, you will be taking part in a focus group interview regarding the integration of technology in your district in terms of the Technology Leadership, Management, and Policy Pyramid, a theoretical framework developed by Dr. John Collins. This pyramid has the following, three sides: Organizational Integration Activities, Maintenance Activities, and Planning Activities. According to this model, all of these activities must be done simultaneously with committed leadership. This interview will take approximately 90 minutes to complete. All of your responses will be kept confidential and amassed in the report. Please know that your names or the name of the school district will not be used in the dissertation or any report. After the data is analyzed, a summary of the important findings will be sent to all of the participants involved with this research.

I ask that you please sign the Consent Form that you received in the mail and pass them forward. I will send you a copy of your signed and dated form for your files. This form indicates your consent to this interview and for it to be tape recorded. Do you have any questions at this time before we begin?

You will find an index card in front of you folded in half with a letter on it. The letter will be used for identification purposes during the interview. Please know that all letters were randomly assigned. Please write your full name on the inside of the card. I am asking you to do this so I can send you a copy of your signed and dated consent form and a report of the major findings of this research. I will mail these reports to your school address.

I am going to distribute an information form to you, and I ask that you take about 5 minutes to complete it. The purpose of this form is to collect some background information on you. Are there any questions?

Please pass these forms forward.

I am going to ask you 15 questions regarding the integration of technology in your district in terms of the Technology Leadership, Management, and Policy Pyramid that was developed by Dr. John Collins. Please respond freely to these questions in an informal matter. You can also follow along with the questions that I am going to ask. They will be in either the informed consent or the letter or solicitation. There will be 15 questions. Okay, I am going to start asking the questions.

Researcher: Question 1 - How does your district's technology plan address the following components of technology integration: integrating activities, maintenance activities, and planning activities? Again, you can follow along with the questions if you would like to do so.

Researcher: Would you like to go first, “H”?

H: Can we refer to you by your first name?

Researcher: Yes, that would be fine.

H: Can you, um, clarify what an integrating activity, maintenance activity, and planning activity is?

Researcher: Yes, an integrating activity would be something used for educational purposes, how this could be used, putting technology into the curriculum, maintenance – something that would be used in order to maintain the infrastructure of your system, and planning activities – planning for the future. Integrating – how do you integrate it or use it in the classroom or into your learning program.

D: For integrating, I use, um, I use PowerPoint to do, I think many of us do that, use PowerPoint for slideshows or dispense information. I personally use the computer everyday to teach on it. My students use it everyday to perform tasks and you know, do their projects.

Researcher: Okay, thank you, “D.” “B”?

B: Um, well in world languages, one of the activities that I do is, um, blogging, and another activity is podcasting. So, those are the things that used, at the Q level, they are used on a weekly basis, at least two or three times a week.

Researcher: Okay, thank you, “B.” “G”?

G: I don’t really use, um, the computer very much in class. I use it to collect information, um, I don’t, I don’t use a slideshow, and so, I would have to say on a daily basis I don’t use it. I teach, you know, AP courses, but it’s not really needed.

Researcher: Okay, thank you, “G.” “C”?

C: Um, I'm similar to "G" in that respect, in terms of not using too much in the classroom, but I do use, our district uses something called Ed-Line, I am sure that you are familiar with, so I do upload any of the, um, worksheets that are handed out in class, so the kids can always print it out if they are absent or if they lose a copy, so that's one way of kind of using that in, you know, in terms of the integration end.

Researcher: Okay, thank you. "H"?

H: Um, off of what "C" said, I um, I use Ed-Line, but not so much for them to get, but I put assignments up there, I've put answer keys to, like, reviews up there, so I could save the class time by them being able to access it outside of class. Um, I've put pictures up online so they can see things that we've talked about a little bit more clearly, and it allows them to see a color picture of things, rather than just like copies that we've made that are in black and white. So, that's an aid.

Researcher: Okay, thank you. "F"?

F: Um, I've had students use the computer, um, this year. I've had kids do lesson plans, and they had to use the computer or some form of technology in a lesson plan, but one tremendous source of frustration was that you can't access YouTube in this high school unless you get prior permission from the Board Office, and so then they will turn it on for the duration of your period and then they will turn it off again, but if anything should happen spontaneously, it's a problem, and I find that very frustrating. So, YouTube is not accessible.

Researcher: Okay, thank you, "F." "B"?

B: Well along, um, the lines of what "H" had said, um, also all my lesson plans are posted so that the students check it on a daily basis, and they are welcome to go in there and see what their responsibilities are, not only daily but weekly. Um, they also do their own PowerPoint

presentations sometimes, not only myself, but they also do. I would venture to say that technology in my classroom is probably about 90% of the time.

Researcher: Okay, thank you, "B." "E"?

E: I was going to say that I'm in special education, my kids do use the computers daily to do research there are papers, otherwise I use graphic organizers on the computer such as integration. I don't plan too much.

Researcher: Okay, thank you. Anybody else? "D"?

D: I use the computer constantly to write lesson plans and do research to, um, pull together visual images to help create hand outs and things like that, I'm constantly using it –

Researcher: For planning purposes –

E: For planning purposes, yup.

Researcher: Thank you, "E." Shall we move on to Question 2? Okay, Question 2. Discuss the professional development opportunities provided by your district. For example, are they primarily hands-on or informational, how many occur per year, and who conducts these professional development opportunities (outside professionals, teachers, or curriculum specialists)?

H: Are these only professional development opportunities that are technology based?

Researcher: Yes, based on technology.

H: Um, one, maybe, a year.

B: They do have, um, the summer opportunities, and throughout the year there's courses.

Researcher: "C"?

C: I was going to say, it depends on like what we are talking about, like, the Ed-Line which just came on, its been picking up steam over the past year or so, and I think they have some

training workshops where a beginner, at least in the science department, we also did it within a departmental meeting where she also came and spoke to us about the RSSPs the other day,

H: Oh yeah, the streaming thing.

C: So I think that it's like stuff that we kind of just take for granted and we may not denote it as, oh, it's professional development about technology, but it seems like it's pretty common especially in, at least, our department.

Researcher: And this is science?

H and C: Yes, science.

Researcher: And you are both science teachers?

H and C: Yes, we're both science teachers.

E: I um, I went for smart board training, that was professional development, and also my supervisor brought in a few programs to help out in the special education department.

Researcher: Okay, thank you. "D"?

D: Our, our technology educator at the Board of Ed is always available to help with any applications or any kind of, um, learning new applications, and I was just there yesterday asking how to be able to put up a website online for, um, a visual, a graphics program, a website, so, a gallery-like style, which is, I have an appointment, so, it's easy. We ask her, then she schedules you and will help you.

Researcher: Okay. Excellent. Thank you. "H"?

H: Yeah, she's available. We just email her and. I mean, prior to the Ed-Line, there were quite a few teachers who had their own websites that we worked through the school, and then when Ed-line came on, everyone was, kind of, corralled into doing that so we would all be on

the same page, so then we all started doing that. And then we just got, um, a new thing with the videos –

C: Discovery streaming, I think?

H: Yeah, and so we can go online and download the videos, and there was another tutorial on that, so. And I found some of those to be pretty good.

Researcher: Okay, thank you. Anybody else? Yeah, “F”?

F: All right, I’m hearing that it differs from departments. I’m in English department, and, I mean, all these services are available to us, I don’t know how many people avail themselves, in my department, we’ve never had the technology come over and do a demonstration for us, so we know that it’s available, but if you avail yourself of it, it’s your own choice.

Researcher: Okay, thank you. “B”?

B: And along those lines, we have never had technology brought into our department, but a couple of us in our department have gotten together and our technology director has conducted several technology workshops for the few of us that were interested, um, podcasting, for example, was one of those that she did for us. So, it was, you know, it was successful.

Researcher: Okay, thank you. “C”?

C: Um, in addition to the in-house service that we have over at the Board Office, I think, um, “H” can correct me if I’m wrong, but I think that a couple years ago, like one or two years ago, our department brought in some outside person to discuss, remember that writing thing that went on the magic board?

H: Oh yeah, the inter-writing.

C: Yeah, we had this other, you know, so basically there was this outside professional, we did have an outside professional come in and kind of speak about this and then our department supervisor asked us if we would be interested in, sort of, that sort of thing so, that's one way where an outside professional came in, so.

Researcher: Thank you. Excellent. Anybody else? "H"?

H: Our department had actually inquired if we wanted to do podcasting. I don't think we really necessarily went for it. I'd rather not be recorded (laughter from the group), um, but it was definitely, like, out there and a possibility to be available.

Researcher: Okay, thank you. (a bit of laughter). Yes, "D"?

D: Um, my supervisor has on occasion asked myself or a co-worker to teach other people in our department do different kinds of things, you know, with technology, you know, cause um, my co-worker and I tend to use a lot more technology maybe than the rest of our department, but sometimes there's a lot of things that they need to know as well, so we've added that on to a professional development day or sometimes when, you know, we have staff development, that would be one of the things that we do.

Researcher: Okay, thank you. Shall we move on to Question 3? Okay. Explain how these opportunities facilitate teachers in aligning the technology to the curriculum. (So how does the technology, how do these opportunities help teachers align the technology to the curriculum?)

B: Um, well, I teach foreign language at the AP level, and um, based on the claims and evidence stipulated by the College Board, which are, quite a few of them have to do with being able to listen to authentic expressions and be able to, um, speak on a given topic. Um, by bringing in technology to the classroom real-time, allows the student to listen to authentic

speech from different parts of the world. So that's how we integrate technology into the classroom, um, and also allows us to use and integrate the podcasting.

Researcher: Excellent, thank you. Anybody else? Okay, so we'll move onto Question 4.

Yes? Okay. Evaluate if these professional development opportunities are useful and practical in helping teachers use the technology and integrate it into the classroom.

Researcher: "H"?

H: Um, they're positive because it's sometimes nice, I know we tend to have a department, the science department, who actively engages and goes looking for technology, and it is brought into us, and we are, kind of, are a wash in it. Um, what is a negative about them is, they are often geared, kind of, toward everybody, and not, so, its moving at a level that not your own level. I think that, like we had the last department where our professional development was on the streaming feeds, and it, there were a lot of people that were like, I don't know caught going on and this is freaking me out and please go slowly, and the rest of us were, seriously, pushing the mouse button – what's hard about this? – so it was like, a little bit of a diversity factor, where like, there were a lot of people who could have gone a lot more faster and got more out of it, so in that kind of event, I think maybe you have to go looking for it and get maybe a little bit more one on one because the professional developments can be too much for some people and then not enough for other people.

Researcher: So everybody has different abilities is what you are saying in these workshops?

H: Right. There needs to be a, um, differential instruction.

G: I think if your interested, um, in using technology, capacity, the instructional capacities are there. I mean, if you want to learn it, they will find somebody to teach it to you.

Researcher: It's available for you to do so. Thank you, "G."

H: I mean it's very overwhelming for some people. What are you talking about?

G: I mean, cause it's funny, every time I took a course over at the Board Office, they ask you for an evaluation, and we say that we need a follow up course (laughter) because it is just so much information, and I don't tend to use it that often, um, that I wind up forgetting by the time that I actually want to use it. So, but I also know that I can call the director of the technology or whatever she is, the teacher of the technology, and she will come over, as she did with Ed-Line. She was available on several days this fall, those who used Ed-Line, that if you wanted to, if you were having problems, she was in the library all day long, so you could go in at any time on a series of days, and go to her with your problems.

Researcher: Excellent. Thank you, "G." "B"?

B: I think that technology, in terms of professional development, is there district wide, but I think that, speaking from my own department, I think we're lacking at a department level, cause I don't think that as a department we do enough to integrate, perfect, practice, etc., etc., the use of technology.

Researcher: Okay, thank you, "B." "D"?

D: Yeah, I don't think that technology is always available to people when they need it. For instance, having a projector, or being able to hook up their computer to the projector when they get it, or um, making sure that the printer works when it has been delivered to the room and hooked up to the, you know, there's all kinds of things that go wrong when we're sharing and um, you know, trying to plan. I think that can be one of the difficulties.

Researcher: Okay, thank you. "B"?

B: Along the lines of difficulties, um, the upkeep of the technology, of the equipment that we have, and again, speaking from my own department, we have very outdated, um, laptops and

we have a cart that is now probably about 8 years old, and, um, it doesn't even have its own printer so we have to go print somewhere else, and then we have to go to different classrooms or the office, so it is frustrating.

E: And you have the kids that damage things.

B: Yes.

G: I mean, there's always the element of, I mean, every, I use technology, just televisions, I teach a class on film, and almost every day, I go into that class and the kids have fooled around with the controls, so you think you have no screen, but they just turned the brightness all the way down, and you think you have no volume, they have gone into the television set and um, made it so you lose five, seven minutes every class, until I can get some kid who can help me to try to figure out why the hell this is not working, wires out. Remember we used to have the mouse balls on the separate mouse, they used to take the mouse balls out, so they knew that they could disrupt the class very frequently.

B: I'm glad to hear that this is happening to other teachers. (Laughter from the group).

Researcher: Okay, thank you, "G." "D"?

D: Um, I think that actually brings to mind one of the issues with teachers not having their own classroom cause they cannot monitor, um, the use of the technology that's in the room and can't always set it up when, within an efficient amount of time, and um, sometimes if your in the same room, you can set things up and it's going to be that way for you when you come back, and then a lot of people who there's so much movement, that's very difficult to count on the technology being in order when you're going from place to place. It may be available sometimes one period and then not another, for instance.

Researcher: Okay, thank you, "D." "F"?

F: Well, I would like to make a comment. I don't know how directly, um, related it is to your question, but it echoes "H" and "G" and certainly myself. Um, I spent, I teach mass media in the English department. My theme this year, based on an article that the technology instructor from the tech department gave me on natives and immigrants written by Marc Prensky, and that's been the whole theme of my semester because I'm an immigrant and "H" over there and "C" and "D", you know, there are some natives here in the audience, and they're metaphors for people who grow up with technology and people who didn't. So for those of us who are slow or whose department is like senior citizens (laughter from the group), you know, it's a real problem here, this entire survey is colored, my responses are colored because I'm an immigrant, so, our, I –

H: To technology, the immigrant to technology (laughter in the group), like we're natives cause we grew up with it (laughter in the group).

F: They're metaphors, right (laughter in the group). So, the people who grew up with it are natives. (Laughter in the group).

E: I was like, you're an immigrant? You were born in Jersey. (Laughter in the group.)

F: So, people who are comfortable with computer language are natives, and you and I have accents. We are in their world, but we will always have an accent. Okay. So anyway, um, I had another student teach me how to put my music on my I-Pod. You know what, I'm fine with that. I don't care, but every single question on this sheet is going to be filtered through the eyes of an immigrant, which is why I volunteered to be on this committee because I was told that you needed the whole spectrum.

Researcher: Yes, I do. Thank you for that, and that's a very good metaphor that you came up with.

F: Well I didn't, Mark Prensky, give him credit, and give the technology instructor credit for turning me on to it. If anybody wants a copy of the article, it was really interesting.

D: Wait, well, what is interesting though, is that, even though you may not know how to use technology, um, maybe as best as you would like, you don't, it doesn't stop you from using it with the students.

F: Absolutely, absolutely!

D: And you still, you still require it of the students even if you don't know how to use it yourself, you know. Good job.

Researcher: Yes, thank you, "D." Anybody else want to expand on that question?

H: Are we still on 3 or on 4?

Researcher: We're on 4. (Laughter).

Voice from the Group: We're on 5.

Researcher: I think we just completed 4, and now we are moving on to 5. Okay, so we will move on to Question 5. Please evaluate how your district provides technical support to maintain the infrastructure and address problems.

C: I think we have three people whose full time job is to be "Tech" people to address any sort of technological issues that we might encounter. Um, I've had good experiences with them in the past when my laptop broke down. I brought it over there, they fixed it for me, they resurrected it, and they gave it back within a couple of days. Um, I think that is there full time job, to address our issues. Right?

H: Yeah.

C: I am sure that they have other tasks, but that is their primary use.

Researcher: Okay, thank you, "C." "D"?

D: Well, we're also very fortunate to be of that vicinity of that, um, office. I don't know how it with other districts, um, with other schools in the district. They don't have them across the parking lot like we do. So in terms of technology support right within the building, I don't know that's as efficient as it could be.

H: Well, I mean, if you don't count computers, we've always been pretty good with all of the other stuff.

F: And, Person X, Person X used to do stuff as well.

H: Like, if my bulb goes down or my, whatever, overhead projector, I think that's still technology, right?

F: I would imagine that's technology. (Laughter from the group.)

Researcher: Yes, it is.

D: Well, that's good to hear. (Laughter from the group).

H: You know, she's pretty good with that. You know, I need a bulb, things have happened.

B: Uh, hum.

H: Or my doggle doesn't fit. Or something like that, you know, she'll (laughter).

Researcher: Okay, thank you, "H."

D: What is that?

C: Don't go there.

H: I didn't make that word up. You know, that is that little thing that you plug into your computer.

Researcher: Thank you, "H" and "C."

G: Only an immigrant finds that word funny. (laughter from the group.)

Researcher: Thank you, "G."

B: I'm a double immigrant.

G: That's right. I think it is only the three of us. (Laughter from the group.)

Researcher: Would anyone else like to elaborate on Question 5? Okay, moving on to number 6. Question 6 - How is the technology support system/service for the district organized, and who is involved in the maintenance activities?

H: Didn't we just do that?

D: "C," kind of, can take that.

B: We have a technology department, and there are three people over there.

C: Yeah, we have like a, we have this technology head, Administrator X, also the head of the, and then there's the three technicians ("C" names them), and then there's like a teacher trainer (Named X), you know, who is responsible for training other teachers in the district.

H: What does Person X do?

F: He is just like a problem solver.

C: They probably have different roles, I don't know exactly, but –

B: Okay, because I'm not clear on who does what.

C: Yeah, sometimes –

F: I just call all three numbers. (Laughter in the group.)

C: Yeah, they have like, um, a secretary.

G: I just show um with my computer, and I don't leave until someone takes it! (Laughter in the group.)

C: Yeah, so far they are good in that respect in that they know how to –

H: Fix this!

G: Fix this! I'll wait. (Laughter.)

C: You know, we also have people within the building, but I'm not sure if that's their formal title or not?

G: It used to be part of Person X's job, but now –

C: But now, it is only out of the goodness of his own heart.

Group agrees: Right.

G: I think Person Y and Person Z also did stuff like that as well.

F: Back in the day, yes.

C: So I think that, maybe on an informal basis, we also have people who we can go to.

Researcher: Thank you. Would anybody like to expand on Question 6? Okay, Question 7.

When there is a problem with the computer system, how long does it usually take before the repair is performed?

H: The system or actual computer?

Researcher: Um, it could be the whole network or your individual computer.

F: Um, we just got a memo today about our email is going to be revised on June 2, and they told us to prepare if we needed to make copies, or, um, I don't even know what the directions meant, but we are supposed to do something before June 2. So, they are very good at communicating through email throughout the district or if the server is down, um, but how long does it take, I guess, it is pretty efficient, yeah.

Researcher: Okay, thank you, "F." "C"?

C: It depends, I think, also on what, like, what sort of things happen. I think on one of the last few weekends, our emails actually went down, so I think they went down on over Sunday, or maybe like Saturday, but then when we came in on Monday morning, I think some of us did notice it, Monday morning it was still not working, but as the morning

progressed, it was eventually remedied. So, I guess in that sense, you know, as soon as reasonably possible they came through.

Researcher: So it is a pretty efficient system, and they work their best to get things recovered?

Group: Yes.

C: You know, I also mention my laptop when it did breakdown at one point, I brought it over, and within 24 hours it was repaired.

Researcher: Okay, thank you very much, "C." Anybody else for Question 7? Okay, Question 8. How do you perceive your school district in providing activities in planning for the future in terms of technology? Please be very specific.

F: Well, does a television study count as technology?

Researcher: Yes.

F: Okay, so, I'm on that committee, um, and we were supposedly given a huge sum of money, and it's been allocated for the TV studio, and so we're in the planning stages of deciding what our needs are and how we want to integrate it into the curriculum, and some of us on the committee went to different high schools in the area to see what they're doing with television, so that's, um, supposedly going to be fall of '09.

Researcher: Okay, thank you. "G"?

G: And basically Ed-Line is an example of how the future of technology is going to be. You know, the idea of the parents having easy access to grades online, assignments online – that was, um, following a trend or request from the community, at large, wasn't it?, that they wanted to just, I don't know, or was it the Superintendent's office?

F: Who knows where it came from?

Researcher: "H"?

H: They are embracing a lot of things before I feel like they figure out what is good and what is not good because – I don't want to put my grades online, at all. You know, I don't want anyone to be able to view my book other than me. An that's, there have been some, like, I mean, I like embracing technology, I mean I'm definitely on board all of the way, but there's definitely certain things where, I, I had a website, and then they came up with Ed-Line, and then they're like, yeah, screw that thing, you have to use this – I was like what the?

(Laughter from the group.) You know, I find it to be very constrained, I don't, I mean I understand that it is very cookie-cutter, and you can only do certain things, you can only upload 20 meg files, and you know, like I have lots of pictures, cause of, um, my subject, and I want to do different things, and I had to break up PowerPoints into 14 different pieces, and I don't particularly care for the medium that much, and do I have a choice? No! I have to do what they tell me to do. And I had a great website and I was told that I can't use it anymore. Well, they were like you could put on it, and then I was like, well you know what, no, and then I got cranky about it. (Laughter from the group.)

Researcher: Thank you, "H." "C"?

C: Laughter. I apologize.

Researcher: Okay, anybody else for Question 8? Yes, "C"?

C: No.

Researcher: Okay, Question number 9. Explain how your district's technology plan addresses the issue of "planning for the future" to ensure that the technology remains up-to-date in future years and how this is actually being accomplished in your district. (So I want to you what is in the technology plan and how it is being accomplished?)

G: All I can say is, I have no idea.

Researcher: Thank you, "G." "F"?

F: Unfortunately, um, "B" who left, she's on the, oh, the two of them, "A" and "B", they're on the Assistant Superintendent's Mapping and Webbing Committee, and their area is technology.

Researcher: Okay.

F: So they came to the TV studio meeting and I thought they were to ask about integrating television into their departments, but it wasn't that, it was to report to the Assistant Superintendent about, um, mapping and webbing and curriculum, so I am not going to say any more about that.

Researcher: Okay, thank you. Could anybody else elaborate on that?

D: Well, I was in on a Mapping and Webbing staff development day, and the, um, there was a website, I can't remember the name of the company, it required us to load our lesson plans in real time on the web, and in order for it to be a resource for other teachers and then other people, other teachers, or it could be a resource for us, and it took, it takes forever, I mean, doing things on the computer as opposed to having an application that interfaces with the web, where you upload something, that is so much easier, and um, anyway, that, that whole technology, I don't know how it is in any other department, but we, we all decided against it, it is completely inefficient in terms of its time, so it was a good idea, but doing it online is a bad idea, so we're not doing it, we're not gonna do it that way in our department, at the moment.

Researcher: Okay, thank you, "D." Anybody else in terms of planning for the future? Okay, we'll move on to Question 10. Overall, how would you describe the leadership in your

district in supporting the integration of technology into the school buildings? (So, we are looking at the leadership.)

G: I think, it's, um, a point that is very important to them. I think that they have a genuine interest, and I think we are very, kind of, I think there's probably more technological equipment in this district than most districts, so I think it has to be something that the leadership of the school feels is very important, and I can't speak for the grammar school, but I think we have more computers here than most of the schools, I would think, more equipment, I mean, we are always getting new stuff, I mean, so it's got to be on somebody's agenda.

Researcher: Okay, thank you, "G." "D"?

D: You know, we have three labs, fully outfitted labs, now, an English department has an entire lab, um, with Macintoshes, the art department and science and technology has um, (The English teacher holds up 2 fingers) you have two in English, that's all of Mac's, and then we have a Science and Technology lab that's all PC's, and then up in the art department, we have one lab that's all PC's that can sit about 22 students, so, that's a considerable amount of computer labs, four –

Researcher: Yes, thank you, "D." Yes.

F: I mean, I just, this issue of, what is technology, I mean, sitting and word processing, is that technology? Wait, so the English department has 2 labs, big deal. I mean, I don't see that as, it's using technology, but it's at the low end, it's not sophisticated, it's not state-of-the-art. We don't do that unless you're 25 or younger, and I think that those people do that. They bring more things into the classroom, but our leadership, and I don't know if this is appropriate either, but, um, we had an issue with our leadership, communicating with people

through email, where some of us found reprehensive because we like face-to-face communication, so I think email was being abused by the leadership, at the expense of interpersonal communication.

Researcher: Okay, thank you, "F." Anybody else in terms of leadership? "C"?

C: It seems like it also depends on, I think with some of the questions earlier, it depends on the department that you're actually within. It seems like some department leaders are taking more and more proactive stances on trying to integrate technology, somehow, into the curriculum, whereas other, I think the four ladies were saying that they don't see too much technology, I don't remember exactly what they were saying, but it seems, like, it depends on the leadership within the department, in terms of the department head and the supervisor, that seems to vary, and there seems to be extensive inconsistencies amongst the different departments.

Researcher: Okay, thank you, "C." "E"?

E: No, I disagree with that because I know in Special Ed, my supervisor is trying to bring in some programs that are going to help the students. I don't think that we've integrated anything, but we've had meetings about them. (Laughter.)

Researcher: So, there's been an attempt to do that, there's been an attempt.

E: Yes. We have to be a team. There was something that I personally liked, but it was not accepted.

C: So, you're saying that there is, like, a lack of follow through?

E: Yeah, where, people from the outside are coming in to present what we have to offer, you know, writing programs, or you know, something else that is gonna help the kids in Special Ed, but I haven't seen anything integrated yet.

Researcher: Okay, thank you, "E." Anybody else? Okay, we'll move on to Question 11.

Specifically, how is the leadership in your district involved in the following areas of technology integration: (1) integrating activities, (2) maintenance activities, and (3) planning activities? (So now we are looking at each individual area broken down.)

G: I think it really depends on the leader that you are talking about. If it's the Superintendent, you know, he hires people to, you know, run computer programs and everything and to repair them, um, hires outside consultants. Um, if your leadership means the department supervisor, it may not be the same thing. I mean, it depends on how you want to interpret that question from the leader.

Researcher: Thank you, "G." "F"?

F: Yeah again, I think if its determined by department, I mean, in the English department, we, our leadership is very interested in us integrating, I mean, there are 5 NJ core curriculum standards in English – reading, writing, listening, speaking, and hearing, so technology, per se, is not integrated as one of the five language arts skills. Reading and writing, certainly are. I'm the media teacher, so viewing is really high on my list, but I guess the unspoken message is, you know, it's nice if you do it, but it's not coming from the leadership of the English department. Every time there's a meeting, it's about writing rubrics, you know, reading comprehension skills, it's not about technology. So, maybe my department is an island in this district, but I don't hear any message, and I've been here through a lot of leadership, and when we first got computers back in the day, they did encourage us to integrate, but again, I mean so I use the DVD player everyday, is that technology in the classroom, or are we just talking about computers, podcasting, webcasting? I don't know what the discussion really is in terms of technology because it is so broad. Streaming, I don't know what that is. I know

what YouTube is. I know what Face Book is. I know what's in my world, but I don't think there's uniformity throughout the curriculum from leadership.

Researcher: Okay, thank you, "F." Anybody else?

H: I don't know if it's leadership based, but so much, like, if you ask for it, they can make it happen. But again, like you said, you need to know what it is in order to ask for it. You know, so unless someone tells you about it and discusses with you what it is and all, like, it's not coming down so much, as like, we can also bring it up, and then they can –

G: Yeah, I know like, for example, I would like a scanner, and then we have a scanner, but I don't know how to use a scanner, I've never used a scanner, but there are people who can, apparently. Um, you now, so it's requests that individuals will make, I mean, do we want a Smart Board in the department, and then our supervisor will say, oh, I got you a Smart Board but who the hell uses it. I don't know of any, I think maybe one teacher uses it, I mean, its, sometimes they're almost like prizes, um, they're gifts, um, would you like to use it? There will be some people who will take ownership of it, and like the scanner, I mean, it ended up in one faculty member's house for a while (laughter from the group) and um, you know, you have, like a Smart Board or any of those things – like this teacher (named in the discussion), he has like three television sets, set up in his classroom with different, um, angles coming out for his presentation, but that, um, he said I need three TV sets, he got three TV sets.

Researcher: Okay, thank you very much "G." Anybody else? Yes, "D"?

D: Yeah, I would like to know what the State standards are for technology education. I know that, I don't think that there's any requirements, a technology requirement, and um, even in the middle school, I know students who take computer courses, I think as an elective, so I don't know what is required. And um, maybe that's the problem, that's maybe why there's

an issue of concerning leadership or, um, people's expectations about what we should be teaching in terms of technology because, um, maybe nobody really knows what they are supposed to be learning or to what degree they are supposed to be implementing that.

Researcher: Okay, thank you, "D." Anybody else? Okay, we'll move on to Question 12.

How is the leadership reflected in your school district's technology plan, and how is this communicated to the school communities? (So how is that, and again, coming from the district down to you?)

H: I mean, I think that the whole thing that the district did was, Ed-Line. And that was, like, an overriding district theme, and then, that's being implemented within the schools actually, pretty well, but they're likely to work on it for themselves to really embrace it with whatever they can embrace it with. Um, there's, I didn't use it for like two or three months, then I decided to start using it more and more. The students actually started asking me if I could, and then, I mean, there was really no pressure from the district in order to do so, I mean, there's helpful hints, and you know, every once and a while, come on and use it, you may want to, I mean, there's no mandate to do so, it's coming from internal.

Researcher: Okay, thank you, "H." "F"?

F: You know, piggy backing on "H," um, I don't know, I think it just all looks really good, and I think everybody does what he or she wants anyway, and, um, sometimes you get a wink, sometimes not, and I know that some supervisors say that it is mandatory to use Ed-Line, and it never once has come up in my department, ever, and I actually had a senior teach me how to do it, and um, I did it once a month to satisfy "Big Brother" or whose ever looking down, but I don't see the importance of it at all.

Researcher: Okay, thank you. Anybody else in terms of how the leadership is communicated to you from the district? Shall we move on to Question 13? Okay. How do you use technology in the classroom for instructional methods/teaching? Please be very specific.

Researcher: "E"?

E: I think for special education, um, I have desktops in my classroom, and the students are welcome to and do use them everyday for research, or, um, their assignments, and then I have Inspiration, which is a graphic organizer I can use for making study guides, and then, um, I do in-class support, and in other classes we do PowerPoint Presentations, so I think that's about it.

Researcher: Okay, thank you. "G"?

G: Can we opt for a broad definition of the technology to include television and the old standby, the overhead projector? So, that's used on a daily basis.

Researcher: Okay, thank you, "G." "F"?

F: Um, I use the DVD, the old-fashioned VCR, the LCD projector, laptops, and, um, -

Researcher: Okay, and specifically, how would you use some of these types of technology?

F: Oh, showing films, showing student work, um, writing labs, um, going online and then being able to project to the class on an LCD projector, going to a site, you know, CNN or something and then integrating that into the classroom discussion.

Researcher: Okay, thank you, "F." "H"?

H: In science, we do have, um, you know, a little bit more of the technology. Um, we've used probes that are technology-based that go into the laptops, um, Logger Pro, which is a program allowing you to, like, use the probes for temperature readings, or in physics the use it for measuring velocity and such, um, PowerPoint presentations which the kids are able to

access them online, so they can print it out before them come to class and use it as a basis for their notes, um, posting assignments online for the students to get to, posting review materials online for the students to get to. Um, I sometimes have students email me assignments.

Researcher: Okay, thank you, "H." "D"?"

D: Yeah, I use it everyday to basically help the students developing their visual language and um, you know, critical thinking developing, visual imagery to communicate in a non-verbal manner, so, were constantly using it to create graphics, illustrations, manipulating photography, um, that sort of thing.

Researcher: Excellent, thank you. "F"?"

F: And as "D" was speaking, I was thinking that sometimes my students go to you for help, right?

D: Uh hum.

F: And using scanning, and, um, what else do they use?

D: I-movie.

F: Oh yeah, that's right. Oh yeah, that's another thing, um, I forgot about that.

D: Um, computer graphics, the visual arts.

F: Oh, I forgot about I-Movie. Of course, in my film class, kids use I-movie all of the time for review.

D: Yeah, I try to answer these questions with both of my, kind of, jobs in mind because on the one hand, I work in the lab, and I'm working with technology for three solid periods, but then on the other hand, I'm also working with, um, down in the visual art's wing where we're

working to use less technology and, you know, we're working with our hands and creating art with our hands, so, I think I'm kind of speaking from both points of view.

Researcher: Okay, thank you, "D." Anybody else for integrating technology for instructional methods? Okay, Question 14. Is there anything that you would like to add to the discussion to provide the researcher with additional insight on how your district integrates technology into the learning community?

Researcher: "F"?

F: Um, I just have to reiterate that I think there is a lot of posturing in this district that we have all of this stuff as "G" said, there's Smart Boards and there's scanners, and a lot of this just to appease the tax payers. We have it all. I don't know how much it is being used. You know, we have all of this "stuff." Um, so I think there's a very uneven application of technology throughout the district. I think from my friends in elementary and middle school, I think it is integrated on a much more consistent basis. I think in the high school it is kind of if you like it, use it, and if you don't, that's cool too. Nobody, you know, nobody imposes it on us. Ed-Line was the first thing that was imposed, and I don't know about the rest of you, but they sent out a survey asking us, um, 1-2-3 if we've used it, and, um, maybe I'm lucky that no one's bothered me about it, but I don't use it. I don't use it. I have a kid who once a month puts some things on so it looks like I'm using it.

G: But I don't even make it look like I'm using it. (Laughter from the group.) Mine's never been touched. It's empty.

F: Well –

G: It's empty. I've never done anything with it.

Researcher: Thanks, "G." "H"?

H: Um, the only thing, I don't think that they look at the negatives of technology at all. You know, like, I've got kids emailing me at, like, one o'clock in the morning. I've had a girl, she's done this twice, she blackberry emailed me from school – what are you doing? – this is sixth period, stop that! The kids are so reliant on communication, like, they think they can communicate with us like they communicate with their friends. I'm like, I'm not at your beck and call. Like, if you don't go to see me after school or during class, I don't want to hear it. I don't want to answer your questions at 11:30 at night. Go away. (Laughter from the group.) Oh yeah, it's ridiculous. It's sent from Verizon blackberry.

D: They just like you.

Researcher: Thank you, "H." "D"?

D: Well, the other thing that we have to do in addition to, in addition that's required of us, um, is that we do enter our grades online using Power School, which is a Mac program. I mean, that is something that we do 8 times a year, putting in for progress reports 4 times and grades in 4 times, so that's technology that's been used, as well.

Researcher: Okay. Thank you. "E"?

E: Actually, in the Special Ed department, we do have the student's IEPs and, um, we do additional progress reports online, and I know that's not everywhere, but I do think that, probably as "F" was saying, there's not enough follow through, and not enough, um, especially with the follow through and just making sure that we're understanding the technology and what's available to us, and how to use everything. I guess that's it. There's not enough follow through. I was trained with the Smart Board because I had to do a presentation at the middle school, but I don't have access to it here at the high school, so if I used it everyday, I would, I think it's a great tool, and it's not even available.

Researcher: Okay, thank you, "E." "G"?

G: But you also have the other component of very highly content driven courses, and sometimes a lot of technology is a waste of time. I mean, I teach AP American history which is an enormously difficult content laden course where we do, you know, the one year, we start with it in other schools, all of these other things, like, a lot of visual imagery and other kinds of, um, additions to the curriculum may really be lovely, but I would not finish the course. And they, and there's that balance again between, you know, content, you know, coverage, breadth verses depth, however you want to say it. And I have to go with breadth, and I can't waste time using stuff because it also, the other element of it, to really effectively integrate this stuff, is enormous amounts of time because if you have the whole web at your disposal of all this crap, I have to learn how to use this stuff, I then have to figure out what I'm going to choose. I don't have the time to do that. I don't have the time, and so, I do it the way I know how to do it, and, um, my biggest technological worry is if kids fool around with the television set or if my bulb blows in my overhead projector, and those I can handle, or a kid steals the remote.

Researcher: Okay, thank you, "G." "F"?

F: I just want to say, um, again, I keep coming back to the subject matter, in terms of English, if I'm discussing a novel or a film, I don't need the Internet. I need brains, and mouths, and thoughts being exchanged. And I just have to tell you, as uh, an end comment about the natives and the immigrants discussion, when I asked the kids themselves to what degree they feel integrating technology into the classroom is essential, one comment that I remember is, "We don't need all the bells and whistles, we just need good teachers." Amen.

Researcher: Thank you. "D"?

Researcher: Okay, thank you, "E." "G"?

G: But you also have the other component of very highly content driven courses, and sometimes a lot of technology is a waste of time. I mean, I teach AP American history which is an enormously difficult content laden course where we do, you know, the one year, we start with it in other schools, all of these other things, like, a lot of visual imagery and other kinds of, um, additions to the curriculum may really be lovely, but I would not finish the course. And they, and there's that balance again between, you know, content, you know, coverage, breadth verses depth, however you want to say it. And I have to go with breadth, and I can't waste time using stuff because it also, the other element of it, to really effectively integrate this stuff, is enormous amounts of time because if you have the whole web at your disposal of all this crap, I have to learn how to use this stuff, I then have to figure out what I'm going to choose. I don't have the time to do that. I don't have the time, and so, I do it the way I know how to do it, and, um, my biggest technological worry is if kids fool around with the television set or if my bulb blows in my overhead projector, and those I can handle, or a kid steals the remote.

Researcher: Okay, thank you, "G." "F"?

F: I just want to say, um, again, I keep coming back to the subject matter, in terms of English, if I'm discussing a novel or a film, I don't need the Internet. I need brains, and mouths, and thoughts being exchanged. And I just have to tell you, as uh, an end comment about the natives and the immigrants discussion, when I asked the kids themselves to what degree they feel integrating technology into the classroom is essential, one comment that I remember is, "We don't need all the bells and whistles, we just need good teachers." Amen.

Researcher: Thank you. "D"?

D: I just wanted to go back to what you were saying, "G," is that doing all of that extra technology, whether they want us to do the web, what's it called?, the web and the mapping, um, which was a crazy amount of time, the Ed-Line takes a lot of time, you know, not to say that all of the lesson planning doesn't already take a lot of time and punching all that in and making that look nice and legible, um, all of that, it is, an incredible amount of time, and nobody is giving us any additional time to work or figure that out.

G: Particularly, if you're an immigrant. I don't know how to do it in the first place.

D: Yeah.

G: So, first I have to learn the damn stuff. The only thing I've learned in the technology department is how to use my digital camera, which was very handy. I took two courses on how to use my digital camera. Um, but I don't have the capacity to learn all that and then prepare different AP courses and then do all of this other stuff that I do –

D: Right. Yeah, it takes a lot of, yeah, aside from the learning of it, it physically takes a lot of time. It's very arduous work even just pulling in, you know, -

G: Of course it is.

D: Paragraphs and bullet points and pictures and titles and making that into an interesting presentation is a lot of additional time.

H: It's during our free time. Like, I'm sitting on the couch at night making up a 40 slide PowerPoint presentation for my kids. You know, (bangs on desk), just putting it together. It's not like I'm doing this from, you know, 7:45 until 3, this is only happening on my own time, so if I want to use technology, it's got to happen outside of the bounds of school. You know, doing all of the preparation, putting everything together, putting stuff up online, all of this stuff is happening on my time, not on school time.

Researcher: Thank you, "H." Question 15 - In closing, identify one word that captures technology integration in your district. (And this could be different than what you put on your card.)

G: I though the word that struck me is, well-intentioned. And just leaving it at that, it's well-intentioned.

Researcher: Thank you, "G." "D"?

D: Well, I jus going to say available. It's available.

Researcher: "D", available. Thank you.

D: Yeah, I mean, it could be frustrating, and that hat was another word that I was sort of leaving this with, but it's available if you want it.

Researcher: Available, thank you. "E"?

E: Progressing.

Researcher: Progressing, thank you. "F"?

F: I just said, uneven. Uneven.

Researcher: Uneven, okay. And, "H"?

H: Um, I don't know, increasing, um –

F: Evolving. It's evolving.

Researcher: It's evolving.

H: I like it. Go with evolving.

Researcher: Evolving, okay.

Researcher: Thank you again for your time and participation today in the focus group interview. I appreciate all of your help with my research. As you leave, I will give you a

stamped, self-addressed envelope to send me any personal messages or statements that you may want to add. Thanks again and have a great evening everybody.

Group: Thanks. You, too.

APPENDIX D

Letter of Intent and Solicitation

MARK CONNOLLY
SETON HALL PREPARATORY SCHOOL
120 Northfield Avenue
West Orange, NJ 07052
Email Address: biotchr84@hotmail.com
Home Phone #: 201-823-0733

March 28, 2008

Dear Teacher,

I am a doctoral student at Seton Hall University enrolled in the Ed.D program in Educational Leadership, Management and Policy.

I have received written permission from your Superintendent to conduct my research in your district. I would like to request your involvement in my research by participating in a focus group interview with other teachers from your district. I ask that all teachers involved with this study utilize technology for educational purposes and possess tenure.

My dissertation topic is entitled, "A Qualitative Analysis of the Integration of Technology at the School District Level in Terms of the Technology Leadership, Management, and Policy Pyramid, A Theoretical Model Developed by Dr. John Collins, Through the Perceptions of Technology-Using Teachers." The purpose of this research is to conduct an in-depth analysis of the integration of technology at the school district level in terms of Collins' (2008) Technology Leadership, Management, and Policy Pyramid through the perceptions of technology-using teachers. This pyramid has the following, three sides: Organizational Integration Activities, Maintenance Activities, and Planning Activities. According to this model, all of these activities must be done simultaneously with committed leadership. This is a research study that will utilize qualitative data from three focus groups in the analysis to further understand the knowledge base of the integration of technology at the district level. A review of the literature shows that more work needs to be done in this area. I chose your school district to conduct my research because it is exceptional in the area of technology and the information learned can be valuable to the field of education.

I will be conducting the focus group interview on a day after school that does not interfere with meetings or other school functions. The interview will last approximately 1 hour and a half (90 minutes). Refreshments will be provided for your enjoyment.

I am conducting a qualitative study, and this means that I will analyze the data that came about from our discussion. The focus group interview will revolve around a predetermined question route that consists of 15 questions, and I have attached a copy for your review. Your responses will be tape recorded using two voice activated tape recorders, and this is a necessary component of the research project to enable comments, ideas, and opinions that are discussed to be used later for analysis purposes. I will also take notes during the sessions. Upon completion of our discussion, you will be given a self-addressed stamped envelope in

case you would like to add something to the discussion. If you cannot attend the focus group interview, you have the option of responding to the questions in written format.

Full confidentiality will be utilized. In order to protect the confidentiality of the participants, each person will have a lettered tent card in front of them, and these cards will serve as their identity during the group discussions. No names will be used during the discussion or in the transcripts. No reference to the names of the participants or the school district will be a part of the dissertation when the data is analyzed. Anonymity cannot be guaranteed due to the nature of focus group interviews.

The tape recordings will be transcribed into written format for the analysis. The tape recordings and the written transcriptions will be stored on a USB memory key, and they will remain in the possession of the researcher in a locked safe. These recordings will be destroyed after three years. No one other than the researcher will have access to the actual recorded data.

I have attached an Informed Consent Form for your review. I ask that you please read it thoroughly. This form outlines the procedures and your rights in participating in this study. By signing this form, you are granting permission to be a participant in this study and permitting your responses to be tape recorded.

Participation in this study is on a voluntary basis. You may refuse to participate or to discontinue participation at any time with no penalty. Participation comes with no associated risks and no benefits, monetary or otherwise. The potential benefit of your participation in this study is that you will add to the existing knowledge base we have on the integration of technology at the district level.

This project has been reviewed and approved by the Seton Hall University Institutional Review Board which is in place to protect human subjects. The IRB believes that the research procedures adequately safeguard the subject's privacy, welfare, civil liberties, and rights. The Chairperson of the IRB, Mary F. Ruzicka, Ph.D, can be reached at (973) 313-6314.

Thank you for your assistance in this research project. If you are willing to participate in this study, please sign the Informed Consent Form and mail it to me in the self-addressed, stamped envelope that is provided. If you mail it to me, I will send you a copy of the signed form for your records.

Sincerely,

Mark A. Connolly

APPENDIX E

Informed Consent



Informed Consent Form

1. Researcher's Affiliation:

Mark Connolly is a doctoral student at Seton Hall University enrolled in the Ed.D. program in Educational Leadership, Management and Policy.

2. Purpose of the Study:

The title of the dissertation is, "A Qualitative Analysis of the Integration of Technology at the School District Level in Terms of the Technology Leadership, Management, and Policy Pyramid, A Theoretical Model Developed by Dr. John Collins, Through the Perceptions of Technology-Using Teachers." The purpose of this research is to conduct an in-depth analysis of the integration of technology at the school district level in terms of Collins' (2008) Technology Leadership, Management, and Policy Pyramid through the perceptions of technology-using teachers. This pyramid has the following, three sides: Organizational Integration Activities, Maintenance Activities, and Planning Activities. According to this model, all of these activities must be done simultaneously with committed leadership. This is a research study that will utilize qualitative data from three focus groups in the analysis to further understand the knowledge base of the integration of technology at the district level. A review of the literature shows that more work needs to be done in this area. The researcher chose your school district to conduct my research because it is exceptional in the area of technology and the information learned can be valuable to the field of education.

3. Procedures:

A focus group interview will be conducted on a day after school that does not interfere with meetings or other school functions. The interview will last approximately 1 hour and a half (90 minutes). Refreshments will be provided for your enjoyment. The study is qualitative in nature, and this means that the data that came about from the discussion will be analyzed to help the researcher understand how technology is being integrated in your district. The focus group interview will revolve around a predetermined question route. Your responses will be tape recorded using two voice activated tape recorders, and this is a necessary component of the research project to enable comments, ideas, and opinions that are discussed to be used later for analysis purposes. The researcher will also take notes during the sessions. Upon completion of our discussion, you will be given a self-addressed stamped envelope in case you would like to add something to the discussion. If you cannot attend the focus group interview, you have the option of responding to the questions in written format.

Seton Hall University
Institutional Review Board

APR 14 2008

Approval Date

Expiration Date

APR 14 2009

College of Education and Human Services
Department of Education Leadership, Management and Policy
Tel: 973.761.9397
400 South Orange Avenue • South Orange, New Jersey 07079-2685



4. Survey Instruments:

Data will be collected from participants by having them complete a short information form and respond to a predetermined question route that consists of 15 questions. The questions were written to solicit teachers' perceptions of the integration of technology in their district in terms of the Technology Leadership, Management, and Policy Pyramid, a theoretical framework that was developed by Dr. John Collins. The questions are open-ended to promote conversation among participants and to understand the integration of technology in their district from their perceptions.

A copy of the form and the questions are printed below for your information.

Data Collection Instrument

Information Form – Focus Group Interviews

Length of Focus Group Interview: 90 Minutes

As you answer the questions in the interview, please base your responses on technology integration in your district over the last **FIVE** years.

Please complete the following questions:

1. Letter on Tent Card: _____
 2. How many years have you been teaching? _____
 3. How many years have you been working for your school district? _____
 4. Please identify your age range. Circle the correct response.
 22-30 31-40 41-50 Over 50
 5. Please write one word that explains how you perceive technology is being integrated and used in your school district over the past five years.
-

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Question Route:

Q01: How does your district's technology plan address the following components of technology integration: integrating activities, maintenance activities, and planning activities?

Q02: Discuss the professional development opportunities provided by your district. For example, are they primarily hands-on or informational, how many occur per year, and who conducts these professional development opportunities (outside professionals, teachers, or curriculum specialists)?

Q03: Explain how these opportunities facilitate teachers in aligning the technology to the curriculum.

Q04: Evaluate if these professional development opportunities are useful and practical in helping teachers use the technology and integrate it into the classroom.

Q05: Please evaluate how your district provides technical support to maintain the infrastructure and address problems.

Q06: How is the technology support system/service for the district organized, and who is involved in the maintenance activities?

Q07: When there is a problem with the computer system, how long does it usually take before the repair is performed?

Q08: How do you perceive your school district in providing activities in planning for the future in terms of technology? Please be very specific.

Q09: Explain how your district's technology plan addresses the issue of "planning for the future" to ensure that the technology remains up-to-date in future years and how this is actually being accomplished in your district.

Q10: Overall, how would you describe the leadership in your district in supporting the integration of technology into the school buildings?

Q11: Specifically, how is the leadership in your district involved in the following areas of technology integration: (1) integrating activities, (2) maintenance activities, and (3) planning activities?

Q12: How is the leadership reflected in your school district's technology plan, and how is this communicated to the school communities?

Q13: How do you use technology in the classroom for instructional methods/teaching? Please be very specific.

Q14: Is there anything that you would like to add to the discussion to provide the researcher with additional insight on how your district integrates technology into the learning community?

Q15: In closing, identify one word that captures technology integration in your district.

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5. Voluntary Nature of the Project:

Participation in this study is on a voluntary basis. You may refuse to participate or to discontinue participation at any time with no penalty.

6. Anonymity/Confidentiality:

Full confidentiality will be utilized. In order to protect the confidentiality of the participants, each person will have a lettered tent card in front of them, and these cards will serve as their identity during the group discussions. No names will be used during the discussion or in the transcripts. No reference to the names of the participants or the school district will be a part of the dissertation when the data is analyzed. Anonymity cannot be guaranteed due to the nature of focus group interviews.

7. Security of Stored Data:

The tape recordings will remain in the possession of the researcher after they have been transcribed. The tape recordings and the transcribed data, stored on a USB memory key, will remain in a locked safe and will be destroyed after three years. No one other than the researcher will have access to the actual recorded data.

8. Confidentiality of Records:

All responses and information will be kept completely confidential. No one other than the researcher will have access to a list of names in this research. Participants will have an assigned lettered tent card in order to maintain confidentiality. The names of the teachers and the district will not be used during the taped discussion or in the analysis in order to protect the subjects' identities. The researcher will be the only person that will have access to this data. The analysis of the data will be included in the researcher's dissertation.

9. Risks:

There are no risks in this research.

10. Benefits:

There are no direct benefits that participants will receive by participating in this study. The potential benefit is that participation in this research study will add to the existing knowledge base in terms of the integration of technology at the district level in our Nation's schools. The participants will receive refreshments during the focus group interview for their enjoyment.

11. Remuneration:

There are no monetary benefits or remuneration of any kind by participating in this study.

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12. Compensation for Minimal Risk:

There is no risk associated with this research; therefore, no compensation is required.

13. Alternatives to Research Study:

If any participant is unavailable to attend the focus group discussion, he/she will have the opportunity to respond to the questions in written format. The participant will be given a self-addressed, stamped envelope to return responses. Confidentiality will be respected.

14. Contact Information:

The researcher may be contacted for further information, answers to pertinent questions, or for information about research subject's rights by contacting the researcher at the following:

Mark A. Connolly, Seton Hall Preparatory School, 120 Northfield Avenue, West Orange, NJ 07052; Home Phone #: (201)-823-0733.

Faculty Advisor: Anthony J. Colella, Ph.D., Seton Hall University, 400 South Orange Avenue, South Orange, NJ 07079; (973) 761-9397.

Institutional Review Board (IRB): Mary F. Ruzicka, Ph.D, Seton Hall University, 400 South Orange Avenue, NJ 07079; (973) 313-6314.

15. Permission to use Audio Tape Recorder:

Audio tape recording equipment will be utilized to record the discussion during the 90 minute focus group interviews to enable the researcher to transcribe and analyze the data at a later date. Participants have the right to review any portion of the taped recordings and request that it be destroyed. The participants' names will not be used anywhere during the interview, and to ensure their confidentiality, randomly assigned letters will be utilized for identification purposes. The taped and written recordings will only be accessible by the researcher. The data from the taped recordings and the written transcripts, stored on a USB memory key, will be secured in a locked safe. The data will be included in the dissertation without personal or district reference. All data will be destroyed after three years.

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16. Acknowledgement of Informed Consent Forms:

I have read the material above and agree to participate in the study. I am aware that I will be given a copy of the signed and dated Informed Consent Form for my files.

Printed Name

Date

Signature

Seton Hall University
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