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ABSTRACT

Pennsylvania selected three school districts to explore the new terrains of technology and digital media through the ‘Digital School District’ initiative. This study focused on one of three school districts to receive $4.2 million in funding over two years. It is intended that each school district will serve as resource and demonstration center for the state, providing examples of how technology can change public school education, achieve cost savings, and deliver education in ways currently not imagined.

Such meaningful educational change that leads to improved teaching and learning is demanding and difficult, even for the best teachers. Overall the story of educational reform in the United States is a story of nervous movement from one fad to another, with little ensuring affect on teaching practice (Tyack & Cuban, 1995). Hargreaves (2001) agrees that the overwhelming majority of literature on educational reform is a catalog of teacher failures and shortcomings as they repeatedly fall short of the ever rising and changing expectations. Nolan and Meister (2000) state that a major reason for this lack of success is the neglect of the phenomenology of change. The failure to understand how individuals experience change in contrast to how it was intended is at the heart of the spectacular failure of reform efforts (Fullan, 2001).

Literally hundreds of books focusing on the topic of educational change have been published within the past few years, but most neglect the human side of change (Nolan & Meister, 2000). Fullan (2001) writes, too few studies of educational change are written from the perspective of teachers who are simultaneously the subjects and objects of change.
The purpose of this qualitative study was to explore the experiences of seven public-school teachers engaged in a school restructuring effort intended to transform a Pennsylvania School District into a Digital School District. This research provides a basis for analyzing how teachers experience and understand change. The research questions driving this study were: What are the teachers experiencing as they engage in district wide reform? How do these teachers understand and make sense of their lived experience of being a teacher during this change process? In what ways does a financial windfall to a school district inform the experiences it has in relation to school reform?

This study employed qualitative methodology in which I spent prolonged amounts of time engaged with these teachers. The goal was to capture and portray as vividly as possible the teachers’ experiences during the restructuring initiative and their attempts to make sense of their experience. A phenomenological case study research design framed and guided the study. Phenomenological inquiry allowed me to uncover the common structure underlying the teachers’ experience of district wide-reform. The data consisted of in-depth interviews, participant observation, document analysis, and descriptive field notes. Through a prolonged and iterative process of data analysis using the constant comparison method provided by Glaser and Strauss (1967) and the operational refinements cited in Lincoln and Guba (1985) I documented the lived experience of being an educator during this change process from the teachers’ perspective. As a tool for describing, analyzing, and interpreting the data, I utilized NVIVO, a computer software program for the purposes of organizing, coding, analyzing and interpreting qualitative data (Richards & Richards, 1994). The techniques of prolonged engagement, persistent
observation, triangulation, member checks, thick description, reflexive journals, and audit trail were employed to establish trustworthiness.

Five overlapping themes emerged from this study as these seven teachers experienced change intended to transform the school district where they teach into a Digital School District: uncertainty and frustration, learning to change, barriers to change, craft pride, and potential. Within this research the themes are presented individually although a compartmentalized approach that may prove to be inadequate. As Sikes (1992) states, “a holistic approach is essential to what is, after all, a holistic situation” (p.39). But following the lead of Sikes, somewhat contradictorily, the themes are identified separately. Interpretation of the teacher’s voices reveal assertions that attempt to make sense of their collective experience. Implications of these assertions are discussed in addition to further questions and opportunities for further research.
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This study would not be possible without the participation of the seven teachers whose experiences are portrayed in this work. I wish to thank the teachers enormously for allowing me to step into their world, share their frustrations and successes, and to attempt to represent their lived experience to a wider audience.

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This work is dedicated to Heather, my partner in life, for her constant love, never-ending support and unwavering encouragement. I love you.
Today few educational changes are more compelling for schools than the introduction of computer technologies. Increasingly powerful computers, expanded network access, and improved software applications have enlarged both investments in, and expectations for, the transformation of teaching and learning (Fitzpatrick, 2000).

New technologies are commonly associated with change in many fields of human endeavor. In education, computer technology has promised much over the past two decades and schools have invested considerable sums of money over this period in coming to terms with this type of technology. As the ubiquity and powers of computer technology have increased, so too has the pressure on schools and teachers to respond (Bigum & Kenway, 1998). The number of questions being asked about the impact of educational technologies on teaching and learning has also increased.

Researchers have noted that meaningful educational change which leads to improved teaching and learning is demanding and difficult, even for the best teachers. Overall, the story of educational reform in the United States is a story of nervous movement from one fad to another, with little ensuring affect on teaching practice (Tyack & Cuban, 1995). Hargreaves (2001) agrees that the overwhelming majority of literature on educational reform is a catalog of teacher failures and shortcomings as they repeatedly fall short of the ever rising and changing expectations. Nolan and Meister (2000) state that a major reason for this lack of success is the neglect of the phenomenology of
change. The failure to understand how individuals experience change in contrast to how it was intended is at the heart of the spectacular failure of reform efforts (Fullan, 2001).

Literally hundreds of books focusing on the topic of educational change have been published within the past few years, but most neglect the human side of change (Nolan & Meister, 2000). Bogdan and Bilken (1992) write:

Change is complicated because beliefs, lifestyles, and behavior come into conflict. People who try to change education, be it in a particular classroom or for the whole system, seldom understand how people involved in the changes think. Consequently, they are unable to accurately anticipate how the participants will react. Since it is the people in the setting who must live with the change, it is their definitions of the situation that are crucial if change is going to work (p.200).

Fullan (1991) writes that educational change depends on what teachers think and do. He submits that teachers are influenced by their interpretation of change and the way it effects them personally. Teachers possess the major portion of knowledge with regard to teaching and learning; thus, recognizing, articulating and understanding that knowledge is imperative in order to improve schools (Lieberman & Miller, 1984).

Only when teachers are finally able to construct their own meaning of the change initiative are they likely to become committed to the change and incorporate it into their routine (Hargreaves, 1994). Thus, the challenge of integrating technology into schools is much more human than it is technological. The Web-Based Educational Commission (2000) noted the critical role of the teacher in transforming educational technologies into useful tools:

It is the teacher, after all, who guides instruction and shapes the instructional context in which the Internet and other technologies are used. It is the teacher’s skill at this, more than any other factor, which determines the degree to which students learn from their Internet experiences. Teachers must be comfortable with technology, able to apply it appropriately, and conversant with new technology tools, resources and approaches. If all the pieces are put into place, teachers
should find that they are empowered to advance their own professional skills through these tools as well. (p.39)

Fullan (2001) expounds, too few studies of educational change are written from the perspective of teachers who are simultaneously the subjects and objects of change.

Purpose and Research Questions

This research asks what district-wide reform looks like from the informed perspective of seven teachers. The purpose of this qualitative study was to explore the experiences of select public-school teachers engaged in a district restructuring effort intended to transform a Pennsylvania School District into a Digital School District (DSD). This research provides a basis for analyzing how teachers experience, make meaning and understand change.

The research questions driving this study were: What are the teachers experiencing as they engage in district wide reform? How do these teachers understand and make sense of their lived experience of being a teacher during this change process? In what ways does a financial windfall to a school district inform the experiences it has in relation to school reform?

Rossman and Rallis (1998) insist that the purpose of research is to generate useful knowledge: “your goal is to communicate so that others may use what you have discovered” (p.203). This study took place during the first year of implementation. The goal was to capture and portray as vividly as possible the teachers’ experiences during the restructuring initiative and their attempts to make sense of their experience. In doing so, I hoped to flesh out and give life to the themes and concepts that emerged and explain
change from the perspective of teachers, thus allowing the reader to vicariously experience life inside educational change (Nolan & Meister, 2000).

**Significance of the Study**

Computers are widely advocated as harbingers of the educational revolution where children will have independent access to rich sources of information, be able to integrate and apply knowledge in sophisticated ways and where their teachers will become coaches, guides and facilitators to assist young people in the new forms of learning that will engage them (Bigum & Kenway, 1998).

An overview of the current state of technology in America’s public schools and how teachers are integrating these technologies into the classroom will help us understand the significance of this study.

School stakeholders have been sufficiently persuaded of the importance of computers in classrooms that they have made significant and ongoing expenditure on computer hardware, software and support, so much so that today, the major consideration is not whether to buy but what to buy. Investment in computer technology by school districts is consistent with the discourse that associates computers in classrooms with technological progress, future employment opportunities of students as well as enhanced learning in the classroom (Iacono & Kling, 1996). School spending on technology reached almost $5.7 billion in 2000, according to a national survey commissioned by Education Week (Technology Counts 2001).

Technology in the broad sense has always been part of America’s classrooms. Certainly pencil and paper, chalk and blackboard, and the printing press helped to shape,
and continue to shape, the activity structures that dominate in our schools (Brandt & Association for Supervision and Curriculum Development, 2000). As computers and the Internet become increasingly available in K-12 schools it becomes incumbent upon teachers to make use of today’s technology-related tools.

Data from an Education Week/Market Data Retrieval/Harris Interactive poll for 2000 suggest that technology use in the classroom is on the rise. Virtually all schools now report that they have at least some computers in classrooms—98 percent in 2000, compared with 73 percent in 1998. Roughly half of school computers, 52 percent, are found in classrooms. And, according to the poll, in three-quarters of the nation's schools, a majority of teachers are using computers for planning or teaching (Technology Counts 2001).

Results from national surveys indicated that in the early ‘80s, computers were used mainly for three tasks: to teach students about computers (i.e. computer literacy classes), to teach programming, and for rote learning through drill and practice programs (Becker, 1985). Teachers reported using computers primarily to provide enrichment activities and variety, or to teach students about computers- rarely to provide students with instruction in core academic subjects (Becker, 1990). This reported pattern of use was certainly compatible with the argument that computer technology is used at the margins of education not as an integral part of schooling (Cohen, 1988). Starting in the mid-1980s, however, using computers as tools increased, and teaching about computers per se decreased (Brandt & Association for Supervision and Curriculum Development, 2000).
Public schools are leaping forward in their efforts to make computer technology more readily available to students. Pennsylvania has been sufficiently persuaded of the importance of computers in schools and has made significant and ongoing expenditures to develop DSD’s.

Record gains are being made in providing students with access to computers and the Internet. As these technologies become increasingly available in K-12 schools it becomes incumbent upon teachers to make use of today’s technology related tools. But, a recent NetDay (2001) study concluded that teachers nationwide are not yet using technology and the Internet well for achieving educational goals. They found that teachers’ attitudes and viewpoints on the role of technology and the Internet in education have dramatically changed in the past couple of years. Teachers today value technology and are comfortable with the Internet and computers. However, despite the high comfort levels and strong positive attitudes, 67% of the 600 teachers surveyed acknowledge that the Internet is not well integrated into their classroom. Teachers primarily use the Internet as a research tool – a big electronic encyclopedia – and other uses of the Internet (communications, professional development, and classroom projects) are not fully realized yet by teachers. At this point, NetDay concludes, the potential of technology and the Internet as a revolutionizing educational tool has not been effectively leveraged for educational results.

A national survey of 4,100 teachers, conducted by Henry Becker and Ron Anderson (1998), found that in the 1997-98 school year, word processing was still the technology application teachers were most likely to assign students (nearly 50 percent in the previous year). Second in frequency was the use of CD-ROM references (around 30
percent). On the other hand, the survey indicates that Internet research for information gathering was the third most common teacher-directed student use of computers.

*Education Week*, in collaboration with Harris Interactive and Market Data Retrieval, conducted a poll of 500 students in grades 7-12 and produced its *Technology Counts* report (Technology Counts'99). It seems educators may be making more progress in providing access to technology than in figuring out how to use it as a learning tool, according to middle and high school students. The survey found that computers are not being used by teachers to help students better understand sophisticated concepts or to visualize something in a new or different way. Some teachers, for example, could use 3-D graphics to help students visualize molecular structures or computer simulations to help them understand the physics of motion. Based on the perceptions of students in the survey, however, such teaching tactics appear relatively uncommon (Technology Counts 2001).

These findings do not come as a surprise to Larry Cuban, author of the book, *Oversold and Underused: Reforming Schools Through Technology 1980-2000*. He argues that the use of computers for academic learning occupies less than 10 percent of teachers' instructional time. And he suggests that only about 5 percent of teachers use computers imaginatively in their classrooms on a regular basis (Cuban, 2001).

Although the country has made significant progress in increasing the technological infrastructure in America’s schools, the literature reveals a wide gulf between technology's promise and the reality of how it is used in schools. So why have teachers been slow to use technology as a tool for enhanced student engagement and learning?
The technological revolution has added to the challenges teachers face. Fisher and Dove (1999) write that teachers are struggling to understand their roles and responsibilities in integrating technology into today’s classrooms. Experts in the field of technology acknowledge that technology involvement can pose an intimidating challenge under the best circumstances. Most teachers feel threatened by this challenge because it represents a journey into the unknown, and they know that they are inadequately prepared (Fisher & Dove, 1999). Teachers grew up in an environment that had far fewer electronic technologies available and many find the adaptation to working with computers difficult (Bigum & Kenway, 1998).

Technology advocates acknowledge that progress is being made to integrate technology and digital media into schools, but they say schools need to do a better job addressing the human factors of change. Evans (2001) adds, educational change is extraordinarily difficult and to accomplish change school leaders must focus on people. Schein (1978) asserts that people’s acceptance of a new perspective depends much less on its intrinsic validity than on their own readiness to consider any new ideas at all. Before they can respond to a particular innovation, something must unfreeze their current thinking and perceptions and reach them in a fundamental way.

Fullan (1982) notes that the crux of change is how individuals come to terms with the reality of the change in the context of their familiar framework of reality. In other words, their interpretation of what the change means for them influences what they subsequently do and how they do it. This study is significant in part because it attempts to enliven and enlighten our discussion of educational change and technology implementation. More specifically, assertions gleaned from this study will allow others
engaged in district wide reform and technology integration to understand individual teacher experiences to the change process and assist them in their own meaning making.
Chapter Two

THE RESEARCH DESIGN

Overview

The purpose of this research was to capture and portray in-depth stories of the lived experiences of select public-school teachers who were engaged in a school restructuring effort. The central questions were: What are West Valley School District teachers experiencing as they engage in district-wide reform? How do these teachers understand and make sense of their lived experience of being a teacher during this change process? In what ways does a financial windfall to a school district inform the experiences it has in relation to school reform? These questions sought to understand the phenomenon of change from teachers’ perspective and were investigated through a qualitative research design consisting of in-depth interviews, participant observation, document analysis, and descriptive field notes.

The process of qualitative research has been described as a form of bricolage. The researcher selects from diverse frameworks and various methodological tools to produce “a complex, dense, reflexive, collage like creation that represents the researchers image, understandings, and interpretations of the...phenomenon under analysis” (Denzin & Lincoln, 1994, p.3). Qualitative methods are ideally suited to the task of describing and understanding educational change and program implementation. Patton (1990) writes that an effective way to study program implementation is to gather detailed, descriptive information about what is occurring in the program. Since program implementation is characterized by a process of adaptation to local conditions, needs and interests, the methods used must be open ended, discovery orientated, and capable of describing
developmental processes and program changes. Meister (1997) expounds, failure to monitor and describe the nature of implementation can render useless standardized, quantitative measures.

A case study is an exploration of a case, or multiple cases, over time through detailed, in-depth data collection involving multiple sources of information in rich context (Merriam, 1998). This qualitative research case study was designed to describe the meaning that teachers attached to the change process of becoming a Digital School District.

Merriam (1998) writes:

“Traditional research is based on the assumption that there is a single, objective reality—the world is out there—that we can observe, know and measure…[T]his worldview holds the nature of reality to be constant…In contrast, qualitative research assumes that there are multiple realities – that the world is not an objective thing out there but a function of personal interaction and perception” (p. 17).

Through case study design I was able to develop a theoretical framework that aligned with these philosophical assumptions.

**Theoretical Framework**

This study is rooted in phenomenological inquiry and describes the meaning of lived experience for seven teachers. Research in the phenomenological mode attempts to explore the structures of consciousness in human experiences (Polkinghorne, 1988). Moustakas (1994) asserts that, phenomenologists develop universal structures based on what people experience and why. According to Patton (2002) phenomenographic approaches focus on how human beings make sense of experience and transform
experience into consciousness. The goal of phenomenology is to gain deeper understanding of the nature or meaning of the experience (Van Manen, 1990). To achieve this, methods were carefully selected that captured and described how the teachers experienced and understand the phenomenon of school change—how they perceived it, described it, felt about it, made sense of it, and talked about it with others (Patton, 2002).

van Manen (1990) writes:

“Anything that presents itself to consciousness is potentially of interest to phenomenology, whether the object is real or imagined, empirically measured or subjectively felt. Consciousness is the only access human beings have to the world. Or rather, it is of virtue of being conscious that we are already related to the world. Thus all we can ever know must present itself to consciousness. Whatever falls outside of consciousness therefore falls outside of the bounds of our possible lived experience…A person cannot reflect on lived experience while living through the experience. For example, if one tries to reflect on one’s anger while being angry, one finds that the anger has already changed or dissipated. Thus, phenomenological reflection is not introspective but retrospective. Reflection on lived experience is always re-collective; it is reflection on experience that is already passed or lived through” (p. 9-10).

According to Patton (2002) there are two important implications to phenomenological inquiry. The first implication is that it is what participants experience and how they interpret the world that is important. This is the focus and subject matter of phenomenological inquiry. The second implication involves the actual methods used by the researcher. “The only way for us to really know what another person experiences is to experience the phenomenon as directly as possible for ourselves” (p.106).

Within phenomenology there is an assumption that there is an essence to the experience. Within this study I searched for the central underlying meaning, the essence, of the lived experience of school change for the teachers and attempted to emphasize the intentionality of consciousness where experiences contain both outward appearance and inward consciousness based on memory, image, and meaning. This idea of the
intentionality of consciousness is that consciousness is always directed toward an object, and the reality of this object is only perceived within the meaning of the experience of an individual (Creswell, 1998). In reporting the findings I have endeavored to describe in words the essence of the experience and provided a “lived quality and significance of experience in a fuller and deeper manner” (Van Manen, 1990, p.10).

Central to phenomenology is the concept of epoche, where the researcher brackets his or her own preconceived ideas about the phenomenon to understand it through the voices of the informants (Field & Morse, 1985). Creswell (1998) states the concept of epoche is to suspend all judgments about what is real until they are founded on a more certain basis. The setting aside of prejudgments is achieved in part by providing my perspective as a researcher within this chapter. The use of reflexive journaling also helped me to bracket my own experiences, assisting me to achieve a clearer picture of the phenomenon from the experience of the participants.

**Researcher Identity**

Although objectivity is the goal of traditional research, Lincoln and Guba (1985) state that it is largely an illusion. Trying to maintain objectivity while studying human interaction fails the researcher in two ways. First, it does not safeguard the data from the researcher. Second, it prevents the researcher from exploring the most relevant components of the data. Patton (1990) adds that absolute objectivity and value-free science is impossible to obtain and may not be desirable in the first place because it ignores the social nature and human purposes of research.
In qualitative inquiry, the researcher is the instrument. Patton (2002) notes, the credibility of the study rests, to a great extent on the skill, competence, and dedication of the person doing fieldwork, as well as things going on in that person’s life. Guba and Lincoln (1981) commented on this aspect of qualitative research:

“Fatigue, shifts in knowledge, and cooptation, as well as variations resulting from differences in training, skill, and experience among different instruments, easily occur. But this loss in rigor is more than offset by the flexibility, insight, and ability to build on tacit knowledge that is the peculiar province of the human instrument (p. 113).

While taking into account external audiences it is also important to acknowledge that I was the primary intended audience for this study. My involvement and experiences within the West Valley school district are a source of motivation for this research, as are my interests in school change and technology within education. Having supervised pre-service teachers within the school district for three years I have a vested interest in this reform effort and its eventual outcomes for teachers, students and the surrounding community. I witnessed first hand how this reform effort evolved and from my experiences in the district was predisposed to the belief that teacher voices needed to be heard during the restructuring. This personal knowledge and interest in the phenomenon under investigation could be seen both as a strength and a possible concern. One could argue that my experiences within the district could bias my perceptions. On the contrary, I found my previous work within the West Valley schools helped inform this study and allowed me to move closer to the phenomenon of change from the teacher perspective. My close relationship with the school district also provided me with a theoretical sensitivity that could be stronger only if I were actually a West Valley teacher. Corbin
defined a theoretical sensitivity as “the ability to recognize what is important in data and to give it meaning” (1990, p. 46).

It is no doubt relevant to the study that I recently accepted a position as an assistant professor of educational technology at state university in Pennsylvania. I continue to study the phenomenon of educational change and technology integration from the perspective of teachers, thus I am extremely interested in the eventual results of the Digital School District initiative. Conducting this study helped to reinforce my conviction that conditions must be right for the successful integration of educational technology. Nonetheless, I do believe that educational technology has an important role and function within our schools. The interest generated from these personal experiences made this research sustainable and helped keep me focused on the details of the inquiry.

The role I played as a researcher within the school district was one of participant observer. “I entered the world of the people I wished to study, got to know them and earned their trust, while systematically keeping a detailed written account of what was heard and observed” (Bogdan and Biklen, 1998, p.3). Supervising pre-service teachers in the district prior to and during my dissertation study necessitated the participant role of my researcher identity. According to Patton (1990) the challenge then becomes balancing roles of participant and observer as to become capable of understanding the experience of the teachers as an insider, while interpreting the experience from an outsider’s perspective. As a way to achieve this I kept the research questions at the forefront carrying them in my wallet and referring to them frequently throughout the study. In addition, I wrote reflexive journals, and asked each teacher to validate findings and
perceptions through member checks. Member checks with the participants also helped me to ascertain if I had separated my views from the teachers’ perceptions.

**Selection of Participants**

Qualitative inquiry typically focuses in depth on a relatively small number of cases or participants (Patton, 1990). When selecting participants for a phenomenological study it is essential that all of the participants experience the phenomenon (Creswell, 1998). Thus, within this research purposeful sampling was used to select cases whose study would illuminate the research questions (Patton, 1990).

Patton (2002) provides fifteen separate purposeful sampling strategies, plus a sixteenth approach identified as combination or mixed purposeful sampling. The underlying principle is that information rich cases are selected. The strategy must also fit the purpose of the study, the research questions, and the constraints being faced. With this in mind I recognize that there is no perfect sampling strategy, but having considered the alternatives and the requests of gatekeepers within district, I chose critical case sampling (Patton, 2002).

Critical cases are those that are particularly important in the scheme of things. Patton (2002) states that a clue to the existence of a critical case is a statement to the effect of “if it doesn’t happen there, it won’t happen anywhere” or vice versa. Another clue to the existence of a critical case is a key informant observation to the effect that “if that group is having problems, then we can be sure that all the groups are having problems” (p. 236). Although Patton warns against making broad generalizations from the study of one or a few critical cases, logical generalizations can often be made.
The most significant critical element of this case is the substantial financial support the district is receiving from the Pennsylvania Department of Education. Over the course of the next two years the district will receive $4.1 million, thus eliminating one of the major stumbling blocks to successful educational change, financial resources. West Valley is therefore well positioned financially to change and become ‘digital’.

The I-Tech team is another feature that adds to the critical case. Eighteen teachers from the school district were selected by the administration to receive ten days of technology training during the summer of 2001. As an incentive to participate in the training the teachers received a new laptop computer and a $1000 stipend. The training was provided on site by a state University. If teachers on the I-Tech team do not have success implementing the proposed changes, we can be sure that other teachers within the district whom were not selected for the I-Tech team and did not receive the training would encounter difficulties integrating technology.

The sample was not representative of the West Valley School District faculty, nor was it intended to be. I was more interested in understanding, in depth, the experiences and perceptions of select teachers who are currently immersed in the district wide reform initiative.

The participants were selected with the help of key informants - the school district superintendent, technology director and administrative staff. I was provided with a list of the teachers on the I-Tech team, several of whom I had previously worked with as a supervisor of pre-service teachers within the district. I then contacted the building principals at each school before contacting potential participants to explain the proposed study and my intent to contact teachers within their respective schools. The next step was
to set up informal meetings with the selected teachers, at which time I provided each teacher an overview of the study. I performed the contact work myself because the building of an interview relationship begins the moment a potential participant hears of the study (Seidman, 1998). The teachers were then formally invited to participate in the study. Of the eight teachers I met with and invited to participate, seven agreed to be part of my study with the eighth teacher declining due to the time commitment involved. Having seven willing participants was significant in establishing trust during the study. Meaningful human research without the full understanding and cooperation of participants is impossible (Lincoln & Guba, 1985).

I gained access to the site of the study because of an educational partnership between the university where I taught and the school district. I had supervised pre-service teachers in the West Valley school district since the Fall of 1999. As a supervisor I worked with many of the teachers at two of the three elementary schools, the middle school and the high school. In the Fall of 2000 I became aware of the Digital School District Grant proposal that West Valley had submitted to the Pennsylvania Department of Education. After making it through to the final round of the selection process the district was awarded the grant in March of 2001. I was there to observe the presentation ceremony and speech of the then Governor, Tom Ridge. That same week I spoke with one of the principals in the district and shared with him my interest in the Digital School District Grant. This led shortly thereafter to a brief meeting with the district superintendent. I informed him of my interest in school change and the Digital Grant and inquired whether it would be possible to study the restructuring process from a teaching perspective. The superintendent set up a meeting for me to present my research proposal
to the grant writing team. In September of 2001 I presented an overview of my research (Appendix A) and was given the green light to proceed. Thus, access to the schools was negotiated, followed by the completion of necessary human subjects paperwork.

**Methods of Data Collection**

The best way to know what others are experiencing is to find methods of data collection that allow for devising procedures and strategies that consider experiences from the participants’ perspectives. In an attempt to understand the lived experience of being a teacher during this change process I chose fieldwork as the research instrument. I relied on in-depth interviewing, participant observations, document analysis and field notes, which are fundamental methods that qualitative researchers rely on for gathering information (Marshall & Rossman, 1999).

*In-depth interviewing*

I was interested in learning what it means for teachers to be engaged in a school restructuring effort, how they understand these experiences, and what underlying themes emerge from these experiences. This is what Schultz (1967) calls “subjective understanding” and suggests is best uncovered through in-depth interviewing.

The purpose of in-depth interviewing is to understand the experience of other people and the meaning that they make of that experience. One model of in-depth phenomenological interviewing, advocated by Seidman (1998), involves a series of three separate interviews with each participant. Following this model I conducted three separate interviews with each teacher. Each interview consisted of open-ended questions
typed on an interview protocol (Appendix B). An interview protocol is a predetermined sheet on which information learned during the interview is recorded. The use of an interview protocol allowed me to organize questions and take field notes during the interview about the responses of the interviewee (Creswell, 1998).

The first interview established the context of the participants’ experience and focused on their life history. The teachers were asked to reflect upon their past teaching experiences and to talk about themselves in light of the restructuring initiative and with educational technology in general. The second interview encouraged the participants to reconstruct the details of their present experiences as teachers within the district. Observations of, and conversations with, teachers informed the development of interview questions for the third and final interview. The purpose of the culminating interview was for participants to reflect on the meaning of their experience.

Seidman (1998) writes:

“Making sense or meaning making requires that the participants look at how the factors in their lives interacted to bring them to the present situation. It also requires that they look at their present experience in detail and within the context in which it occurs” (p. 12).

According to Seidman (1998) the third interview may be the most important, but cannot be productive if the foundation for it has not been established in the first two interviews. Responses for the first two interviews were used to construct the interview questions for interview three.

According to Moustakas (1994) it is important that the researcher engage in the epoche prior to interviewing participants, “so that to a significant degree, past associations, understandings, facts, biases are set aside and do not color or direct the
interview (p. 116). I spent a considerable length of time deliberating on the wording of
the interview questions and actively avoided leading questions.

Time was an important consideration when scheduling and conducting each
interview. Although the interviews varied in length, none exceeded the agreed upon 90-
minute format. Respecting the structure and length of the interviews helped to build trust
between interviewer and interviewee, although it was tempting to extend interviews
beyond the allotted time.

Following Merriam’s (1998) suggested the method for recording data, each
individual interview was tape-recorded. Once the interviews were completed, these were
transcribed. During the interviews I took minimal notes as not to become distracted and
loose eye contact with the teachers.

Interviewing the teachers was both exciting and stimulating. As Patton (2002)
writes, interviewing provides the researcher an opportunity to enter another person’s
world for a short period of time. The thoughts and experiences of the teachers were
intriguing and I was genuinely interested in what they had to share. Like Patton (2002) I
am convinced that good interviewers actually enjoy interviewing and talking with others.

Participant observation

According to Patton (2002), there are limitations to what can be learned form
what people say. To more fully understand the phenomenon of interest, direct
participation and observation may be one of the best research methods.

The purpose of focused observation is to describe the setting, the activities that
take place, the people who participate in these activities, and the meanings of what is
observed from the perspective of those observed (Patton, 1990). During observations, a protocol (Appendix C) was used to log descriptive and reflective notes, sketches of the setting, and additional pertinent information (Creswell, 1998).

The observations took place in the field, within the schools of the West Valley District. Participant observation was chosen as the method for gathering data. In participant observation the researcher shares the life and activities of the setting under study as intimately as possible. The purpose being to develop an insider’s view of what is happening (Patton, 1990). Participant observation is to some degree an essential element to all qualitative studies (Marshall & Rossman, 1999).

Immersion in the setting through participant observation enabled me to hear, see, and begin to experience reality as the teachers in the study did. Through immersion in the setting I was able to learn from my own experience. My physical presence in the schools and classrooms helped me to better understand the context within which the restructuring was taking place. I was able to observe the teacher’s behavior in their natural surroundings. Without participant observation I would have had to rely on the participants’ words, not their actions. Observations allowed me to learn things about the participants that they might have been unwilling to discuss or that might have been overlooked in an interview.

The actual extent of my participation as an observer varied during the course of the study. I began as more of an onlooker, but became more of a participant. Patton (2002) writes, “The extent of participation is a continuum that varies [and] the extent of participation can change over time” (p.265). I spent three to fours days every week in the field during the course of the study. I observed the participants teaching, chatted with
them during breaks, attended school events and interacted with others. As Patton (2002) writes, I intended to participate in the life of the teachers, which “means going where the action is” and “participating where possible in actual program activities, and getting to know…participants on a personal level” (p.48). This immersion in the setting allowed me to “hear, see, and begin to experience reality as the participants do” (Marshall & Rossman, 1995, p.79). Following the advice of Patton (2002) I negotiated the degree of my participation to provide the most meaningful data to answer the research questions.

Having supervised pre-service teachers within the school district prior to this dissertation study I believe that the teachers, students, administrators and support staff were familiar and comfortable with my presence. It was important to keep the research questions at the forefront and to this end the aforementioned observation protocol was a valuable aid.

According to Patton (2002) participant observation and fieldwork should last long enough to answer the research questions and fulfill the purpose of the study. To this end I am confident that the frequency and duration of my field visits helped me to understand the context within which the restructuring was taking place. Without the field visits the study would not have been so rich. The observational data provides depth and detail, and takes the reader into the setting.

*Document analysis*

Marshall and Rossman (1999) suggest that document analysis supplement interviewing and observation. Program documents such as the initial grant proposal, progress reports, press releases, memorandums and newspaper articles were sources of
data that helped me to follow what is happening during the school district restructuring and increased my knowledge of the initiative. Program documents not only provide valuable information about what can be learned directly from them, but they can also provide stimulus for generating questions to be pursued through observation and interviewing. This was the case with documents produced by the district such as the Digital Update (Appendix D contains an example), a bi-weekly memo stapled to teacher paychecks. The Digital Updates were a rich source of data and helped me to generate interview questions.

Patton (1990) states that program documents can provide the researcher with many things that cannot be observed. During the course of the study I collected minutes and handouts from planning and training sessions, progress reports, e-mail to and from teachers, memos, lesson plans and student work.

Field Notes

In addition to the observation protocol I recorded field notes. Patton (2002) notes, there are many options for taking field notes and no universal prescriptions about the mechanics or procedures for taking them are possible. This is due in part because different settings lend themselves to different ways of recording and organizing notes. Taking field notes is individual and much a matter of personal preference.

Field notes should contain everything that the researcher has observed and believes is worth noting. Field notes were be used to document ideas, strategies, reflections, and hunches, as well as tentative themes that emerged. According to Bogdan
and Biklen (1998) field notes are written account of what the researcher hears, sees, experiences, and thinks during the course of the study.

“Reflection and introspection are important parts of field research” (Patton, 2002, p.264). My field notes were narrative reflective accounts of what was happening around me (Appendix E contains an example). Recording impressions and feelings that I had in the field became part of the data used in attempting to understand the school setting and the teachers whom inhabited it.

**Methods of Data Analysis**

Data analysis in qualitative research according to Bogdan & Biklen (1992) is:

“…the process of systematically searching and rearranging the interview transcripts, field notes, and other materials that you accumulate to increase your understanding of them and enable you to present what you have discovered to others. Analysis involves working with data, organizing them, searching for patterns, discovering what is important and what is to be learned, and deciding what and how to tell others.” (p157)

Consistent with this definition I engaged in the prolonged and iterative process of data analysis. Data collected from this study included taped interviews, observations, documents and field notes. All of the data were typed and stored as word-processed documents, then imported into a data analysis software program. Files were backed up electronically onto compact discs and hard copies of the data were produced and filed separately for safe keeping.

A common problem in qualitative studies is letting unanalyzed data pile up, thus making the task of final analysis much more difficult (Maxwell, 1996). Early and ongoing analysis is strongly recommended by Miles and Huberman (1994). It helps the
researcher cycle back and forth between thinking about the existing data and generating strategies for collecting new, often better, data. It makes analysis an ongoing enterprise that adds to the energizing process of fieldwork. Heeding this advice I began data analysis immediately following the first interview.

Patton (2002) writes that qualitative data analysis transforms the data into findings. Although no formula exists for this transformation, and methods for data analysis are unique for each researcher, it is imperative that you “do your very best with your full intellect to fully represent the data and communicate what the data reveal (p.433). Given the purpose of this study I closely followed the steps for data analysis proposed prior to data collection.

The first phase of the analysis was the preliminary reading of interview transcripts, observational notes and documents. Data analysis then followed the constant comparison method provided by Glaser and Strauss (1967) and the operational refinements cited in Lincoln and Guba (1985), addressed in the next section.

Preliminary Reading

The first round of interviews were transcribed from audiotape during the same week that they were conducted. At that time I reviewed the questions and participant responses to ensure that subsequent interview protocols contained questions that were specific to the overarching research questions, and to previous interviews and observations.
Patton (2002) warns, “always be suspicious of data collection that goes according to plan” (p.207). Midway through the course of the study an unfortunate injury to my left hand, double dislocation and fracture, created a number of problems. Getting to and from the research site became more difficult, and I was also forced to hire a transcriber to finish the second and third round of interviews. Following all transcriptions I carefully listened to the audiotapes to make any needed corrections for the transcriber. Although the injury to my hand was an unpleasant experience I was able to devote more time to reading and analyzing the data, and spent less time transcribing audio-tapes.

Throughout the study I read the interview transcripts, observation notes, field notes and program documents trying to understand the unfolding story. This preliminary reading helped me to bracket my own preconceived ideas and perceptions in an attempt to understand the experience of the participants’ perspective. I embraced what Moustakas (1994) describes as imaginative variation. This necessitated “seeking possible meaning through the unitization of imagination, varying the theme of reference, employing polarities and reversals, and approaching the phenomenon from divergent perspectives, differing roles, and functions” (p.98).

Creating Teacher Profiles

One of the biggest challenges in qualitative data analysis involves reducing the volumes of raw information, and constructing a plan to communicate the essence of what the data reveal. In-depth interviewing alone generates an enormous amount of text that must be reduced to what is important and of interest (Seidman, 1998).
A difficult and time-consuming step of the data analysis was to craft profiles of each teacher, bringing together interview transcripts, observations, documents and my reflexive journals to provide an accurate story of their individual lived experiences. This winnowing process allowed me to reduce the data and also helped me to begin making sense of the data. What made this stage of the analysis most difficult was letting go of some material.

The crafting of individual teacher profiles was an effective way for me to open up the data for deeper analysis and outside review. Through member checks I was able to confirm with the teachers to see what I had identified as being important and significant seemed that way to them. These summaries were a form of what Miles and Huberman recommended as “interim case summaries” to synthesize and digest an overall account of the case (1994, p. 79). The teacher profiles were a key component of the continuous process of data reduction. On average each profile was twenty double spaced pages in length and represented a combination of my own insights as a researcher and my best efforts at understanding the lived experience from the teacher’s point of view.

**Constant Comparison Method**

To organize, analyze and represent the data at this stage of the research process I used a theory building program called NUD*IST (non-numerical unstructured data indexing, searching, and theorizing) (Richards & Richards, 1994). This software helped me to store and organize files, tag segments of text, search for themes, cross themes, diagram and categorize data, create a visual picture of my overall study and my process
of data analysis (Creswell, 1998). The visual maps produced in NUD*IST were difficult to manipulate and edit, so I used a concept mapping software program called Inspiration for this task (Appendix F contains an example).

The constant comparison method has four stages: (1) comparing incidents applicable to each category, (2) integrating categories and their properties, (3) delimiting the theory, and (4) writing the theory (Glaser & Strauss, 1967).

Glaser and Straus (1967) explain that during the stage of comparing incidents applicable to each category the data analysis categories emerge. This emergence of categories involves enormous effort, ingenuity and creativity on the part of the researcher according to Lincoln and Guba (1985). Simply stated, the categories are names of things, cover terms, and semantic relationships (Spradley, 1979).

After the categories were derived, the next step was to assign incidents to them on a “feels right” or “looks right” basis. During this step I drew upon my own tacit knowledge because errors at this stage are “correctable on successive review, but incidents recognized tacitly, once eliminated, are virtually impossible to recapture” (Lincoln & Guba, 1985, p.341).

To facilitate my analysis of data I purchased NVIVO software prior to beginning this research study. I initially planned to use NVIVO to store, code and browse all my data, but after a few false starts coding the data I decided to code the data by hand noting incidents and categories in the transcript margins. I then used NVIVO to create categories and assign incidents to them (Appendix G contains an example). Glaser and Straus (1967) suggest that the actual coding of incidents can be done in any way that suits
the researcher. This method of coding data using pen and paper, and then entering the
data into NVIVO provided the most useful means for coding and analyzing the data.

The first rule of the constant comparison method is that “while coding an incident
for a category, compare it with the previous incidents in the same and different groups
coded in the same category” (Glasser & Straus, 1967). Lincoln and Guba (1985) add that
although the researcher may not have an explicit reason for assigning a specific incident
to a category, it is important that comparisons are made. As a result of making such
comparisons I will be left with two kinds of categories: those that I have constructed
myself, and those that emerged as categories used by the teachers in their own language
and covering terms (Glaser & Straus, 1967). Patton (2002) defines these two categories
as sensitizing concepts and indigenous concepts. Sensitizing concepts “refer to categories
that the analyst brings to the data” as opposed to indigenous concepts that are “key
phrases, terms, and practices that are special to the people in the setting studied…used by
the informants themselves” (p. 454-456).

Glaser and Straus (1967) write that after a short period of time the researcher will
find conflicts in his thinking making it difficult to assign subsequent incidents to
categories. At this time I followed constant comparison rule number two which directed
me to “stop coding and write a memo” (Glaser & Straus, 1967, p.107). The goal of this
memo writing is “to uncover properties of the categories. Knowledge of properties makes
it possible to write a rule for the assignment of categories that eventually replace tacit
judgments” (Lincoln & Guba, 1985, p.342). This was done first using pen and paper, then
through subsequent re-writes the memos were entered into NVIVO. Although the first
memos that I wrote did not uncover the properties of each category, subsequent memos
helped me to come closer to a comprehensive definition. At this stage of the data analysis 38 categories had emerged and I wrote memos for each one (Appendix H).

Stage two involved integrating categories and began with a shift from the comparison of incidents with incidents placed within the same category to comparing incidents to the properties describing the category. That is, the incident was judged upon how well it exhibited the category properties that I had produced. If an incident failed to exhibit some of the properties, either a new category was added, or a new subcategory, or in some cases the category needed to be redefined. This stage exposed both incident and category to critical inspection.

Delimiting the theory is the third stage of the constant comparison method and this is where I will begin “to curb what could otherwise become an overwhelming task” (Glaser & Straus, 1967, p. 110). According to Lincoln & Guba (1985) it as at this stage that delimiting begins as fewer and fewer modifications to the categories are required as more and more data are analyzed. As this delimiting occurred, the original list of categories was reduced because of improved articulation and integration. “At the same time categories become saturated, that is, so well defined that there is no point adding further exemplars to them” (Lincoln & Guba, 1985).

Two operational refinements to the constant comparison method, unitizing and categorizing, were also applied in this study. Unitizing is the way that Lincoln and Guba (1985) operationally define what Glaser and Straus (1967) refer to as incidents. Lincoln and Guba (1985) write:

“For us, what is taken as a unit should have two characteristics. First, it should be heuristic, that is aimed at some understanding of some action that the inquirer needs to have or to take. Unless it is heuristic it is useless, however intrinsically interesting. Second, it must be the smallest piece of information about something
that can stand by itself, that is, it must be interpretable in the absence of any additional information other than a broad understanding of the context in which the study is carried out” (p. 345).

The units were identified first by hand then entered into NVIVO. I erred on the side of over inclusion of information during this phase of the analysis. According to Lincoln & Guba (1985) it is easier to reject what later appears to be irrelevant as opposed to recapturing discarded information. I spent considerable time working with the data during this stage of analysis. Carelessness on my part as a researcher during this phase of the data analysis, could have resulted in a study less useful and insightful because everything else depends on the quality of the unitizing.

The task of categorizing is to bring together the units of data into provisional categories that relate to the same content, and to come up with a description of the category properties that can be used to justify the inclusion of a particular unit. The category set that is produced should be a set that provides a reasonable construction of the data. Lincoln and Guba (1985) explain: “Categorization can be accomplished most cleanly when the categories are defined in such a way that they are internally as homogeneous as possible and externally as heterogeneous as possible” (p. 349). A visual depiction of these categories can found at the end of the study (Appendix I). I employed these operational steps to complement and enhance the data analysis before moving into the forth and final stage of the constant comparison method, writing of the final report.

When writing the final report the goal was to craft an emerging story of the essence of the lived experience of participants. After moving the categories around in theoretical ways, a certain amount of clarity emerged. But the process reached a point at which further manipulation would be useful only in context. There seemed to be many
deserving ways to present and tie together the categories of data that represented the lived experience of the teachers. It was at this time that I decided to draft a table of contents for the dissertation. Viewing my data from my readers’ perspective rather than my own or my participants perspectives helped to pull out the most salient categories and a logical order. While this table of contents underwent extensive modification throughout the writing phase of my report, it served as a place-holder for rearranging categories. The basic form of the dissertation evolved at this point. It is recommended that the phenomenologist read for a sense of the whole, read for meaning units, cluster meaning, and then develop a structure. In essence my own process followed this recommendation.

Straus and Corbin recommend maintaining an attitude of skepticism and periodically stepping back to ask: “what is going on here? Does what I think I see fit the reality of the data?” (1990, p. 44). I used Inspiration displays to help me step back and see the big picture. NUDIST text searching also allowed me to quantify the number of references to specific ideas and otherwise test the strength of emergent categories. Counting is a way to “keep yourself analytically honest” (Miles & Huberman, 1994, p. 253). However, themes were identified based on the importance and centrality accorded to them rather than on frequency with which they occurred.

The next step was to revisit the literature. For the most part the review confirmed the phenomenological analysis, and I was able to select quotes to reinforce points that emerged in the study. It was at this time that I had to wonder if I had read into the teachers’ experiences from my own bias as a researcher. This tension was resolved through member checks. I made special efforts to share the evolving report with the participants as a way to ensure that it was the teachers’ own interpretations and
perceptions that were presented. Member checks were built into the process to ensure that
I had not unduly imposed my own interpretation on the data.

Most of the teachers were not concerned with confidentiality. I asked that they be
as open and candid as possible throughout the study, and I believe they genuinely were
so. As I came closer to completing the written report I made the decision to use
pseudonyms for all teachers and their schools. An “insider” to this phenomenon will be in
a good position to “guess” the district being discussed. In addition, administrators and
teachers within the West Valley school district could easily “put two and two together”
and identify the participants. Therefore I had to make a few small compromises. For
example sensitive material, such as comments that could affect current and future
working relationships, have been glossed over in the text.

In all the data analysis and writing of the report took nearly one year to complete.
I endeavored to allow each of these teachers’ experiences to emerge from their own
words, and from the comparisons between them. I have tried to share what is unique
about each teacher, as well as common themes that bind them together. There are always
more insights to be gleaned, more about a story that could be told. The overarching goal
was to capture as accurately as possible both the structure and meaning of the lived
experience.

Establishing Trustworthiness

According to Lincoln and Guba (1985) the basic issue in relation to
trustworthiness is simple: “How can the researcher persuade his or her audience
(including self) that the findings of an inquiry are worthy of paying attention to, worth taking account of?” (p. 290). Within this study the techniques of prolonged engagement, persistent observation, triangulation, member checks, thick description, reflexive journals, and audit trail were employed to establish trustworthiness. A brief explanation of each technique follows.

*Prolonged engagement*

I had spent many hours in the West Valley school district prior to the study, building trust between the potential participants and I. During the course of the research I invested considerable time in the classrooms of the selected participants, visiting their classrooms weekly and interviewing them three times during the course of six months. I also attended school assemblies, judged an oratorical contest at the middle school and participated in an after school project showcase. This prolonged engagement helped me to learn more about the setting, and also test for misinformation introduced by distortions either of the self or of the respondents (Lincoln & Guba, 1985).

Spending three to four days every week in the field allowed me to get close to the actual workings of the schools and classrooms. I was able to develop professional relationships with each teacher and they often asked for my advice with regards to technology integration. Knowing the culture of the school district prior to the study saved time and allowed me to focus on what the teachers were experiencing. I am also of the opinion that the teachers trusted my professionalism and felt comfortable voicing their concerns with the administration and initiative, knowing that their comments would be kept confidential.
**Persistent Observation**

If prolonged engagement provides scope to the study, persistent observation provides the depth. Through prolonged engagement in the setting I also conducted persistent observation. The purpose of persistent observation is to identify the characteristics and elements in the situation that are most relevant to the research questions and focusing on them in detail (Lincoln & Guba, 1985).

Erlandson (1993) writes that through persistent observation the researcher seeks out sources of data identified by the emergent design of the study. By visiting the classrooms of the participants while they were teaching I was able to see first hand some of the tensions and difficulties that they faced in trying to integrate technology. A lack of resources emerged as a prominent theme primarily through my observations and then through questioning during interviews.

**Triangulation**

Triangulation within the proposed study consisted of cross-referencing different sources of data, including interviews, observations, documents, and reflexive journals. Through the triangulation of data I searched for the convergence of information (Stake, 1995). While triangulation may be difficult, it is very much worth doing, because it makes data believable. Patton (1990) writes that triangulation allows the researcher to compare and cross-check the consistency of information derived at different times and by different means.
The themes that emerged from the data analysis process appeared in all four data sources. Although the interviews were a primary method of data collection, the teacher portraits and research finding would not have been so rich and detailed without the observations, reflexive journals and documents. Through triangulation I am confident that the stories of the teachers are accurate and their lived experience during this district wide reform effort emerges.

**Member Checks**

A crucial technique for establishing credibility in this study was the use of member checks. Stake (1995) recommends that the researcher ask participants to examine documents in which the actions or words of the participants are featured. This was done on a regular basis through email. I shared transcribed interviews with the teachers from whom the data were originally collected. Concept maps of the emergent themes produced using Inspiration software were emailed to the teachers during the data analysis.

Through the utilization of the three in-depth interview sequence I was able to verify interpretations gleaned from the data of earlier interviews. To achieve this I began each interview by summarizing my perceptions of what was said in the previous interview and asking them if these perceptions were accurate. This proved to be a worthwhile exercise that helped interviewer and interviewee reconnect with the previous conversation before easing into the next interview.

A problem that was anticipated through member checking was the potential for disagreement over the reconstructions. Although total agreement may never be achieved, I employed member checks to create a fairer construction of the reality of the participants
and setting. The only concern raised by three of the seven teachers was the grammar of
the transcribed interviews. Natural conversations are atrocious when transcribed.
Sentences hang incomplete, interrupted by new thoughts before the first sentence is
complete. I assured the teachers that the final research report would stay true to what they
actually said, but I would clean up the grammar.

“The investigator who receives the agreement of the respondent groups on the
credibility of his or her work has established a strong beachhead toward convincing
readers and critics of the authenticity of the work” (Lincoln & Guba, 1985, p. 315). To
this end the teachers participating in this study all agreed that I had accurately and
truthfully described and presented their experiences.

Thick Description

Within this dissertation I have provided thick description and detail about the
context, the participants, the research design, the research process and the phenomenon of
study. Although I was not able to specify the external validity of the study, I do provide
the reader with thick description that enables someone interested in making a transfer to
reach a conclusion about whether transfer can be contemplated as a possibility (Lincoln
& Guba, 1985). Erlandson et al. (1993) explain that through thick description
transferability judgments may be made by potential appliers.

As a researcher I was not overly concerned with the generalization of the research
findings. According to Merriam (1988) that should be left to those who wish to apply the
findings to their own particular situation. Through thick description I have attempted to
provide considerable detail about the phenomenon being studied, the research design, the
context, the participants and the research process so that readers can make their own informed generalizations and apply the findings to their situation (Lincoln & Guba, 1985).

*Reflexive Journal*

I utilized reflexive journaling to record a variety of information about self and method. With respect to self, the journal provided data about the human instrument. With respect to method, information about methodological decisions made and reasons for them were logged.

In the field, entries were made on a daily basis using my laptop computer and Microsoft Word. Some entries were recorded during my drive from the school district using my laptop computer, IBM ViaVoice software and an external microphone headset. The ViaVoice software is a voice recognition program that allowed for the conversion of my spoken word to text. ViaVoice was not as accurate as I had first anticipated, but did allow me to reflect upon what had transpired in the field and to record specific feelings and perceptions I had.

The journal entries were important for self-reflection and I compiled these musings in my research journal, which I maintained electronically and frequently referred to during the study.

*Audit Trail*

According to Lincoln and Guba (1985) a major technique for establishing confirmability is an audit. I collected the following information in accordance with audit
requirements suggested by Lincoln and Guba (1985): Raw data, data reduction and analysis products, data reconstruction and synthesis products, process notes, materials relating to intentions and dispositions, and instrument development information.

In summary, this chapter has provided an overview of the research design I elected to use. The methods chosen for data collection and data analysis were centered around the research questions, allowing for a certain amount of flexibility which is needed when conducting qualitative research.
Chapter Three

CONTEXTUAL BACKGROUND

This chapter is organized into three parts. The first part describes the Morrison’s Valley region by documenting a car journey to the research site that took place early in the study. Part two provides an overview of the Digital School District concept and a brief history of the statewide initiative. The third and final section describes the three schools where the research study took place. The stage is then set for chapter 4, which introduces each of the seven teachers.

Geographical Context

In early January my on-site research began with a 50-mile journey to Blair County, home to the West Valley, in central Pennsylvania. Leaving State College on a dark and cold winter morning I headed south on Route 220, a busy single lane road that serves as the principle north-south link between Interstate 80 and the Pennsylvania Turnpike. Slowed by the ever-present road construction, I made a welcome exit off Route 220 twelve miles outside of State College and joined the relatively new and un-congested Interstate 99.

Heading South on I-99 one passes the sleepy town of Tyrone before reaching Altoona, once the proud hub for the Allegheny Portage Railroad. The city of Altoona rests in a fertile valley surrounded by mountains. It was originally founded in 1849 as a community for transportation by trains. Altoona’s first train station was constructed in the center of town and immigration into the area increased. When the Pennsylvania Railroad
was constructed Altoona quickly grew into a large city. The Horseshoe Curve remains as one of the major construction feats of the railroad industry. Today trains are becoming obsolete making Altoona a little less important. The city is not growing as much as it used to with the population holding steady at around 52,000 inhabitants.

Twenty minutes past Altoona I exited Interstate 99 and followed the winding road that cuts through the Appalachian Mountains and leads to West Valley. No shopping malls or Starbucks Coffee shops on route, only wide-open spaces, fields of crops, farms, an assortment of animals, and small roadside businesses. Colorful advertising boards promote the small car dealership in town, the local hospital, and warn against driving under the influence of alcohol.

This is West Valley, a long narrow valley extending from the town of New Enterprise in the south, then northward for 35 miles to the Juniata River at Williamsburg. The width of the valley varies from 10 to 15 miles. The valley is entirely surrounded by mountains, the only openings for traffic are at Loysburg Gap in the south, Williamsburg to the north, and McKee Gap in the west. The towns of The Valley are Roaring Spring, Martinsburg, Williamsburg, and Woodbury. Pittsburgh is 100 miles to the west and Harrisburg is 130 miles east.

First stop on the trip was the Middle School of the WVSD. As you turn right off the main road and up the driveway to the middle school you pass the district administrative offices, housed in a single story red brick building. A white flag with the Digital School District logo emblazoned across it flies proudly below the star spangled banner on a pole in front of the administrative building.
The Digital School District Initiative

As part of then Governor Tom Ridge’s Link-to-Learn program, the West Valley School District was chosen as one of three school districts to become a Digital School District (DSD). The Digital School District initiative was a statewide competition designed to fund new educational models enabled by technology. To create these new Digital School Districts, Pennsylvania is investing approximately $12 million over two years. These Digital School Districts are intended to serve as resource and demonstration centers, providing examples of how technology can improve education (Link to Learn).

"In our first century, Pennsylvania led the American Revolution. In our second century, we led the industrial revolution. And in our third century, Pennsylvania has the potential to lead a new revolution — an economic and technology revolution, where ideas and innovation are the currencies of growth." Tom Ridge (PA Digital Schools).

The seven primary goals of the DSD initiative are to: develop a new educational paradigm enabled by technology and systematic reform; increase student achievement related to the Academic Standards; increase the appropriate and effective use of technology in teaching and learning and in managing schools; develop strategies to overcome challenges while maximizing the benefits of educational technology; bridge the “digital divide” within communities; develop partnerships with world class companies and education institutions, and serve as a model for the innovative use of technology in other schools (Link to Learn).

The initiative began when school districts across the Commonwealth were asked to submit proposals detailing how they would use technology to re-invent the way they delivered education. From these proposals, three districts were selected to serve as pilot
programs - The Carlisle Area School District near Harrisburg, the Quaker Valley School District near Pittsburgh, and the West Valley School District—each receiving up to $4.1 million in funding (PA Digital Schools).

The WVSD is composed of three elementary schools, a middle school and a high school serving 2,135 students in a 98.6 square-mile area.

According to the WVSD proposal (2001):

“The District is committed to revolutionizing education by increasing student achievement related to academic standards, extending life-long learning to the community, opening direct lines of communication between parents and teachers, closing the digital divide, and eliciting the support of world-class corporations…Our unique solution will be cost-effective, self-supporting, and highly replicable in schools throughout the Commonwealth…West Valley’s manageable size, innovative commitment to technology, and forward thinking educational approach offers all of the components necessary to successfully implement this project and realize Pennsylvania’s full vision of the Digital School District” (p.1).

Before being selected as a DSD, West Valley had established a partnership with Temple University to implement an Adaptive Learning Environments Model (A.L.E.M.). The ALEM is a educational program developed by Dr. Margaret Wang of Temple University. The model is designed on the premise that students all learn in different ways, at varying rates and required different amounts of instructional support. Within ALEM teachers use a variety of instructional methods that are tailored specifically to meet the needs of individual students. According to Temple University, when a high level of implementation is achieved a classroom scenario such as the following would be created. Students can be found working in different areas of the classroom, engaging in various activities, including participating in small group instruction, receiving one-on-one tutoring, or working in peer-based collaborative activities. Teachers circulate among students, instructing and providing feedback. The WVSD envisions that the ALEM
model combined with digital technology will create a classroom that operates as follows:

A plan called a prescription sheet is developed for each student based on individual needs. Teachers use a web-enabled system to ensure that prescription sheet objectives align with state standards.

The Valley Educational Community Center (VECC) is part of the WVSD vision. The Center is intended to serve as a meeting place, a living digital laboratory, and a symbol of the school districts commitment to the changing role of technology in education. It will provide the Valley community a setting to access the best available technology. The design of the VECC and use of movable furniture is intended to allow for a flexible work space that will be used for various functions (Proposal, 2001).

Within the Center, laptops will provide the interface between students, instructors and the electronic media. Another facet of the district's plan includes making renovations to specific rooms within the middle school that will serve as digital showcases for visitors. These renovations are specifically designed to adapt rooms for easy access by visitors while enabling students to engage in learning without interruption. Visitors will enter a room that acts as an observation window with a wall of soundproof glass overlooking the classroom. The observation room will be equipped with two-way audio allowing visitors to listen in on the class they're observing and, when necessary, to contact the classroom teacher (PA Digital Schools).

School Context

The consolidation of the Roaring Spring and Martinsburg Junior High Schools resulted in the construction of the West Valley Junior High School. The new school was
built on the edge of Roaring Spring, an industrious town and home to a large paper mill and book factory. The town of Roaring Spring received its name from the great Spring, which at one time could be heard from a mile away. The Spring still flows, but the several large stones were moved to change the flow of water thus eliminating the source of the roar.

The West Valley Junior High that opened in 1969 has since become West Valley Middle School and was chosen by the district to be the site for the VECC. The tree-lined driveway leading to the Middle School is coated with mud and gravel from the construction of the new building. The school is surrounded by grass playing fields that extend outward and blend in with the agricultural landscape. When I arrive the buses have since left, depositing students at the main entrance of the school. I parallel park directly in front of the Middle School and quickly walk the short distance to the main entrance. A large white sign to the right of the main doors announces that this is a “Drug Free School Zone.” Entering through heavy metal framed double glass doors up a short flight of stairs and into the main hallway of the building. The neutral colored tiles on the floor are standard school issue as are the gray painted walls and beige lockers. Bright strip lights illuminate the school and add a yellow glow to the school. Bright red fire extinguishers displayed behind clear plastic doors add a welcome splash of color. This is an orderly school, well maintained physically and the teachers and administrators appear to be firmly in control. The main office is first room on the left and all visitors must report there before continuing their journey into the school. Beyond the main office is the faculty room and school library. Posters cover the library walls encouraging students to pick up a book and read. A large white banner displays the message “West Valley Middle
School Values: Studying, Respect, Communication, Responsibility.” Students spend time in the library during the school day working on class projects and honing their research skills with the assistance of the librarian.

Students tend to be courteous and polite. The typical school attire for students is a pair of blue jeans, sneakers or brogue style shoes, t-shirts and sweatshirts. Many students show their school spirit sporting West Valley football t-shirts, or sweatshirts that proudly display the red dragon school mascot. Tightly cut, short hair is the norm for the boys, either very neat or purposely messy and kept in place with styling gel. The girls have varying hairstyles, but the trend would appear to be shoulder length hair, curly or straight, often dyed.

It takes about ten minutes to drive from the middle school to the high school, or less if you take a right onto Cowan Street, a twisting narrow road that passes directly through Rich Lou dairy farm. The road is more often that not covered with mud and you always take the chance that your progress will be hindered by slow moving farm machinery or the large yellow Labrador that wanders freely between the farm house and the cow fields. After making a hard right at the stop sign the road swings you around to face the school grounds.

Immediately facing you perched on Bean Hill overlooking West Valley High School is an old brownstone building constructed in the first decade of 1900 to house the University of Southern Penna. The University is no longer there and the old school building now used mostly for the high school sports teams as a practice facility during the winter months. West Valley School built in the 1960’s is at the bottom of Bean Hill.
Teachers and students share a large asphalt parking lot adjacent to the high school. A painted blue line divides the lot into two. The closest spots are designated for teachers, the student’s park on the far side of the blue line. An assortment of vehicles fill the lot. Trucks are common for students and teachers alike, a few students park their modified four cylinder imports at the most distant end of the lot, one curious student regularly drives his black hearse to school.

The side entrance to the High School is closest to the parking lot. After entering the unlocked glass door a long corridor that stretches the full length of the school greets you. The band room, auditorium and drama classroom are located near the side entrance, this is the loud area of the school. The walls are neutral colors and the floor is tiled gray, the red student lockers brighten the unmemorable color scheme. Walking up the hallway you pass the women’s faculty room. West Valley High School still separates faculty rooms according to gender, with the men’s faculty room on the clear opposite end of the school. The athletic office and nurse’s station on your left and the gymnasium on your right before you reach the main office. Newly installed digital clocks are suspended from the ceiling. Posters on the wall announce an upcoming pizza night, all hand written using the school colors of red and white.

The main office is brightly illuminated with mailboxes neatly lining the left wall, organized alphabetically. A black and white thirteen inch TV is mounted on the wall displaying surveillance pictures of the school hallways and parking lot. The office is rarely busy. Teachers come down to pick up their mail and leave, rarely congregating inside the office. All visitors must sign in at the main office. The visitor sign in sheet is attached to a wooden clipboard along side the tardy sign-in sheet for the students who
find it difficult to wake up in the morning. Adjacent to the main office is the Principals office and Assistant Principals office.

The High School is a one-story building. Two long main hallways run parallel to each other connected by two shorter hallways. From the main office, the building leads off in three directions. To the left is the main entrance to the school. To the right is the cafeteria and gymnasium. Either side of the gymnasium entrance large trophy cases proudly display athletic accomplishments. Straight ahead is a long corridor that leads to classrooms. Embroidered flags announce the clusters of classrooms by subject. Closest to the main office is the English department, followed by math and learning support. The classrooms are tiled and furnished with standard chairs and desks.

Two of the math rooms are attached to a math lab, a small classroom set up with laptop computers loaded with math software. The math lab is easily accessible from either classroom and can be accessed through the side door without entering the hallway. The library resource room is the second to last room on the hallway. For those in need of a caffeine boost this is the place as a pot of coffee is always brewing.

Adjacent to the library resource room is the library and the library classroom. Big windows in the library look out to the open fields that surround the school. They provide an abundance of natural light. Comfortable padded chairs are nested close to the windows and serve as a popular place for students to quietly read.

Littleburg Elementary School is a half-mile from West Valley High School and takes one through the small agricultural community of Martinsburg. Driving in the Valley requires patience as motorists are obliged to share the roads with horse drawn buggies, bicycles and farm machinery due in part to the large Amish and Mennonite population.
Although there is some confusion concerning the naming of Martinsburg, markers at the edge of town state that it is named for Conrad Martin.

The pride of the community is the Morrison’s Valley Memorial Park. The park is dedicated to all of the soldiers and sailors of the Valley and encompasses nearly 30 acres. The Littleburg Elementary School built in 1991 to replace the Benson and Martin Schools is a stones throw from the park.

The beautiful two-story red brick school is surrounded with well-manicured trees and hedgerows. A sign greets visitors welcoming them to the school and kindly reminding them to stop by the office to pick up a visitors pass. When you enter the covered main entrance and walk into the school you are immediately struck by the upbeat color scheme. The shiny white tiled floors and painted white walls are accented with red and green. The railings on the stairwell leading to the second floor are fire engine red. Every door in the school is bright green or red. The carpeted floors are a deep red. The color scheme is bold and fitting for a modern elementary school such as this. Overall this is a comfortable setting to be in. A four-foot high green dragon painted on a wall leading to the cafeteria reminds everyone that Littleburg Elementary School is home to the “Wee Dragons”. The cafeteria also doubles as the school gymnasium. The first floor of the school also houses the main office, principal’s office, library, special education rooms, faculty room, kindergarten and first grade classrooms. When in class, students rest in small brightly colored plastic chairs and work at large tables covered in plastic wood-look veneer. Upstairs is home to grades two through five.

The Pennsylvania Department of Education is looking at the WVSD to become a model district and believes that technology can improve teaching and learning, delivering
education in ways previously not imagined. In the next chapter we will turn our attention to the teachers charged with this responsibility.
Chapter 4

PORTRAITS OF THE PARTICIPANTS

The seven teachers within this study teach in the three schools depicted in the previous chapter. The purpose of this chapter is to present portraits of each teacher allowing readers to become familiar with the life histories of the participants and to gain insight into the how they understand their teaching role. It is intended that the portraits will add detail and rich description to the study.

Regina

A life size cardboard cut out of Joe Paterno, Penn State’s legendary football coach, greets visitors to the classroom of Regina Bolton. Three large Penn State flags and various other banners and posters complete the blue and white theme of the room. “I graduated from Penn State in 1991” explains Regina. “I went to Penn State [Altoona] for two years,” then when it came to move to the main campus “I decided that I didn’t want to. I got married instead.” After having two children Regina went back to complete her degree. “I knew finishing was something I wanted to do…Penn State acted like I had never left. It was just like I had taken this fourteen-year hiatus.” She says laughing. Before being hired by West Valley Regina worked as a substitute teacher for a year and a half. As a substitute “in eight districts around Blair county…I always felt like I was an
imposter waiting to be caught, because I would go in and pretend like I knew what was going on. Sometimes you could fool them and sometimes you couldn’t,” she admits.

Regina resides in Morrison’s Valley. “A lot of teachers don’t like to teach in the school district where they live, but I do because it sort of keeps me accountable…I grew up in the area and it is a small area. I like it…In fact this was my ninth grade class, this room.” Regina reminisces as she looks around her classroom. The1993-94 school year was when Regina began teaching full-time in the Valley. She currently teaches “three classes of language arts and one class of science” in the morning, then after lunch she teams with three other teachers. “We do interdisciplinary teaching…and do all kinds of projects.”

“I love teaching because I love kids.” Regina says with a smile. “It is the other stuff that goes with it I don’t like. If I could come in everyday and just shut my door and teach it would be a great job.” She “especially” enjoys teaching “the eighth grade...I love this age kids.” Regina speaks highly of the WVSD “I think that they do a great job. I am glad to be here…I’m glad I live here. I’m glad my kids went here…I just think we do a good job…the faculty is very good. They’re committed to the students and I think our curriculum is good.”

Regina describes her role to “technically” be an “8th grade language arts teacher…I like to refer to myself as the mother of the team…I feel like I am because both of the men on my team are younger than me so I think the students look at me sometimes as the mother…I don’t mean it in a bad way. I mean it kind of…like a nurturer…[Teaching is] part of my life, sometimes too big of a part…It’s everything I’m about…even as a mother and as a wife…Teaching is what I am, what I do, who I
am…My husband gets mad because sometimes he thinks it’s a 24-hour, seven day a week job. And he’ll say to me does this house say West Valley School District on it?”

Regina’s earliest computer experiences came at Penn State. “The big thing was they got Macintosh labs. You had to go and get instruction in the Macintosh lab.” She adds, “word processing was the greatest thing there ever was…I was here when the first computer came into this district and it was in this school and I was in 9th grade. It was like half the size of this room and it was hooked up to the telephone line. This would have been like in 1969…That was like a big move…we were to be like in the forefront. You know we were the first district around here to have this computer, and now it just seems like déjà vu. Here I am in the same room, years later, and now we’re at the forefront again…The excitement of having that one computer in 1969 is like kind of the same rush of what’s going now.”

Barbara

As Barbara Bradley will tell you, “teaching is all I ever wanted to do and so I am very happy doing that. Day to day, of course, it is challenging. Sometimes you are a rubber band wound up and then let go until the end of the day…[Teaching is] what I choose to do and I am very happy with this profession…I teach eighth grade earth space science, I am also certified to teach mathematics which I did for about eleven years…I love this age group. I’d much rather teach this age group than any other age group.”

“I am a facilitator. I am someone who gets things ready for their learning, and I help them do the learning but I cannot do it for them.” Barbara is very organized. Lesson
outlines are written on white dry erase boards at the front of the classroom. The class rules are clearly posted above the board:

1) Bring all materials to class.
2) Follow directions.
3) Leave the room only after permission is given.
4) Show respect for the teachers, students, school property and yourself.

“You set up guidelines and rules to help them learn. But when it actually comes to learning going on it has to be from the student. And [with] this age group it’s hard, it’s difficult to get them to see that… I often ask the students that. What do you think my role is as a teacher? And they always say to teach, and I say no that is not my role. If I were just going to teach you we could you know cut your head open and just dump the information in. I think I am a facilitator and I think I’m an assistant who helps them learn… You know you walk around the room and you look over their shoulder and watch them write down some things or you watch them do a lab and then answer questions. If they are off base… you can guide them in the right direction… discipline only when it’s necessary.”

After graduating from St. Francis University Barbara was “almost hired here… it didn’t happen and the next year I did get hired, but in the meantime I had a lot of experience substituting.” A native of nearby Hollidaysburg her initial goal “was to get hired by Hollidaysburg, and the year I was hired here I also was up for a job there and I came in second. I was disappointed, very disappointed.” Barbara contacted the Hollidaysburg school district to find out why she wasn’t selected for the teaching
position. She was told, “you are too set in your ways. I think that maybe has something to do with what I am doing now, it has stuck with me, been in the back of mind.”

“I was a teacher for three years, stopped to have two children, raised them to first grade, then came back.” Barbara has been a teacher for “a total of fifteen years, but there has been a space”. When Barbara returned to the classroom and to the West Valley school district “everything was there just the way I left it nine years before…I am very happy here and I am pleased that things worked out the way they did…[Although] no school district is perfect…I have an opportunity to compare this school district to the one my husband works for and also the one that my children go to, because all three are different, but they are all in Blair County. I am always happy with West Valley compared to the other school districts.”

“I understand [teaching] as one of my top priorities. I like to think my family comes first, but oftentimes they take a backseat to the students and the school…I tend to be a perfectionist and in this business…you never are finished, you are never done and for someone with my temperament for a long time that was difficult. I went to a conference with another teacher who had about thirty years of service…this conference…was an initiative that our district was going through. He leaned over and said, ‘this to will pass’. I thought that one hundred percent I had to jump in at the deep end and he [was] totally [the] opposite…From that time I didn’t take his quote as something I should strive to do, just wait it out, but it is also is okay if I don’t have all my lab stations centers today…Tomorrow I’ll have one more and the next day I’ll have one more. So in the past it has been very stressful to do this job, but I think that it is I personally who puts that stress on the job, because I want to be 100% ready. Since
education is always changing you can never be 100% ready because there is something more to learn there is something more to do.”

“Before I left our school got one computer. One for the whole school and they kept it in the library, this is in 1980. Two of us were co-partners with it, so we bought software the lemonade stand and things like that…If [students] were…ahead [they] were allowed to play games that had mathematically sound backing, logic, things like that…[They] were allowed to go down to the computer that was in the library. In 1980 I found that very frustrating because of course I have twenty five to thirty students in the classroom and I allowed two students to go down there and the librarian could not have them come in because he could not monitor them…So I found that frustrating, but I was only here with the one computer for the whole school for one year. When I came back it turned out that the person who was in charge of the computers was one of the dear teachers who shared my room with me when I first came. So because of that I would go down there and get into what she was doing.”

“Then I got one of my very own computers in my room the next year. I used it as a word processor, but I did have math blaster and those kinds of things, so the one person could go…back there if so they choose. We still only have one computer in the room. I have a laptop because of the I-Tech, however I only have one hook up for Internet, so they do use it as a word processor, but I would really like to be able…to have students using the computer, making Excel programs, PowerPoint presentations. You can’t do that with one computer shared with twenty-six students.”

At home “we had a radio shack computer for my husband and I with Donkey Kong and the card game bridge and those kinds of things before our children were born.
Then our son…he would go down…and he would play around with it and he learned, I didn’t realize this until he had mastered things, but he was playing around with it. We bought cookie monster for him…how many cookies did he eat and things like that…I never thought about this…but we have always had some kind of a technology for our kids. He had access to that ever since he could point with his finger and do the keys…Then we got IBM compatible around 1990.”

“I have learned a lot from my own children…I have a twenty-one year old and an eighteen year old…I think kids are able to turn on a computer and not be afraid to turn it on like it’s going to blow up, and just play around and make mistakes…Children are not afraid to explore. Maybe they aren’t thinking this thing cost us twenty five hundred dollars…[My husband] finds it perfectly okay to plug and chug like my children do and say, Ooops…I have erased everything from the hard drive…Maybe it is time to read the book, so they just like to play around with it, where I am more goal driven and I am also very sequential. I think you have to read the whole manual first before you even touch a key. I had real problems with that because for example if you look up Olympics on the Internet, it takes me eight hours even now, but before I would almost not be able to do it because…I could not just scan the first page of one thousand sites and say ‘well maybe that one’ and pick it out…I always felt that you had to research it all before I chose the ones I needed. And I know that you can’t do that. Things like why is it that you can exit a program close out a program two or three ways…I felt that I had to learn all three.”
Caroline

“I get up at 5:20 and I usually get myself ready for the day. Then I get my kids up and my husband. He doesn’t get up. He gets up at the last minute. Then some days I have to take kids to... wherever they need to be... we share that responsibility, sometimes it’s me sometimes it’s him... and then I get [to school] around 7:30... I am at the point of my life when it is real hectic because I have two small children... Five and Nine... and with all the changes and things that are going on in education right now, it hasn’t gotten any easier. Especially with my children at home that demands my time... It is hard sometimes to get everything done and sometimes I have to just prioritize.”

Caroline Smith teaches “math [as] part of an eighth grade team.... I feel like [teaching is] part of me and it’s who I am... I’m teaching all the time... at school it’s my job but it’s also what I do at home with my kids... This is my eleventh year... I taught two years in Delaware and then substituted for a little while, then I taught six years in Newville, which is between Shippensburg and Carlisle, then three years here... In college... I was going to be an elementary teacher and then I found that I enjoyed my math classes and at that time everyone said teach math because that is where you can get a job, so I went into math and switched to secondary.”

“I went to school here so it has changed a lot since I went to school here... When I was here this school was a junior high, so now it is a middle school... We didn’t have teams and a bell rang and the whole school would change classes... they have a couple of bells throughout the day, but one is to start lunch and one’s to end the day and one at the start of the day, but that is about it... I like the middle school, the way it is structured... I
like that they are trying new things and we are encouraged to do new things, so that’s
good. I feel that I can take a risk and if it [doesn’t work out] it is okay.”

“When I first started teaching it was calculators, then it was graphing
calculators…I remember in Delaware I got a computer in my room and…I really never
got it to work before I moved….It wasn’t as easy as they are now to just plug in and they
are ready go…I substituted for three or four years and then I got a job…I didn’t have a
room when I first started then. I went round from room to room for two years. Then I did
get a room and…we got a computer a couple of years later….I don’t think they were
hooked up to the Internet, I am pretty sure they weren’t…I used the word processing to
write work sheets and tests…I really liked that because up until that point they were
handwritten and so they looked more professional with the computer and then I started
using the grade book.”

“I am sure that I have gone to some workshop using…the graphing
calculator…When I was at Big Spring I took word processing using word perfect…That
was in the evening for like a couple of weeks. That helped me learn like the basics of
word processing.”

“At the beginning I was [excited] and a lot of people were skeptical about [the
DSD]. I thought maybe this isn’t too bad, but I am always kind of I don’t know…I went
to workshop once and they showed us a circle, a square, a triangle and a squiggly line and
they said which one shape do you feel most comfortable with? I was thinking the
squiggly line…They said those are the people who have big plans; they have ideas, but
can’t really get it done…sometimes I feel that is how I am. I mean I can say this will be
great to do, but then to get the details and the fine-tuning and how it actually can be done,
that is sometimes the hard part. I am not good at actually planning it out and how it actually can be done.”

Jane

“I haven’t seen you all for a while and I missed ya and thought about you a lot” Jane addresses the class after being out of school for a few days. Every morning begins with sharing time. “Does anyone have anything to share?” she asks moving to the front of the room. The classroom is brightly colored with student artwork displayed on the walls and hanging from the ceiling. Twenty-one hands shoot up into the air as students wiggle in their seats eagerly waiting to be called upon. “My dad has a fever and the flu” shares one third grader. “My cat is sick” and “I saw the Ice Age Movie” are other examples of what is happening in the world of these students. A veteran teacher of 23 years Jane is calm and composed as she listens attentively to the stories of her third graders.

Teaching wasn’t her first choice for a career. “In high school I thought I wanted to be a nurse. The blood and guts and gore were not for me, but I knew that I wanted to work with people. So my guidance counselor suggested teaching…I taught Sunday school like at my church with younger kids. They were nursery type and toddlers and whatever and I really enjoyed that”. After graduating from Penn State Jane taught seventh and eighth grade developmental reading, but “I knew that wasn’t for me…I wanted [to teach] the younger kids”.

When asked to define her role as a teacher Jane explains that it is her responsibility “to prepare students for the real world, that’s how I look at it. That’s how I always thought about teaching, to prepare students to be able to function in the world”.
Jane’s enthusiasm for teaching is very apparent the first time you step foot in her room. “I love it,” she beams when asked about being a third grade teacher. “I love this building and I love the people that I work with.” Although initially “we had a lot of controversy over this school…When they went to build it there was two older schools. One was on this site and one was down here they tore down by the park, and they were very old. In fact in the wintertime in my room they nailed the windows shut so that the wind wouldn’t blow them open. But the taxpayers, this older group of citizens decided we didn’t need a new school and the Superintendent who was here at the time was a good a guy, and he was for the teachers. He really worked for the teachers, and he really pushed it through.”

A computer lab was part of the new school and the Apple IIe was the hot new computer back then. Although the school lab now houses more up to date machines, the Apple IIe’s are still in use. “When they dismantled the lab and put in the new [computers] those teachers that were interested in the old ones could have them, so I got two. The only problem is that if they break they move on”. This was the first time Jane had access to computers at school and the district began to offer teachers opportunities to learn how to use them.

Jane has attended a few workshops and seminars offered by the school district. “It might be a couple of hours after school or maybe in the summer time when you could sign up for different things, spreadsheets, word processing, Microsoft Office” what Jane considers “computer basics”. But she credits her two college age sons for having a significant influence on her technology use. “They know a lot [about computers]. My boys can do more on a cell phone than I can do on a computer. They pick that up and can
just do all that stuff really fast”. Just the other day, Jane explains, her sons changed the ring tone of her cell phone to a Beatles song. “I don’t know how they did it, it’s just on there,” she explains laughing.

When her boys were in high school the family purchased a home computer. “The school they had a computer fair and we were allowed to get a computer at a lower percentage rate.” A decision on which platform to purchase was made by her sons. Jane explains, the “boys said you don’t get an Apple, you have to get a PC because that’s the real world Mom. So we went with PC, which was right.” Although buying a computer was primarily for her children Jane and her husband also use the computer at home. “I use it at home for email and doing schoolwork…I shop on the computer.”

The family recently purchased their third home PC, visiting a web site and building a computer to the specifications they wanted. “When we got this one we got like the CD burner and the DVD player”. Staying up-to date with computers and technology is strongly influenced by her boys, but Jane likes to think of it as a team effort “We share our knowledge and everybody works together”.

Jane talks enthusiastically about the transition her husband made from being a mechanical draftsman to his current position designing roads for the Pennsylvania Department of Transportation. “He is old school, like in high school and college they didn’t teach him to work on computers,” but he re-trained and now works on computers everyday. Now “his job is all computerized. He knows a lot of what is going on, he helps me too”. Jane and her husband keep in touch during the day through email. “We email back and forth, my husband and I. It is just part of how I communicate anymore.”
Comfortably dressed in long blue denim shorts, a gray t-shirt and sneakers a second grader sits down at the laptop computer situated in the corner of the room near the windows that look out onto the playground. This is centers time in Diana Stewart’s classroom part of the ALEM program adopted by the WVSD in partnership with Temple University.

This center is a PowerPoint presentation titled ‘Using > and < to Compare Numbers’ and is set up like a multiple choice quiz. The second graders are given a problem, for example __ > 100. From a list of three numbers the students choose the correct response to complete the problem. If they pick the right number a cartoon character appears on the screen with a caption bubble escaping from his mouth that reads “Yahoo!” If they choose incorrectly the caption reads, “Try that again.” The second graders complete a half-dozen or so problems then move on to a different station.

“We went from whole group to individualized, from individualized back to whole group, now we are individualized again. So it has changed within my thirteen years here in the West Valley school district…It changes very frequently [and] now we are into ALEM.”

Diana explains “I like using centers in my classroom…I’m interested in technology…and I can see ways that you can incorporate it…[The WVSD] have given us time for ALEM, which was nice” Diana explains, although “it gets overwhelming with all those different activities you have to do.”
Diana has been a teacher for a total of “fourteen years,” but did not always want to be an educator. “When I first went to College… I was in nursing. While I was in nursing I really liked the classroom work…but then we started going out for clinical work and realized that…I was responsible for their lives and I had a patient that died on me…and at that time I was tutoring students and I really liked that…and got my four-year degree…then I went to get my masters at St. Francis just in education.”

“I like [teaching]…I wish there was less paper work and more interacting with the students…My philosophy of education is…to teach the students the best I can, to make sure they understand the curriculum…I’m not really a disciplinarian. I want the kids to like me…not be afraid…to ask questions. But…when I mean business they know that I mean business.”

“I really like this school and I think that our principal is really a nice principal. He tries to solve a problem if you have [one]…and he really looks after the teachers and he listens to our concerns.” Diana feels that the WVSD “try to make it the best educational situation that they can for the community and the students…I question some of the things they do…We’re just trying a lot of different things. I think in public schools they try a lot of different things instead of sticking with one thing…You just move from one thing to another and that becomes a problem for kids cause they’re pulled in all directions along with the teachers.”

“I never saw a computer until we moved here into the new school…we started getting the old Apple IIe’s from the high school…and then in the past few years we have [received] better equipment.” Diana considers herself fortunate to have an extra desktop computer in her classroom that she received through a grant. “We were going to do all
[student] portfolios on the computer …we had a few meetings and I think it was just overwhelming. We didn’t have the technology at the time to put all of their portfolios on disks, so that kind of just fell through…but we had good ideas, but didn’t know how to use it on the computer.” Diana laughs. “That’s how I got an extra computer, which was passed down from the high school. I got that computer and we took pictures of kids and we scanned them in and we were going to make their portfolios and we started and we taped kids voices and things like that. And this is kind of what got me interested in doing this cause I thought that it was a good way to put information into the kids’ portfolios…I think that would work in the future, even elementary but…I wouldn’t like to see the teacher do that. We need to hire somebody else…it is just too much work to do all that.”

Diana had limited exposure to computers in college, “basically…we did…drill and practice…I hadn’t worked on the computers except when I did my test for the Masters program. We could have used the computer, but I didn’t. I was worried I’d loose my work…I did it nice and simple pencil and paper.” She says with a wide grin. In graduate school Diana “didn’t have any experience with technology; I didn’t take any technology courses at St. Francis.”

**Maria**

Maria Barcia steps up the blackboard at the front of the classroom and cleans the white chalk with an oversized eraser. With a smile she quickly writes the number 1954 on the board. This is 9th grade Spanish at West Valley High School and the class is reviewing numbers for an upcoming exam. 1954 is the year Maria was born and she uses
the exercise to peak the interest of her students and to have a little bit of fun. Later on
during the same class period Maria jokes “one of my goals in Spanish is to send you out
into the world to pick up girls and guys.”

“My classroom means a lot to me”. Maria explains. “In that classroom I also try
to develop a relationship with the students. I think that they learn better when they are
comfortable with you, and I am not one to be like buddies, but we have a trust
relationship…[Teaching is] something of a calling…more than just a job…[I try] to
connect with kids and help them see the world differently…The personal connection and
having the kids discover more about themselves and their potential and the good that they
can do.”

“[I teach] Spanish and sometimes French…This year I am back to teaching in the
middle school 8th grade in the morning and 9 through 12…at the high school…24 years,
some of that part-time substituting…local schools. I married a man in the community…I
am from Michigan and I met him college, he was born and raised in Morrison’s Valley so
I moved back…I am almost a native of the Valley.”

“My primary role…is to be a model and guide for my students to learn Spanish.
As a teacher, present a lot of information to them, but then give them opportunities to use
it orally, written, in many different ways so that they learn that material and master
it…That is to me my primary responsibility.

“It was something that I was always drawn to. I always enjoyed reading and
learning, but also sharing it. I have just had all kinds of experiences throughout my life
that were related to teaching…I enjoy it. There are not too many things I would rather do.
I’ve found one that I would rather do so I’m thinking about leaving teaching. But that is
pastoral work, ministry, which to me is very related to teaching. Just not always in a classroom setting, so I guess I’ve always wanted to do a helping kind of work and that’s related to my mother and somewhat to my father to and so teaching fit into that.”

The connection Maria has with the church has “probably distracted me a little because I am doing some studies and work on the side, but the other part is that it just makes me more sensitive to the individual…I have always tried to remember that I am teaching a group of individuals, rather than teaching a subject…I like to try to connect to a persons learning style, however, the reality of the situation is when you have thirty kids in a room that is very difficult…I haven’t always individualized as much as I might like to, but I aim for that and try to…to reach everyone out there. The ones that care try to make the ones that don’t care, care a little bit…I don’t talk about God…but always that there’s more to you than what you see or what you first think or just what you know on a test.”

“I have mixed feelings [about the WVSD]. As a substitute teacher…I have taught in….more schools than the average person…I would just as soon be here as anywhere locally…I do have things that bother me such as our communication…administration forgetting what it is like to be in a classroom…I see problems.”

“I am old enough now to have seen a lot of the cycles. The ALEM cycle…the premise of having children be the center of learning and not lecture is very noble, but that is the way some of us have taught…it is a cycle…we were doing learning centers and we moved away from it…. Tomorrow it is individual learning and the next day it is group and back again.”
“Through the years I have just taken workshops here and there…from the intermediate unit, or once in while…you could go to IUP…My father and my brother are computer tech people….So I always had someone that I could bounce things off…Three years ago I started to put grades on a personal web page. It fizzled out because again you couldn’t get the access, it wouldn’t work…many barriers.”

George

“I think my military experience…brought discipline into my life…The military teaches practical lessons in everything and I try to bring that into the classroom. When I teach in my room I try to make it as practicable and as applicable and as hands-on. If I know something is not going to be practical I pretty much try to tell the kids . . . you might not use this but this is why it’s good to know. The military…instructed that way. You know this is why you need to know this. You might not agree with it, you might not like it, you might not even want to know. But this is why you’re to know it, here it is, learn it. I try to do that with the kids when I’m in class.”

“Nine years I have been teaching…seven in…West Valley…this is where I went to school and this is where I live.” Explains George Jenkins. “I teach a variety of history classes…mostly teaching advanced placement American history classes and advanced placement American government classes…Growing up and living in this area helps me be more in tune with the students and where some of the students are coming from because you get a feel for the demographics of the area…You know that a lot of the kids do not come from high-income homes…that a lot of the kids have not been exposed to [a] variety of culture[s]…our kids don’t go to museums…our kids don’t go to libraries [or]
to universities to do research…It helps me gear my education or my teaching more to what I think they need…We don’t have a very diverse district at all…There are different things that need to be addressed. For example, when I teach my world culture classes and such I try to put a large emphasis on religions of the world, large emphasis more on culture, even though they might not like it. But they need to have that.”

“I have always had an interest in history; I think that it comes from my dad…He would always take me to World War II movies…that helped me develop an interest. My parents always believed in taking [us] on vacation to historical sites…I think that added to it. I was in my last year of the service and…I was home on leave and my dad and I were talking and he said “you like history, why don’t you get into teaching?” So I thought yeah maybe I will. So that’s how I got into it and I really enjoy it, I think I made a good choice. I actually combine my hobby with what I do as a living.”

“I think teaching is a major responsibility. It is an honorable profession if you put 100% of your life into it. Like for me teaching is very serious. When students come into my room…[I] feel it is essential for them to walk out with knowledge and walk out with the idea that they can learn to think for themselves…I get upset at times when people think…the students are just pushed through or you are just somewhat of a…babysitter.”

“Some teachers put a lot more into their teaching than others, which maybe affects the credibility of the field. I also think that in the United States right now there is such a disintegration of the home life, so therefore more duties are put on the high school teacher. Not only do we need to teach history…you need teach the ideas of patriotism, you need to teach the ideas of values…When I was young we learned a lot a home off our parents, because our parents spent time with us, they worked with us, and you don’t see
that now. I think that it is a good profession, I am glad to be a teacher, and I think that it is one that carries a lot of responsibility.”

“I think in many cases our district does a good job. In many cases our district has good ideas, sometimes the ideas aren’t followed up. For example we start things without being completely on board with what we are going to do. I do think that we do a good bit with PR. I think that we are worried about what people think, and sometimes that effects decisions that come down to the trenches. Now I consider myself being in the trenches, being on the front lines and like…the decisions at the top are not always the decisions the people in the trenches would make. That goes everywhere from how certain money is spent to what decisions are made…Overall though…I think that we are a strong district.”

“My role as a teacher would be to educate students on…history…government. Not only to educate them, to prepare them to be learners, to teach them how to look at information, how to try to make analytical decisions, try to think critically about things…Also to prepare them to get a job when they leave here or prepare them to go to college when they leave here…More basically to just model for them good behavior, positive behavior, what’s right or wrong…I think you have to also try to model that for the community as much for the students…I’m also involved in numerous activities outside of teaching, in which I try to represent the school…I do student council advisor and I do sophomore class advisor so those keep me busy.”

“I understand teaching as being a career where you gain insight… an opportunity to keep learning…Some fields even though we say we encourage people to become a lifetime learners, some people don’t learn much outside of what their job is…Whereas education pushes you to always be learning.”
“When I first came to West Valley we did have the old Macintosh. The real old ones were the kids could play Oregon Trail…I didn’t have a lot of experience with computers…For me [the I-Tech training] was what I needed as far as a jump-start in technology.”

Presentation of Findings

In the following five chapters I will present the findings from the data analysis weaving in the extensive literature on school change and educational technology. Five overlapping themes emerged from this study as these seven teachers experience the restructuring effort intended to transform the West Valley School District into a Digital School District. These themes will be presented individually although a compartmentalized approach may prove to be inadequate. As Sikes (1992) states, “a holistic approach is essential to what is, after all, a holistic situation”(p.39). But following the lead of Sikes I will, somewhat contradictorily, identify the themes separately. The themes are uncertainty and frustration, learning to change, barriers to change, craft pride, and potential.
Chapter 5

UNCERTAINTY AND FRUSTRATION

Overview

One of the most prominent themes throughout this study was uncertainty, which in turn lead to frustration on the part of the teachers. The issue of uncertainty and lack of clarity is evident in virtually every study of change, from the early implementation studies when Gross and associates (1971) found that the majority of teachers were not able to identify the essential features of the innovation, to present studies of reform
(Fullan, 1999). The problem of uncertainty and clarity increases with the complexity of the reform. In short, lack of understanding and clarity represents a major problem of educational reform; teachers often find that the change is simply not yet very clear as to what it means in practice (Fullan, 2001).

In part it was this lack of understanding of what a DSD actually is that peaked my interest in the phenomenon under study. On the day the district was officially awarded the DSD grant I was supervising pre-service teachers within the district and attended the presentation ceremony. In the crowded Middle school auditorium then Pennsylvania Governor Tom Ridge spoke before an expectant and excited group of West Valley students, teachers, administrators, and local dignitaries. He congratulated the district for putting together a winning proposal and for taking the lead in becoming one of only three digital school districts in the entire nation. I left the presentation ceremony confused as to what a “digital school district” was? Being the recipient of such a sizable grant placed the West Valley school district under considerable pressure. The state would be watching them closely and would undoubtedly want to see positive results within the short two-year funding period. I was concerned the teachers in the West Valley school district would be expected to quickly integrate technology into their classrooms, and would ultimately be responsible for the success of the initiative.

Much of the uncertainty and frustration surrounding the restructuring initiative can be attributed to four distinct issues: confusion as to what a DSD actually is; a lack of administrative leadership and support; changes that continue to be imposed without teacher input; and the school district’s past history of adopting changes and then abandoning them.
What is a DSD?

The technological revolution has added to the challenges teachers face. Fisher and Dove (1999) write that teachers are struggling to understand their roles and responsibilities in integrating technology into today’s classrooms. From the very beginning of the restructuring initiative the teachers were unable to articulate what a DSD was or looked like. The day Tom Ridge came to the Valley and announced that the WVSD was to become a DSD, Regina stated “[I was] excited but did not know what was going to happen and what to expect…As teacher’s we don’t really know what is expected of us or what we are going to get out of it.” She added, “What is it?..I don’t think we know what it is.”

This lack of clear understanding was shared by all of the teachers in this study. Barbara explained that the district administration should be more forthcoming. “I would like more information…I don’t know a whole lot about it. It seems like a lot of it so far has been like things you can’t see [such as] the wiring…they need to have that [completed] before we do anything else…there is some concern about how all this is going to play out because we don’t really know.”

When asked about his understanding of the initiative and to define what a DSD was, George responded: “The most honest answer…I understand bits and pieces. The more I learn about it the less I understand.” Not one teacher was willing to define or attempt to explain the term Digital School District. The teachers are not alone. “The principals are confused too,” explained Jane.
Regina recalled an activity the I-Tech team took part in during their summer training. The team did a brainstorming activity and attempted to define what a DSD is. “I still don’t know what it is,” She laughed. Regina concludes that a lot of teachers welcome the DSD initiative, “but it is frustrating, especially for the teachers that did the I-Tech training…I hope that they do something soon though, because there the frustration level is building…I’m at the point now where we are coming to the end of the year and we…don’t know what is happening yet.”

Commenting on a recent article she read in an education journal, Jane shared her thoughts on what she envisioned for the WVSD. “They were talking about a school district in Pennsylvania where they gave all of the middle school students laptop computers. Everything was done interactively and everything was done on the computer. I thought this was good idea. Students could take the laptops home and I thought this was great. Well that is how I thought we would go with it, we would be that type of a prototype school…that is how the kids thought it was going to happen.”

Teachers lamented that they really are unsure as to what a DSD actually was and how the initiative would affect the district. According to Gail Marshall, a school technology consultant, teachers need to understand and be committed to the technology and the pedagogy being introduced (Technology, 1999). The uncertainty that the teachers felt frustrated them, although the teachers are generally optimistic about the initiative overall. Diana reinforced this shared optimism: “It will be fine once we all understand where we’re going and how we’re going to get there.”
Lack of Administrative Support

All of the teachers had good things to say about the WVSD as a whole, but as one teacher commented “no district is perfect.” The teachers felt that the central administration was not always upfront and honest with them. This issue of integrity was accompanied by a lack of administrative support. Although the teachers were encouraged to be innovative, they are not always supported in their efforts. The lack of integrity and support added to the difficulties teachers faced as they struggled to understand the goals of the DSD initiative.

Evans (2001) writes that educational change is extraordinarily difficult and to accomplish change, and that school leaders must focus on people. Relationships and strong collaborative cultures in teaching are powerfully linked to effective classroom learning, stronger professional confidence, and feelings of self-efficacy among teachers and teachers’ capacity to initiate and respond to change. Numerous studies document the fact that collaborative work cultures at the school and ideally at the district level are critical for the implementation of attempted reforms (Fullan, 1999; Fullan & Hargreaves, 1996; Hargreaves, 1994; Rosenholtz, 1991).

Jane described the WVSD as “a good school district.” Diana praised the school district: “I think that they try to make it the best educational situation that they can for the community and the students” Although she added, “I question some of the things they do.” According to Regina one of the things they don’t do is support teachers: “I don’t know what to think because we don’t know what’s going to happen…I wish there would be more support coming from the administration.” Barbara explained that although the administration attempts to provide teachers with the support and information they need,
what is important to her “is not necessarily addressed.” This leaves her with many unanswered questions.

Not every teacher felt unsupported. Caroline mentioned on more than one occasion during our interviews that she was encouraged to be innovative and to try new things. Caroline recalled a unit that integrated a lot of technology. “I felt that it was a risk because [of the] technology and I knew that if this doesn’t work my job is not in jeopardy, or I am going to be disciplined…I just get the sense that we are encouraged to try new things…and not to feel like we have to like toe the line with regards to this is what a teacher is expected to do. I think that they expect us to try different things.”

The speed of the Internet connection within the district was an issue that came up on numerous occasions. George stated: “We were told…we’d have the Internet up and running by the middle of school last year. Well it wasn’t. Then they said it will be up and running by the end of school…It’s just now to the point where the Internet is really running well and it’s been two years. Instead of just saying we’ll be honest with you, it’s going to be two years until you have it.” George hopes that this pattern does not continue with other proposed changes associated with the DSD initiative.

Jane identified the administration as a barrier to the success of the DSD. She felt that the administration wants her to integrate technology into her classroom, “but they are not making any effort that I see for that to happen.”

More than one teacher questioned the way the district expects them to complete additional work at home without providing them with resources and support. Commenting on the grading of student work at home Diana stated: “My philosophy is if you want us to [grade] you should provide us with the materials to do it…I already do a
lot at home and this is just one more additional thing that they’re expecting us to do…When does that stop?”

George is also concerned with the added responsibilities of grading student work at home using an online grading program. “I think it’s going to be more work for a lot of teachers, which isn’t bad as long as people give you credit for that…The last time that our district was in contract talks we had several board members who made the statement ‘well you guys only work six hours a day.’ I’m not saying there aren’t some teachers that work six hours a day, but the majority of us you’re talking eight, nine . . .” These teachers want their efforts supported and appreciated.

Maria is adamant that the levels of trust between district and teachers could be improved if there were “more communication, keeping us updated on decisions being made and why decisions are being made…[plus] integrity in all communications.” She would like the district administration to make time for “more face-to-face contact with teachers” and encourages them to “continue informing us of updates through the digital mailings.” The digital mailings that Maria spoke of were one page typed newsletters that were distributed bi-weekly to district personnel stapled to pay stubs. Barbara felt that the Digital Updates “worked well.”

Relationships between teachers and administrators are important variables to be considered. The educational change literature consistently points to school administrators as agents for creating and supporting the conditions in which school reform can succeed (Hargreaves, 2001). Administrators certainly can help teachers if they are willing to listen to teachers’ concerns about technology implementation, and provide shared leadership. Just as the proper use of technology requires significant changes in how teachers teach,
the successful implementation of technology into schools requires administrators to make
significant changes in how they support their faculties (Fisher & Dove, 1999).

**Lack of teacher input into decision making**

A common administrative and legislative delusion is that reform can be imposed,
even forced, on teachers, without any regard for their values or inclusion of their voices
(Hargreaves, 2001). Historically, this pattern of forced implementation has enjoyed little
or no success.

The teachers felt that they had little or no say in the DSD initiative including the
allocation of grant money. They had not been involved in identifying and selecting the
most appropriate educational technologies for their classrooms. The changes taking place
with the district were imposed upon teachers and they question some of the decisions
being made by the district administration, most notably the building of the VECC.

Barbara commented: “We haven’t been involved in the process too much.” She is
concerned about the current teaching resources she has available to her and is unsure as
to when things will improve. “The equipment we are using now is old and outdated and
we don’t know what we’re getting.” Maria concurs: “I don’t think that money is being
put generally in the right places.” She adds. “Decisions in the past have not been thought
through. There hasn’t been good planning and follow through.” Which has lead to further
“frustration” on the part of teachers. In Maria’s opinion, the grant money should be spent
in the “classrooms and the labs…[If it was] I think we would see more teachers using
it…The more sharing you have to do with equipment the more it won’t be used.”
George sums up this lack of teacher input: “In many cases our district has good ideas, but sometimes these ideas are not followed up. For example we start things without being completely on board with what we are going to do. I do think that we do a good amount of public relations work. I think that we are worried about what people think, and sometimes that effects the decisions…I consider myself being in the trenches, being on the front lines and…the decisions made at the top are not always the decisions the people in the trenches would make. That goes everywhere from how certain money is spent to what decisions are made.”

West Valley has invested $2.1 million into a new building that was added to the middle school. The Valley Educational Community Center (VECC) was partly funded through the Digital School District Grant and is intended to serve as a learning laboratory for students, teachers and the community. The VECC is a contentious issue although the teachers were confused as to how it will be utilized once completed. “I think it’s more like it’s a community center. I’m getting the feeling more that it’s going to be for the community,” stated Barbara. Caroline was excited about the opportunity to take her classes into the building, but was not sure if this would actually happen.

Jane scowled when asked to discuss the VECC. “That room” she called it. “I disagree with that room…Instead of going to the mall on Friday nights families are going to go to this room. I don’t see that happening! I’m not going to be there…I understand it is going to be a room open to the community six or seven days a week, where families can go to use computers for research or for pleasure. I probably won’t use it because I have a computer at home. I think they are building it with the idea that not that many
people in the area have a computer at home and I think that they do…I think the monies could have been used elsewhere.”

Maria stated: “I myself question the value of the Community building…I think that [the money] should have gone into classrooms and labs…more software related to classroom instruction…more actual working labs including portable labs. More projectors and white boards…[Then] allowed people in to use our school labs more without creating an elaborate building…a showcase…I myself don’t see the community wanting to go into the new building and use that…It would be nice to be surprised.”

George was in agreement: “When I think of the amount of money we’re spending on the computer hub…I think…maybe we could have spent that money [on] traveling carts of laptops, or another computer lab…. I think [the VECC is] a good idea…but…we’ll just kind of wait and see…if it’s used…It’s nice to offer that to people [of the community]…but I also work in the Valley and I think boy if we had that money sitting at Central High School.”

The teachers felt that the building of the VECC was more about the perception of change and district self-promotion, and less about helping students learn. Architecture influences the school’s culture in terms of its norms, it beliefs, and patterns of relationships. Designed space either brings people together or keeps them apart, establishes what is central and what is peripheral and it comprises the social geography of schooling that reflects and reinforces the schools principles of organization, educational priorities, and distinctions of power. Physical space delineates the contours of schooling that can support or impede educators in their efforts to pursue new purposes and priorities.
(Hargreaves, 2001). The building of the VECC is an investment into the structure of West Valley School District, but the schools themselves are not being changed.

**Cyclical Change**

The West Valley District’s history of adopting changes without teacher input and then abandoning the innovation led to increased frustration and uncertainty. Meaningful educational change that leads to improved teaching and learning is demanding and difficult. The teachers perceived that the district had a habit of jumping from one initiative to the next without seeing any of them through to the end.

Previous studies (Earl & Katz, 2000) indicate that teachers’ experience of waves of reform as “the flavor of the month” eventually leads them to lose their enthusiasm and their ability to sustain changes in practice. All of the teachers were able to recite a number of educational innovations that had come and gone during their time working in the West Valley district. Regina stated: “I have only been here eight years, but I have seen changes like the ALEM…That has been different. Although teachers who have been here a lot of years said it is not unlike what they did in years past. It is just called something else…I think teaching is teaching. Like Madeline Hunter and a lot of it is just good teaching practice. I think that sometimes they just call it something different.”

Barbara provided the example of student portfolios as an “initiative that was tried and failed.” She feels that teachers are “forced to try” the innovations. But each initiative is never pursued long enough to be part of your classroom. “It is a one-year emphasis…the administration asking you to implement something and then after one, two
years...we’re on to something else...whether it worked or it didn’t work...when it works it is frustrating.”

Jane explained: “[The district] tries to do too many things too quickly. It needs to slow down and work with one thing before jumping to another thing, because they never actually finish anything.” When Jane began teaching in the district, a veteran teacher said to her, “what goes around comes around.” This is something that she now believes to be true. “I am starting to agree with that…I have seen it go and it’ll probably go back around.”

Diana had also seen the changes come and go: “We went from whole group to individualized, from individualized back to whole group, now we are individualized again. So it has changed within my thirteen years here in the West Valley school district. It seems that it changes very frequently...I think in public schools they try a lot of different things instead of sticking with one thing...You just move from one thing to another and that becomes a problem for kids because they are pulled in all directions along with the teachers.”

“I am old enough now to have seen a lot of the cycles.” Explained Maria. “The ALEM cycle…the premise of having to children to be the center of learning and not lecture is very noble, but that is the way some of us have taught…it is a cycle…we were doing learning centers and we moved away from it…. Tomorrow it is individual learning and the next day it is group and back again.”

George added, “We jumped on the ALEM with full force...Well now we are being told that ALEM is probably going to end in a year or so. Once the grant money is gone, which really makes it disheartening because you think rather than looking for these
short-term grants, let’s go long-term goals. I think we’d be better off. I’m starting to really know what veteran teacher’s always said, ‘keep all your materials because twenty years down the road it’s going to come back’…That is dissatisfying also because everyone wants to see the students succeed and when you are constantly changing the playing…it becomes hard on the student after a while.”

These cycles of change are very tiring for even the most dedicated teachers. Maria concluded that she is “suspicious and weary. There is so much emphasis being put on the computer technology and dressing ourselves up being something wonderful. I want to see the follow through.”

Fullan (1982) notes that the crux of change is how individuals come to terms with the reality of the change in the context of their familiar framework of reality. In other words, their interpretation of what the change means for them influences what they subsequently do and how they do it. Successful innovation and infusion of technology in schools entails more than improving technical skills. The teachers struggled with issues of clarity and a lack of clear understanding as to what the goals of the DSD initiative were. Uncertainty and frustration emerged as recurring themes in this study.
A pervasive theme that emerged from the data was learning to change. The teachers struggled to understand the DSD initiative, but placed high value on technology in the classroom and the need for change. Being the first group of teachers to attend the I-Tech training and to adopt new technologies, all of these teachers could be described as early adopters. Cuban (1998) explains, a certain percentage of teachers adopt innovation
early because they want to renew themselves. School stakeholders across the country
have been sufficiently persuaded of the importance of computers in classrooms that they
have made significant and ongoing expenditure on computer hardware, software and
support, so much so that today, the major consideration is not whether to buy but what to
buy. Investment in computer technology by school districts is consistent with the
discourse that associates computers in classrooms with technological progress, future
employment opportunities of students as well as enhanced learning in the classroom
(Iacono & Kling, 1996).

It was intended that the WVSD would serve as resource and demonstration center
for the state, providing examples of how technology can change public school education,
achieve cost savings, and deliver education in new ways. The restructuring effort was
important to the teachers and three distinct issues illuminate the theme, learning to
change: The need for change, professional growth and development, and innovation and
collaboration.

Need for Change

George stated that the DSD initiative and the I-Tech training was what he needed
to “jump-start” his use of technology in the classroom. He states: “I still have a lot of
questions and I’m still very timid on a computer. I won’t claim I’m not, but I’m more
comfortable than I was…I’m happy with the results…it was a great opportunity. For [a
teacher] not to take it, would be very similar to if you’re a history major in college and
you decide [you] don’t want to take history electives…For someone to simply turn a
blind eye and say I don’t want to get into all that technology…it’s here, it’s going to make you better in your field…Technology is out there, so it’s best to put it to use.”

Barbara commented: “Technology is a resource, it’s a tool. I think it’s something necessary for the students…therefore I need to know it for them…Everyone is aware that technology is desperately needed for everyone from the workforce. We need to educate students in technology and be able to use that comfortably…We don’t have to convince people that technology is needed.” Barbara’s dissatisfaction with the current educational system is clearly evident and fuels her desire for self-renewal and change.

Caroline feels that technology can help her become a more effective teacher and “maybe make math more interesting to students…[I] try to think of [technology] as a tool to help teach my students and help them understand the math…With the technology they can learn, they can understand and use higher math…With the calculator I can teach them more and we can do higher-level things than we could without a calculator because we can do square roots and it’s not as you know tedious to work through the math by hand. So I think that that’s basic way that I see technology in math. The graphs, doing the graphs on Excel, they don’t have to do the graphs by hand. Although I think it’s important for them to know how to because then they understand the graph, but they don’t have to go through that every time…So as more of a tool…an enhancement.”

This “tools approach” to using technology in education was echoed by Barbara: “[A]s a science teacher [technology] needs to be used as a resource…With television, computer games, Instant Messaging, students are not impressed with what we used to think of as the normal way to educate the students. The attention spans are shorter and the fluff, the color, the hearing…the tactile connection they’re constantly bombarded with
outside of school…I think that those kinds of things [should] be in school because then [students] would be more interested. If they’re more interested there will be less discipline problems and there will be more success.”

Diana concluded: “I know down the line everything’s going to be computerized so I might as well get involved now…Even though sometimes I do feel like I’m at a loss…in the dark.” George sometimes feels the same way: “I don’t understand technology at all…I mean I don’t even try to understand how technology works. A student showed me a mother board off of a computer the other day…and he starts telling me this and that…I [will] never understand [how they work]. But whether you like it or not technology is here. It’s increasing every day and it’s expanding every day…Technology is something that I need to come to terms with, as I’m trying to do, and I need to grasp the scope of it. Even if I don’t know how the individual things work, which I never will, I need to be able to respect it and understand it. You just can’t brush it off and say someone else will teach that. The more technology we see in our district the more technology I hope to be able to teach kids…I tell the students it’s like the sun coming up in the morning. You see a little bit of it and then 20 minutes later it encompasses the whole sky. That’s how technology is. We’re seeing a little bit of it now.”

Maria felt that the DSD initiative “was a way to fund some of the technology that the school district wanted to bring in…and had found difficult.” According to George “The DSD is going to be essential, however the more I look around I realize how far behind our district was…with computers, with technology. I myself was far behind the eight ball so I guess I didn’t realize how far our district was behind…Now the digital
district idea has just created a surge that all of a sudden is coming in and we [are]
hoping not only to bring ourselves up to speed with other districts, but to leapfrog above
them. It’s going to take a while…We are so far behind technology-wise…It’s a lot of
catching up.”

Caroline commented: “Other schools have more than we do as far as technology.”
Diana agreed: “I’m seeing other schools now, they’re getting laptops for their classes and
it seems like we’re so far behind…when is our turn to get items that we need for
technology?..I see in the newspapers that other school districts have laptops for their
students…[O]ther school districts that did not get the grant have way more things than we
do…it seems like they’re going faster.”

“I am hopeful” commented Barbara, that technology “will be in our classrooms
next year and that we will see some things that even other districts who don’t have digital
grants are experiencing.”

Professional Growth and Development

Barbara stated: “Since education is always changing you can never be 100%
ready because there is something more to learn there is something more to do. Maybe that
is a good thing…[But] I tend to be a perfectionist and in this business…you never are
finished, you are never done and for someone with my temperament for a long time that
was difficult.”

Teachers, like their students, are learners. The Digital School District initiative
required new learning on the part of teachers. A report from the National Center for
Education Statistics, "Teachers' Tools for the 21st Century," found that the more hours teachers spent in training, the more prepared they felt to use computers and the Internet for instruction (New Challenges). NetDay (2001) report that teacher’s require focused professional development on how to integrate technology. The U.S. Congress Office of Technology Assessment (1995) reported that the majority of teachers they surveyed felt inadequately trained to use technology resources, particularly computer-based technologies.

The WVSD recognized this and provided all of the teachers within this study ten days of technology training during the summer break. As an incentive to participate in the training, members of the “I-Tech Team” received a new laptop computer and a $1000 stipend. The training was provided on site by Temple University.

In the past Regina had attended technology workshops offered by the district and the Intermediate Unit. She explained “I never felt they were adequate because for those two hours or the couple days I was there I felt that I really knew it and two weeks later I didn’t know it. With the I-Tech this summer it was two weeks of eight hours a day…By the end of that I had this great comfort level…It was very intense and I worked for two weeks solids…By the time I left there I felt like I really knew how to do this…That is why I [thought] the training over two weeks was very good…It was the best…[T]hat was the first time I felt that someone was really training you because not only was he the techno geek type guy . . . if we asked him something he knew it, but he was also an educator…I felt like he knew both, it was like the best of both worlds. That is the other reason why I think it was great, he was wonderful…I mean it was intense but we left
there…after two weeks…feeling like wow! But usually you go [and] they can’t answer your questions. That was the first time I thought my questions were all answered.”

The structure of the training was mentioned on many occasions as ideal. Maria commented: “I have learned through my other workshops…but you forget so much. I like the idea of having extended period of time to work and practice.”

Barbara explained that the DSD initiative was the reason for her involvement in the I-Tech training. She stated: “I wouldn’t have taken the course last year…and that course I think changed my life. Before that I was very afraid of technology…I loved the course and it was the best thing I have ever taken.”

Maria agreed: “The I-Tech team training that I had in the summer was the best I have had yet and it was because it was two weeks, hands-on, so you weren’t forgetting as much…Part of that was the teacher from Temple…we had a teacher that was well learned. He knew the technical side, he could answer our questions…He knew the technical side and he was a teacher. He knew how to relate it to the classroom, anything I had had before was one or the other, not both…He had insights for application that others haven’t always had. He had suggestions…brainstorming about what if you only have one or two computers in the room how can you have students use those. A person who doesn’t have classroom experience may think that they have ideas, but they are not practical and it made a real big difference.”

“The I-Tech is the big one” when it comes to Caroline’s past experience learning about technology in the classroom. “That was two-weeks in the summer. I really learned a lot there…I wanted to learn more about excel and PowerPoint and those kinds of things…I kind of liked being the student instead of the teacher. I enjoy learning and that
appealed to me…[W]ithout [the DSD initiative] I guess we wouldn’t have had the I-Tech in the summertime, and through that I learned to think of technology in different ways, as a tool to use in teaching.”

George was also very complimentary of the I-Tech training. He stated: “That was really the most computer training that I’ve had. I thought that was tremendous. I thought that was very good, and again someone who hasn’t been exposed to a computer a lot, that was really the most in-depth training I have had. I have been able to put some of that to use.”

Going into the I-Tech training Jane had some doubts. She recalled: “I had a lot of second thoughts because I didn’t think I was smart enough in the computer area to do it and I thought I’d feel really stupid. I picked it because I wanted to learn more about the computer. I figured that if we did this grant we are going to have to [teach with technology]…I found that it is harder for me to grasp onto things than it is for the younger teachers because they have dealt with [computers] more than I have…So that was one of the reasons I wanted to [attend the training]. I am not afraid and I wanted to learn more…It was really grueling, but…I felt good about it, I am glad I did it.”

Diana felt that the I-Tech was very good for her, but “it doesn’t mean it’s going to be good for everybody. Teachers have their own ideas and if you feel comfortable with technology then use it in your classroom. If you don’t there’s other things that maybe you do better than somebody that uses technology…That is why I wouldn’t want to force [the I-Tech training on all teachers]…I know when the [district adopts] new programs I don’t like it forced…I really look and see if it’s the best thing for me and for my class…I don’t think it’s a big set-back, especially if the teacher does not want to do it.” At the
same time Diana is hopeful that others teachers will be become more interested in technology and consider attending in-service opportunities offered by the school district.

Jane would recommend the I-Tech training to other teachers, but stated: “I wouldn’t make it mandatory…I don’t think you could put teachers in there yet that don’t feel comfortable with [technology].”

George stated: “I’m glad I did it…[Unlike] a lot of teacher training that they offer…I thought this was actually applicable and I actually learned a lot…It was a great decision and I’ve been encouraging everyone who plans to use technology to do it. Even the people who don’t plan to use it I tell them if they would go through the training they might see a different side of it…I understand teaching as being a career where you gain insight… an opportunity to keep learning…Some fields even though we say we encourage people to become a lifetime learners, some people don’t learn much outside of what their job is…Whereas education pushes you to always be learning.”

More learning opportunities are needed according to the teachers. Diana commented: “[I would like to] have a refresher on how you do things that I learned… things are constantly changing and being updated…[I] want to learn how to do those things…They are offering us training this summer…and I did sign up for it. But during the year we haven’t seen anything.”

Regina stated: “Any training that [the district] give us or any classes especially those that have to do with technology I would go to…I just went to a Middle School conference [and] every workshop that I could go that had anything to do with or I thought would help with the digital initiative I went to. [It was good] to see how other schools
were using technology and different programs that they implemented in their schools…I would go to school forever if someone would pay for it. I would because I love school.”

Looking ahead to further her learning Barbara stated: “The IU is offering a whole host of technology courses that…I’m assuming we could sign up for…PageMaker is [a program I would like to learn more about]…I’m hoping that I can go to that…I don’t mind putting in the time myself like in the summers.”

Market Data Retrieval found that spending for professional development increased by 3 percent between 1999 and 2000, with schools estimating they would spend roughly 17 percent of their technology funding on staff development (New Challenges). The teachers within this study identified professional growth and development as crucial to their integration of technology and to the future success of the DSD initiative.

**Innovation and Collaboration**

The WVSD administration were hopeful the ‘I-Tech Team’ would lead and provide assistance to the other teachers in the district. While teachers like to learn from each other, it was unclear as to how and when this would happen.

Caroline understands her role as a teacher within the West Valley district and as an I-Tech team member to be an “innovator”. She explained: “I believe that they want us to…let other teachers know things…[to provide] information to other teachers. Maybe encourage others to want to learn…and for us to maybe informally show people how to do things, so that they can do them with their classes…To be like the starting point for technology in our school…To be one of the teachers that is using technology in their classes.”
Many of the teachers shared this vision of being a role model to other teachers. Barbara described her involvement in the I-Tech training and DSD initiative as an “ongoing process of developing projects using technology for the students…[to serve as] a resource person for other I-TECH peers and [to] convey the positive aspects that they’ve brought to my teaching and my confidence in using computers.”

George added: “I think my role is to be positive about it, to try to implement what I’ve done, to positively discuss that among my colleagues, but also be very honest with them. Try to recruit people to continue to be involved in it. I think my role is also to display what I’ve done and…to help others.”

According to Fullan (2001) there is a strong body of evidence that indicates that peers are often the preferred source of ideas for teachers. On the other hand, the evidence is equally strong that opportunities to interact with other teachers are limited, and that when good ideas do get initiated by one or more teachers, the support of others is required if the ideas are to go anywhere.

Many teachers reported that they had collaborated more with colleagues since the DSD initiative started. For example Caroline and Regina worked closely with the computer teacher at the middle school. Caroline stated: “[I am] helping and complementing the computer teacher because she teaches them how to use [technology] and then here they are really using it to complete their work, applying it…[Working] with the computer teacher has been…a result of the digital school district initiative because I wouldn’t have been using the lab.” Regina added that the computer teacher has been “great” and she “adapted her curriculum” to align with the curriculum of the classroom teachers.
Heading into the I-Tech training Barbara recalled: “I already knew that I wanted to do that with one of the interdisciplinary units…It was a suggestion that we bring a partner…so I thought if we both worked on the interdisciplinary unit that…would be beneficial for the students the coming year…We did do most of our planning, our projects on interdisciplinary units, which seems to have worked out pretty well except that we don’t have materials. But it can be successful in the coming years.” Caroline adds: “Working with Barbara on projects appealed to me…we work well together and since we are on the same team we thought we could come up with some things that we could do with our students in ID. She teaches science and I teach math and that works together well.”

Teacher collaboration was encouraged before, during and following the I-Tech training. Barbara stated: “The reason that I-Tech…was so beneficial is that we felt comfortable with the network of peers…sharing those two weeks together because at first you know it’s human nature not to want to admit I don’t know how to do that…There was a lot of time to develop our own projects it was easy to…develop that rapport with them…I think that in being comfortable with the fact that I have colleagues who I can go to and ask questions. I’m more daring to require something that takes technology because I know that I have a quick backup if I would run into some trouble.”

Collaborating with other teachers is part of her role stated Diana: “I’m a member of the I-Tech team and I feel I know a little bit more than some people…if [other teachers] have a question they can come ask me…But I wouldn’t consider myself [to] know everything…we all just help each other…[The three I-Tech members in the
elementary school] have informal [meetings] in the hall when we see each other…If I have a question we’ll go and discuss things.”

Although increased teacher collaboration and interaction was more pronounced at the elementary and middle school levels, George felt that he and Maria “touch base a good bit” due to their involvement in the I-Tech training and DSD initiative.
Chapter 7

BARRIERS TO CHANGE

Overview

Educational change is highly complex and the profoundly political system in which teachers work shapes and constrains their efforts to improve or change it (Bascia & Hargreaves, 2000). There were a number of significant and noteworthy barriers that the West Valley teachers encountered during this study. Four distinct yet interconnected issues emerged: technological know how and support, lack of teaching and learning resources, intensification and time constraints, and limited opportunities to meet.
Technological Know How and Support

Experts in the field of technology acknowledge that technology involvement can pose an intimidating challenge under the best circumstances. Most teachers feel threatened by this challenge because it represents a journey into the unknown, and they know that they are inadequately prepared (Fisher & Dove, 1999). Teachers grew up in an environment that had far fewer electronic technologies available and many find the adaptation to working with computers difficult (Bigum & Kenway, 1998). From the outset, teachers were concerned about their limited knowledge of educational technology.

Barbara identified her “own technology savviness” as a barrier to integrating technology into her teaching. Prior to the I-Tech training Barbara questioned her own abilities. “Would I be able to go in with enough knowledge in order to do the activities.” After the training she stated. “I like the fact that I’m getting more comfortable with technology…where before I was always very nervous…It is amazing that this disbelief in my ability to learn something new as far as technology is concerned has been almost erased. That’s a nice feeling to progress to the point where you’re not ashamed that you’re not an expert, but yet you are really excited to see what else something has to offer…[The I-Tech training] changed my life. Before that I was very afraid of technology.”

A recent report by the National Center for Education Statistics (NCES) found that only 33% of teachers surveyed felt well or very well prepared to use computers or the Internet in their schools. Sixty-six percent of teachers sampled stated that they felt only
somewhat prepared (53%) or not at all prepared (13%) to use these educational technologies (Rowland, 2000).

Jane commented on the other elementary teachers within her building and their comfort level with computers: “There are a couple [of teachers] in this building [that would] just as soon cover their computer so they wouldn’t have to look at it. They are afraid of it. I was never afraid of the computer…I am not up there where I am supposed to be with my knowledge of technology.” Going into the I-Tech training Jane stated, “I had a lot of second thoughts because I didn’t think I was smart enough in the computer area to do it and I thought I’d feel really stupid. I picked it because I wanted to learn more about the computer…I found that it is harder for me to grasp onto things than it is the younger teachers because they have dealt with [computers] more than I have. [Younger teachers used computers] in High School, they did it in College, and I didn’t. So that was one of the reasons I wanted to learn more.” Jane recalls the first day of the I-Tech training. “Most of the teachers were in their forties, so they were not great [and] I’m not so great.”

Diana had reservations prior to the I-Tech training: “I had some apprehension like they’re going to move so fast [and] I’m not going to know what I’m doing…I wasn’t worried about [being] the one that didn’t know anything because I was probably the one that didn’t know a lot and I didn’t care…I felt everybody else is probably in the same boat as I am.”

The teachers within this study increasingly used technology in their teaching and in their classroom, yet serious challenges remained in providing ongoing technology support. Inadequate technology support has often been acknowledged as a barrier to
effective teacher use of technologies. From a 1998 nationwide survey of schools and teachers Ronnkvist, Dexter, & Anderson (2000) reported that only 25% of the nations K-12 teachers have technology support available to them when they need it.

Maria concluded that technology support is needed district wide. She had the following recommendation: “Make sure there is an available tech person in each building to trouble shoot…Some of it simply being shown…just the practical kinds [of things]…How this equipment works and just doing it with helpers about you…I still don’t know how to use the projector…The other piece…some people have trouble with their computers, their laptops, and there has been a miscommunication and misunderstanding about how to get them fixed…understanding who’s in charge of what.”

Teaching a classroom full of students in the midst of some activity that requires technology when the system goes down requires flexibility and skill. If technical problems arise frequently and teachers have to wait hours, days, or weeks to get them resolved, they will abandon their efforts to incorporate technology. Thus, quality technology support is needed. At the elementary school the issue of technology support is being avoided according to Jane. The elementary school did not have a computer teacher, and for Jane this was very frustrating. “We don’t have a computer teacher, so they made us be the teachers, which I was dead set against…If you check all of the districts around they have a computer teacher. The kids go a couple of times a week to the computer room and they are taught specific things. If you are not willing to do that then the students are not getting it.” One of the elementary teachers within the building has been designated as the technology support person. Jane explained, “she doesn’t teach she is a problem solver…As a teacher they have in-serviced us on different things, and then it is your
responsibility to take your class down [to the computer lab] every week…Most of the teachers just go in and have the kids play games.”

Maria stated: “[Within] this school district what often happens is we use someone like myself that has learned something, but doesn’t know it inside and out, to train others…Teacher’s helping teachers is one thing [but] teacher’s training other teachers I disagree with…We don’t know enough…we should not be trainers…they need to bring in other people.”

Lack of Teaching and Learning Resources

Education Week (Technology Counts ‘99) reported that a lack of resources was a key reason why teachers were not using computers more in the classroom. With total state funding exceeding $4 million the issue of resources should not be barrier with the West Valley schools. However, decisions as to what resources would be purchased by the district had yet to be made. Teachers were unsure as to what technologies would enter their classrooms and would be available to them. Diana noted: “I’m seeing other schools now, they’re getting laptops for their classes and it seems like we’re so far behind…when is our turn to get items that we need for technology?”

Caroline attributed the “un-availability of the computers” as the reason why she felt that the WVSD was not yet a Digital School District. Regina responded: “I think that a lot of teachers are willing, but it is frustrating especially for the ones that did the I-Tech training…We were all excited and we did this 2 weeks [training] before school, came in and [we] can’t do it because we don’t have the stuff. So that makes it hard…I was a little frustrated.”
Many teachers shared similar frustrations. Barbara stated: "I loved the [I-Tech] course and it was the best thing I have ever taken and I see it being the best thing for our students, however I need hardware, I need all of the other things that go with it in order to be able to successfully do that. I find that very frustrating at this point…I’m hopeful that things could be the way I would like them to be. I’m disappointed that because of the I-Tech training that it’s not ready for our use…I don’t have the resources.”

George added: “[For] someone who hasn’t been exposed to a computer a lot, that was really the most in-depth training I have had. I have been able to put some of that to use. Some of that I haven’t been able to use yet because of the logistics…I can’t run the Internet with my laptop because…of a wiring conflict. So each time you find a way to meet a problem, something else comes up. The students pick up on that really quickly.”

A lack of resources was a prominent theme from day one of the study. Maria voiced her concerns: “I learned how to do PowerPoint…I had the software, but no projector…That happens here a lot. You learn something, and then there is no outlet…Three years ago I started to put grades on a personal web page. It fizzled out because again you couldn’t get the access, it wouldn’t work…many barriers.”

The teachers felt that the district needed newer computers and resources. Regina explained: “The equipment we have we’re using now is like old and outdated and we still don’t know what we’re getting.” George was in complete agreement: “Some of our resources just aren’t as cutting edge as what we wanted…We only have one CD burner in the school…[with the LCD projector] it all depends what day [or] what mood it is in as to whether it transfers over from the laptop or not…I would love to have open access to a scanner…[In the High School] we have two scanners but one is in the art room and one is
in the business room, it is just tough to get to. Hopefully as that changes and we will get more [resources]…and the time to work with it.”

This lack of resources made many of the teachers “nervous” when it came time to plan lessons. Caroline elaborated: “I think what if . . . I have all this ready to go and I spent all this time preparing it and then it’s not there…or it doesn’t work…That kind of thing is a barrier for me…If [we] had [more equipment] that was more readily available, and knowing how to use [it] that…would be better.”

Bringing the technology to the students as opposed to taking the students to the technology is how Barbara envisions teaching in a DSD: “To me it’s important to have [technology] in our rooms because if you have everyone on a computer and Johnny and Suzy get finished and you’re in a computer lab it’s not your own room, Johnny and Suzy sort of have to tread water. Whereas if you’re in your room you have other resources…I have the ALEM wait time activities, I have the lab centers, I would have my own computer set up for enrichment…[With a computer lab] that is someone else’s and will they be bothered that someone threw a gum wrapper on the floor and I just didn’t happen to see it…I think that’s part of it too because I think I feel like I’m borrowing someone else’s [classroom].”

The computer labs within each of the three schools came under increased scrutiny. Caroline explained: “The computer lab down here is unreliable…A lot of the computers are older and they freeze, so we’ve had that problem. They’d freeze so I’d say turn it back on, then we would go through the password business again…There is no printer hooked up…Yesterday afternoon I had kids down there doing graphs and had them save them to a disk and then I came here after school and I had to print them after
school because I wanted the hard copies.” It is important to Caroline that the computer labs are updated. When asked to explain what improvements are needed Caroline explained: “Just to make sure all the computers are fixed and they all work and they all save and it would be nice if there was a printer in there so that they could print there and not bring everything up to my computer…to print. They’re slow too and I’m not sure why.”

The sharing of resources and lack of space were also prominent themes. After observing George attempting to teach in a computer lab at the same time as the special education teacher lead an activity with a small group of students his frustrations were understandable. George resigned: “Very few times you get those computer labs on your own. And, and that’s what affects the people who have larger classes. You know you might as well forget trying to squeeze . . .30 kids into there.”

Maria explained: “That is part of my negative feel, I was using more [technology before the DSD initiative] because now we are competing more for the labs, time and space. The equipment is breaking down more and my headsets have been stolen. Increased usage…Things break down and are not always replaced as quickly as could be…a lot of that has to do with quality, we don’t always have quality…to have to do less sharing down the road. I think sometimes we teachers haven’t used as much in the classroom as we might, and some people have been reluctant to even start because when you have to share too many things and you have to negotiate days and times to share equipment you finally say what the heck I won’t bother. So I like to see the money spent on more quality and quantity…[The grant money should be spent in] classrooms and the
labs…[If it was] I think we would see more teachers using it…The more sharing you have to do with equipment the more it won’t be used.”

Sharing resources and relying on other people was a vexing problem for Barbara. “I also find it difficult to wait for someone else’s timing…I have started taking memory book pictures on digital camera and it’s okay, but it’s a worry because I don’t have the software to upload the pictures myself and have to rely on other people to do that. I also have to share the camera with whoever wants the camera and that’s fine too, except that a lot of teachers and a lot of things that happen are spur of the moment and I’m not a spur of the moment person. So if I have plans for a whole month and I post it that I am taking these pictures on this day and someone else has food already prepared and they’re taking pictures to make a cook book with the students, then I have to work things out where I keep thinking we have both wonderful things but we should plan it well enough ahead, but you can’t control other people to do that. I am finding it very frustrating and I hope that changes.”

Prior to the I-Tech training the teachers were asked to sign a contract requiring them to submit student work and teaching materials produced using new technologies. Regina explained: “The concern I have is not having equipment available to me…We signed a contract that we had an obligation of submitting student work and showing that we were using the technology…I feel like I haven’t done my part…It is because there is a lack of equipment…I hope that when we get the equipment… it sounds like a broken record, I keep saying that, we will be able to use it and have it become part of [our] every day [teaching].”
When asked about the technologies they would like to see in the WVSD the purchase of laptops for students and teachers was strongly supported. Caroline stated: “If [students] had all received laptops then I would probably do more with technology because I know that they would have one right there and we wouldn’t have to share one laptop or two computers that I have in my room…I teach something to them and then it might be like a week before they would get on the computer…Once we see the equipment that will be better.”

Having laptop computers for all students that are wirelessly connected to the Internet was a popular suggestion. George explained why: “I’m somewhat limited to what I can discuss now in class because I have to address items that…are in the book or…easily…accessible…You could do a lot more in-depth work…if you have students on the laptops…[they could] open some websites, get more information. …That information is only as good as what the students can do with it, so that is where my job really comes into play.”

Regina shared her wish list: “I’d love to have a presentation board, like a smart board in my classroom…I would use it all the time…I have tried to hook my laptop up to the computer and it is not big enough for the students to see or not clear enough…I would love to have…a wireless lab or like a cart to wheel in… It would be great if [students] all had a laptop. Now getting back to the frustration level of the teachers, they don’t even have laptops and they kind of felt like maybe with this initiative somehow…we would get a laptop…I think the teachers really want one because of the [online grade book].”

When describing the types of organizational support needed for the implementation of educational technology Ely (1976, 1990) identified extrinsic rewards
or incentives as important. Having their own personal laptop computer was significant to all of these teachers. Regina stated: “[G]etting a laptop [is] something that is very important to the teachers in the district and I don’t know if the administration is aware of or understands that. But it seems like that may be a petty or a material thing but…I love mine…Soon we are going to be on this new grade book. I know that a lot of teachers will want a laptop so that they can take them home. Maria beamed: “I really, really enjoy having the laptop and to go off in a quiet place and do [work]. In the school setting I like having the laptop.”

Becker (1994) found that exemplary computer-using teachers taught in schools where there was awareness and support of the resource requirements teachers needed to effectively implement educational technologies in their classrooms. “This condition refers to the things that are required to make implementation work. It includes hardware, software, publications, audiovisual media and other teaching materials” (Ely, 1990, para. 15).

Maria concluded: “I am pretty confident that…newer and better equipment…will come. I do wonder about whether there will be enough to go around so that things are truly accessible, and whether there will be good maintenance and upgrading.”

**Intensification & Time Constraints**

Time is a chronic problem in almost all kinds of teaching. It comes with the territory. This is due to the nature of teaching itself as an endless job that is never finished, never over, never done (Adelman, Haslam, & Pringle, 1996). Time has long been recognized as a serious obstacle to successful school change (Fullan, 2001). Time is
usually at a premium when changes are imposed. Teachers are rarely given much time in which to acquaint themselves with the change and to plan and prepare for it (Sikes, 1992).

According to NetDay (2001) time is the largest obstacle for teachers using technology. Seventy eight percent of teachers rated time as their greatest barrier to using the Internet and technology within the classroom. This suggests that if teachers have more time, they may be better positioned to integrate the Internet and technology. In a report from the National Center for Education Statistics, "Teachers' Tools for the 21st Century," 82 percent of teachers said they were not given enough time outside their regular teaching duties to learn, practice, or plan how to use computers and other technologies (New Challenges). In addition, nearly 4 out of every 10 teachers in a survey conducted by Education Week (Technology Counts'99) who don’t use software for instruction reported the reason as not having enough time to try out software.

When asked how teaching in a Digital School District will affect her personally Maria explained: “I think that it will demand more of my time, preparation time for PowerPoint presentations, preparation time to develop activities for the kids. All that is extremely time consuming and you can save time by using other people’s ideas on the Internet but it takes time to find them and to modify them to your classroom…I wanted to have a teacher web page and…I wanted to keep that updated. Now it takes time to make the web page, it takes time to keep it updated…I am always fearful when you are asked to do more, and more time consuming things. It still amazes me today [when] I think that I am going to just sit down and do a PowerPoint presentation, well it takes hours to [produce] a quality [presentation]. The kids become more and more accustomed if you
put bells and whistles on, and their expectations grow. So I am very fearful of us losing
time to do these things in the future and to have good preparation time.”

The teachers had little time to explore new resources during the school day and
frequently discussed time as a mitigating factor in their preparations to integrate new
technologies. Diana commented: “I don’t see how they’ll be able to provide us enough
time to get everything done…so that’s a big concern. I think sometimes things look good
on paper but when it comes into actuality of doing it, it’s hard to get it
accomplished…that’s what my worry is about actually doing it…I think [the DSD] is
interesting. [But] I have some concerns about it…When are we going to find the time to
sit down? I’m going to have to spend a lot of time [putting] my lesson plans [and] grades
[on-line] that is a concern of mine.”

“Having less time,” is how Jane understands the impact the DSD initiative. “I
am not going to have enough time to do [all of my work] in school, so I’m going to have
to do it at home…which some do anyway, but what I see coming I don’t want to do at
home. I try to do most of my work before I go home.”

Barbara would like more “time to investigate.” She provided the following
example: “When you go to conferences and they give you a little taste of web pages and
then they list five or six other [sites to visit]. When do you have the time to do that?”

The adoption of an on-line grading system has added to the problem of teacher
time. Caroline had mixed feelings about the new grading program and explained: “As a
parent it will be nice to be able to check my son’s…grades. At school I am hoping that
eventually parents will be able to check how their students are doing…I think that is
important…because a lot of times they don’t know…But on the other hand that means
that I have to enter all my lessons and all my assignments…the grades will have to be entered on time, which I don’t always get around to doing right away after the tests or homework assignments…[It] is going to create even more work…I don’t need a whole lot more work for myself…I spent an hour entering grades on Friday [and] Saturday and it shouldn’t have taken me that long because I didn’t enter that many…It just took forever to do…[Technology is] exciting but at the same time it’s sometimes wearying.”

Other teachers are also concerned about the new grading program. When asked about the grade book George stated “I’m still very concerned with time on that.” Maria added: “I am not tickled with the program because it is quite cumbersome…it is not intuitive…very time consuming. I think that the benefits are good, that parents and others can get in and see all of this, but time…I am not sure that this particular program that the benefits outweigh the time that it takes to do and the cumbersome manner, but we shall see.”

Clearly, time is more than a trivial problem to these teachers. Shortage of time warps the course of innovation. It draws teachers away from their students and drains the energy of teachers themselves. Many researchers have remarked that the work of teachers is becoming more and more intensified as teachers’ responsibilities widen, the pace of change increases, reform initiatives are heaped chaotically upon one another, and self management diverts teachers from the classroom to attend to the growing burdens of administration or committee work that used to be managed elsewhere (Adelman et al., 1996; Apple, 1989; Densmore, 1987; Hargreaves, 1994; Robertson, 1993)

Intensification emerged as a theme throughout the study. Regina commented: “I love teaching. It is like a lot of the other stuff that goes with it I don’t like. If I could
come in everyday and just shut my door and teach it would be a great job. But there is the
down side to it. There is a lot of the paper work or different things you are asked to do
and it sometimes I feel it takes away [from teaching].”

Caroline and Barbara spoke at length about family responsibilities. Caroline
shared: “Right now I am at the point of my life when it is real hectic because I have two
small children…five and nine…With all the changes and things that are going on in
education right now, it hasn’t gotten any easier. Especially with my children at home that
demands my time at home. It is hard sometimes to get everything done and sometimes I
have to just prioritize…They keep me pretty busy.” Barbara added: “I don’t think we
have enough time for everything. I mean family, being prepared for school I think the
students should have to go longer because we feel so cramped to get the things in that we
need to teach them.”

Maria summarized: “Some of us do many things. You either do a little, or you do
a lot and there isn’t necessarily a lot in between.” The teachers within this study
unquestionably do a lot. Maria is of the opinion that if the district administration were
more sensitive to the issue of time and provided teachers with adequate preparation time
they would be more willing to integrate technology into the classroom.

If there is a single thing that teachers always need more of, it is time. The role of
teacher is becoming more complex, while time to accomplish teachers’ work generally
remains fixed. It comes as no surprise that teachers often wish that school reform could
be slowed down, or put on hold.
Limited Opportunities to Meet

Educational change is a learning experience for the adults involved as well as for children. Teachers need to participate in skill-training workshops; they also need to have one-to-one and group opportunities to receive and give help and more simply to converse about the meaning of change. Under these conditions teachers learn how to use an innovation as well as to judge its desirability on more information based grounds; hence they are in a better position to know whether they should accept, modify, or reject the change (Fullan, 2001).

Providing teachers with opportunities to work together can help to improve the quality of curriculum, teaching, and learning so that teachers can prepare for their students and cope with new technologies. Reductions and restrictions in their preparation time hamper teachers’ abilities to innovate effectively and limit the quality of what they are able to prepare for their classrooms (Hargreaves, 2001).

Relationships and strong collaborative cultures in teaching are powerfully linked to effective classroom learning, stronger professional confidence, and feelings of self-efficacy among teachers and teachers’ capacity to initiate and respond to change. Numerous studies document the fact that collaborative work cultures at the school and ideally at the district level are critical for the implementation of attempted reforms (Fullan, 1999; Fullan & Hargreaves, 1996; Hargreaves, 1994; Rosenholtz, 1991).

In an attempt to create time, both quantitatively and qualitatively, West Valley attempted to provide up to six days during the school year for teacher professional development. Much of this professional development was to focus on technology and to provide the I-Tech team members with opportunities to meet.
George commented: “I think a number of us have hit some different snags, which have caused us not to maybe be quite as technologically integrative as we wanted to be. I believe we also wanted to be able to meet as a group more…to follow up ideas…even be able to make some decisions…like maybe what type of software to purchase…I’m anxious to be able to work with other people.”

Barbara shared: “It would be wonderful if we would have in-service updates where we could [learn about] the technology that we’re using…The trouble that I’m finding is the people who are using technology such as I-Tech people are also the ones that are trying out to do other things. And so you have to be in three different places at one time…I always hate the fact that you might have to think about getting a substitute…working and practicing while the students are still there…On May 3rd we had a half-day that we could be assigned to I-TECH and there were three of us there…from the 18…I had a choice between two things…both of them were extremely important. One of the aspects of the I-Tech team is to have this camaraderie and be able to work together and to solve the problems and it’s not the priority that it probably should be. And administration will say yes it is a priority but then they’ll set up several things that you need to be part of and one thing you’re leading.”

Regina stated: “They had us all excited to about [being] part of team, the first [I-Tech] group going through, this is the start of a new initiative, and you will meet. They made it like we were going to be this team, the I-Tech team. We have never been together yet. Even when they scheduled an in-service they had half of the people tied up in some other committee, or doing something, so they couldn’t be there. They had it so some could meet and others could meet, but never that we could all sit down together and talk.”
Maria continued: “We are supposed to be meeting as a group time to time, like during in-service, and it happened once…It would be useful to continue some of the same brainstorming that we had before, kind of being on the same page, and having an idea what each other is going to do in the classroom. Coming together and saying this worked, or this didn’t work…I think that there is so much going on that was kind of forgotten…We [I-Tech members] could be taking more initiative and saying we must meet, and put ourselves on the schedule. I have tried to put us on a couple of times in the past and it hasn’t worked…But I get tired of being a squeaky wheel…The elementary teachers are not given as many opportunities to work outside certain assignments. We have a little more flexibility at the High School level, but again then some of us do many things.”

At the elementary school level things were even worse according to Diana: “[It would be] nice to have the group together, but in elementary we don’t have the time…The last time we had an I-Tech meeting I was the only elementary person there…they were doing things like…looking up poems for…their classes…that’s interesting but out of reach for my kids…[T]hings are constantly changing and being updated…[I] want to learn how to do those things…But during the year we haven’t seen anything. And basically what happened is the middle school and high school [teachers] will have the training but we won’t because we’re expected to go to like guided reading or some other program for elementary.”

Like the other teachers Maria would like more opportunities to meet with her colleagues: “[Regular I-Tech team meetings would be a good idea because teachers could] update one another on websites and tools…that we’ve found in our
work...Troubleshooting [and] communicating . . . [A] way to communicate better about things like the teacher web pages, other trainings.”

Overall Regina was disappointed: “When we met originally they said the whole team would meet...and we’ve never been together...We thought [it] would be nice just to see who’s done this, who’s done that, who’s had problems with this, and we’ve never gotten a chance to get together.

We have long known about the value of collaboration between teachers. Rosenholtz (1991) study of teachers’ workplace is a good case in point. Her study indicated that shared meaning among teachers and other stakeholders characterized those districts that were continually improving. According to Fullan (2001) there is a strong body of evidence that indicates that peers are often the preferred source of ideas for teachers. On the other hand, the evidence is equally strong that opportunities to interact with other teachers are limited, and that when good ideas do get initiated by one or more teachers, the support of others is required if the ideas are to go anywhere.
Chapter 8

CRAFT PRIDE, CARING AND RESPONSIBILITY

Overview

Educational change is intense emotional work that draws on and affects a vast web of important, meaningful human relationships that make up the work of schools (Hargreaves, 2001). Educational change efforts affect teachers’ relationships with their students, the parents of those students, other teachers, administrators and external agencies. Teachers make heavy emotional investments in these relationships. Their sense
of success and satisfaction depends on them, and so can the success of educational change.


“What teachers do enthuses their students or bores them, makes them approachable to parents or keeps them at arms length, inspires their colleagues to collaborate closely with them or restricts staff relationships to patterns of politeness and noninterference. How teachers conduct and express themselves emotionally always matters. Emotions, in this sense, are central, not peripheral, to the learning standards, and improvement agenda (p. 137).

Although the teachers within this study negotiated obstacles as they attempted to implement change and teach with technology they continued to persevere. The teachers experienced what Lortie (1975) termed as craft pride, as they worked towards integrating technology into their teaching.

“The activities which generate pride among respondents are teaching duties; as with hoped for outcomes and the effects of outstanding colleagues, craft pride is centered on instructional outcomes and relationships with students.” (Nolan & Meister, 2000, p.131).

The teachers measured their success through student accomplishments and how well they had integrated technology into their teaching. The craft pride each teacher experienced was also connected to an ethic of care and an ethic of responsibility.

**Craft Pride: Teaching and Learning with Technology**

Guiding students in the development of a report on dinosaurs, and using her laptop as a center were two uses of technology that Jane was most proud of. She
explained, “I have it set up. At the end of the year [my students] have to write a report and my whole project was [about developing this report]…I did a PowerPoint on how you put a report together, how you go to the lab and research. I have a learning center [that] teaches [students] how to draw a picture for their report.” Jane also used her laptop and Microsoft PowerPoint software for producing and administering quizzes. If a student was absent and missed a quiz they would sit down at the laptop and go through the quiz on their own. Jane believed that this was a wonderful way to use technology to enhance her own productivity as she was able to spend less time away from her other teaching duties. During one of my visits to the elementary school I had an opportunity to observe Jane’s students working in the computer lab. The lab is home to 24 outdated Apple Power Macs. The students worked happily at their assigned machine clicking their way through various software titles and educational games, such as Math Blaster and i-Witness Science. A few of the students were creating projects for a class book and frequently needed Jane’s assistance.

Regina felt that part of her role as a teacher within the WVSD and as a member of the I-tech team was to integrate technology into what she was already doing, not to use technology as an “add on” piece. Using technology as a communication tool through email and ‘Instant Messenger’ was especially important to Regina. Every time I observed Regina teach her email address was clearly posted on the chalkboard at the front of her classroom. At the end of the school day Regina would let the class know when she would be online to answer any homework questions they might have. Using Instant Messenger as a form of online communication had proved to be very popular with her students. Regina informed me that she now used two screen names, one for school and homework
help and the other for her friends and family. Although she had used word processing, spreadsheets, presentation software and the Internet recently in her classroom, Regina was most proud of a project her students had completed using digital video and digital video editing. The students were given the task to script, film and then edit a short commercial that promoted recycling. Regina explained, “They made these movies, which are wonderful.” She added, “Our commercials just won a recycling commercial [competition] and we won a trip to Pittsburgh…[plus] $500 for first place, $300 for second place, and then another commercial, got honorable mention.” The middle school teachers and students involved with the project intend to spend the prize money on a new digital camera and other digital technologies.

Caroline has been teaching for eleven years and talked about the changes she has seen in the WVSD since she was a student here. “There were some old computers sitting around that we would play a game on once in a while, but it wasn’t like it is today. Even from when I started teaching a lot has changed…the Internet and email…the grading…with emails I use technology. The calculator, I use that almost every day…I try to think of [technology] as a tool to help teach my students and help them understand the math…With the technology they can learn, they can understand and use higher math…With the calculator I can teach them more and we can do higher-level things than we could without a calculator because we can do square roots and it’s not as you know tedious to work through the math by hand. So I think that that’s basic way that I see technology in math.” A highlight for Caroline was the improvements she made to a statistics project that she had developed the year before. “I had the students…use excel to find the mean, median and mode in their set…That worked out really well. That was
good I could expand upon something I was already doing and make it better…I am glad I did because I like to do new things…I get bored doing the same thing.” Caroline had mixed feelings about the Titanic unit her students had recently completed. “I felt that that was a risk because it was pretty heavily technology… They had to use the Internet to search…they used…PowerPoint, and they used Excel for graphs…It was a lot of technology. And it was…somewhat frustrating…At that time not all of the students had used Excel…before. [N]ext year…I’m going to scale it back a little bit . . .I might teach them the Excel and spend maybe more time teaching them how to make graphs.”

Barbara requires her students to use Microsoft’s Excel, PowerPoint and Word to complete projects and assignments. Barbara stated, “If I knew I could…have the technology available I would do much [more]…There [are] creative ways to get things across to the students.” Every year the middle school publishes a yearbook, or what they call a memory book. Barbara has been involved with the memory book for a number of years. She shared: “Up to about four or five years ago [the memory book] was all done manually with the rubber cement and the scissors…and it cost us more money…I started being co-advisor with the technology aide, and she was able to do the PageMaker set-up where we don’t have to cut and paste the pictures. [Every year the memory book has become] a little bit more involved with technology…We took almost all of the pictures this year with a digital camera…Technology with the memory book has made great leaps and bounds.” In the near future Barbara would like to learn more about publishing software to improve the memory book even more.

George confessed: “I didn’t have a lot of experience with technology [but] I am gaining more every day…I consider cable [to be] technology and for the longest time we
had no access to cable here. Now that we have access to cable I try to use that in class…I use my VCR for a good bit. For example a couple weeks ago we were going over the criminal justice system as we went through the criminal amendments and I brought in the film Helter Skelter with Charles Manson and we watched that and then critiqued it and wrote essays and talked about what we learned in class…[I also] use technology where I assign the students web work to do at home. However, that is a very tricky situation because you always seem to have a student who just doesn’t have access…so I have to be very flexible with that…I am now putting PowerPoint presentations to music…I bring modern day songs in that the students will listen to, and then as they are listening to the song you have PowerPoint pictures…I use PowerPoint [to present] information. I use it to have the students present [projects]. …This year I had some students turn in CDs in which they did PowerPoint presentations…I want to continue to do that…Some day [I would] like to get to the point where I can take some of those [presentations] the students did, and maybe put that onto…the Internet.” During one of George’s advanced placement classes I had an opportunity to observe his students using the Internet. During the class George explained to me that the Pennsylvania Department of Education had set up a “virtual classroom site” where students could access information they would be expected to know in order to do well on the upcoming AP history exam. Although this was a useful resource for his students, George explained that it was difficult for many of kids to access this site from home because many do not own personal computers. “It would be great to have a computer for every student. A laptop hooked to the web. I know that would cost lots of money, but it would be real nice. [When] I ask students to complete an assignment
using the Internet they come back without it completed saying their hardware crashed, they have a slow connection, brother was online, etc.”

Maria took pride in her use of technology and continues to update her curriculum. She explained: “[In] the last couple of years I have…made my own spreadsheet…grade book…[Plus] emailing parents and then the word processor…I have [had] kids on the Internet to do things like getting into an all-Spanish site where they make greeting cards…Now this year I started to move beyond that and have not been able to do much, but hope that next year I will include PowerPoint presentations…learning center type activities where I will have sites for the students to go into to explore other cultures and I am trying to develop some interactive PowerPoint’s…One I have developed has them going into…a Mexican Restaurant menu and…then going into the Internet with a currency converter…I also want to work towards a collaborative project with other schools. I am looking for schools in Spanish speaking countries that we can have a relationship with [to] email [and] send photos and such, back and forth.”

Diana explained: “I’m interested in technology…and I can see ways that you can incorporate it in other ways…it’s not like something separate…[Technology] makes it easier to communicate with people…[It is an] easier way to get information instead of always using books…to access the information quicker…[I]f I can find things on the Internet that I can incorporate into my classroom through the centers, through my PowerPoint presentations then I try to do that…I learned how to do PowerPoint presentations and I include them in centers in my classroom.” During my second visit to Diana’s classroom a quiz had been developed and placed on her laptop computer for students to use. She announced: “I have set up my laptop for the students to use during
centers. It isn’t great, just a PowerPoint on greater and less than.” Students circulated around the classroom working at their own pace on various activities and learning exercises. One at a time they took a seat at the laptop computer and worked through the short multiple answer quiz that Diana had prepared.

Ethic of Care

Teaching is a caring profession and an emotional practice. Denzin (1984) explains that an emotional practice is one that activates, colors, and expresses people’s feelings of those with whom they interact. This is especially true of teaching. According to Hargreaves (1994) teachers attach much importance to the ethic of care. He states: “In the main, existing evidence suggests that for teachers as for many members of other ‘caring professions’, care appears to be interpreted as the interpersonal experience of human nurturance, connectedness, warmth and love.” (p. 168).

The relationships the teachers had with their students were significantly emotional and involved a genuine ethic of care. A number of teachers spoke of these relationships in terms of love. For example Regina stated: “I love teaching because I love kids and I really like it. Especially this age and I started out and have my degrees in elementary. I student taught in second grade and I was sure that was where I was going to be and eight grade is a long way from second grade. I taught sixth grade here for three years and even a couple of years ago I could have gone back to sixth grade, but I like the eighth grade, but I would never have guessed it…Here I am, I love it, I love this age kids”

Hargreaves (1994) identified an ethic of care and an ethic of responsibility as requisite components for teachers to attain psychic rewards, the joy and satisfaction of
working with and caring for young people. Many of the teachers within this study identified the psychic rewards of teaching as important to them during this change process.

Speaking about her vocation Maria explained: “I’ve always wanted to do a helping kind of work and that’s related to my mother and somewhat to my father to and so teaching fit into that…I enjoy it. There are not too many things I would rather do…It was something that I was always drawn to. I always enjoyed reading and learning, but also sharing it. I have just had all kinds of experiences throughout my life that were related to teaching…I have always tried to remember that I am teaching a group of individuals, rather than teaching a subject…I like to try to connect to a person’s learning style, however, the reality of the situation is when you have thirty kids in a room that is very difficult…I haven’t always individualized as much as I might like to, but I aim for that and try to…to reach everyone out there.”

When asked about her feelings towards teaching, Diana responded: “I like it. I wish it was less paper work and more interacting with the students.” Regina understood her role to be more than just a teacher. “I like to refer to myself as the mother of the team…I think the students look at me sometimes as the mother. And not like...in a bad way…I think I’m like a nurturer. And I think a lot of the students know that.”

Maria continued: “[Teaching is] something of a calling...more than just a job...[I try] to connect with kids and help them see the world differently...opening their eyes to other cultures. The whole idea that just because something’s different doesn’t make it stupid. I hear comments like that from the kids. And expose them to that...The personal
connection and having the kids discover more about themselves and their potential and the good that they can do.”

The success of the DSD in the eyes of the teachers would be measured primarily on the success of students. George commented: “[E]veryone wants to see the students succeed.” Diana stated that her evaluation of the DSD initiative would be based on the answer to the question, “How are my kids affected by this?”

**Ethic of Responsibility**

According to Hargreaves et. al. (2001) it is important that teachers reflect upon their practice and change efforts critically when engaging in the intellectual work of change. Teachers should consider the social ends that their practice serves and the extent to which students will benefit from their initiatives.

Closely related to an ethic of care was an ethic of responsibility. In an ethic of responsibility, professional obligations are emphasized and improvements to instruction are stressed (Hargreaves, 1994). A genuine commitment not only to their own classroom and students, but to the district and community as a whole was clearly evident in this study. In addition, all of the teachers cited examples of improvements they have made to their teaching through the integration of technology as part of their professional obligations.

Regina stated: “A lot of teachers don’t like to teach in the school district in which they live, but I do because it sort of keeps me accountable. You go the grocery store, church or whatever they are the people you see.”
George shared this sense of accountability: “Growing up and living in this area helps be more in tune with the students and where some of the students are coming from because you get a feel for the demographics of the area…You know that a lot of the kids do not come from high-income homes…that a lot of the kids have not been exposed to [a] variety of culture…our kids don’t go to museums…our kids don’t go to libraries [or] to universities to do research…It helps me gear my education or my teaching more to what I think they need.”

Teaching is an occupation that holds great responsibility. Barbara commented: “I have always been someone who has been proud that I have been in this profession…I understand [teaching] as one of my top priorities. I like to think my family comes first, but oftentimes they take a backseat to the students and the school…As a teacher I would hope that we better prepare our students for future success by making them comfortable with programs and computers.”

George added: “I think teaching is a major responsibility. It is an honorable profession if you put 100% of your life into it. Like for me teaching is very serious. When students come into my room…[I] feel it is essential for them to walk out with knowledge and walk out with the idea that they can learn to think for themselves…I get upset at times when people think…the students are just pushed through or you are just somewhat of a…babysitter…My role as a teacher would be to educate students on…history…government. Not only to educate them, to prepare them to be learners, to teach them how to look at information, how to try to make analytical decisions, try to think critically about things…Also to prepare them to get a job when they leave here or prepare them to go to college when they leave here…More basically to just model for
them good behavior, positive behavior, what’s right or wrong…I think you have to also try to model that for the community as much for the students…I’m also involved in numerous activities outside of teaching, in which I try to represent the school…Some teachers put a lot more into their teaching than others, which maybe affects the credibility of the field. I also think that in the United States right now there is such a disintegration of the home life, so therefore more duties are put on the high school teacher. Not only do we need to teach history…you need teach the ideas of patriotism, you need to teach the ideas of values…When I was young we learned a lot at home off our parents, because our parents spent time with us, they worked with us, and you don’t see that now. I think that it is a good profession, I am glad to be a teacher, and I think that it is one that carries a lot of responsibility.”

Barbara felt responsible for integrating technology into her teaching. She stated: “Technology is a resource, it’s a tool. I think it’s something necessary for the students…therefore I need to know it for them…They had a flyer that went around that said there was computer skills that were going to be taught in a two-week period. It happened to be the two-week period that I tentatively set aside for my family to go to California. But I hadn’t made the official plans [and I] really want[ed] to learn more about computers…Then about a week later they came out with the list of the things that they were going to work on [such as] PowerPoint and Excel and so I went home and…I said to my husband, look at this. Should I take this? And he said yes definitely…so I signed up…I think it’s one of the best things I ever did.”

Caroline made a similar personal sacrifice. “I was not really considering doing [the I-Tech training] because it would take two weeks out of the summer and I do things
with the kids in the summer. But Barbara asked me if I was interested in it and she and I are on the same team and we work well together…so I thought if she is doing it then maybe I should do it…I talked with my husband about it and he said well go ahead and put in for it…I wanted to learn more about excel and PowerPoint and those kinds of things…We ended up not doing much of a vacation at all last summer.”

Jane struggled with the decision to participate in the I-Tech training. “I had a lot of second thoughts because I didn’t think I was smart enough in the computer area to do it and I thought I’d feel really stupid. I picked it because I wanted to learn more about the computer. I figured that if we did this grant and we are going to have to do…I found that it is harder for me to grasp onto things than it is for the younger teachers because they have dealt with it more than I have like computers because they had to do it in High School, they did it in College, and I didn’t. So that was one of the reasons I wanted to learn more. I am not afraid and I wanted to learn more.”

Regina best highlighted the commitment these teachers made everyday and the ethic of responsibility. “My husband gets mad because sometimes he thinks it’s a 24-hour, seven day a week job, and he’ll say to me does this house say West Valley School District on it?”

In this study, teachers’ emotional connections to students and the responsibility they felt towards the teaching profession as they taught those students influenced almost everything they did. Ultimately they wanted to become better teachers to help their students and prepare them for future success. We can see that virtually all aspects of the teachers’ work was affected by the importance they attached to their craft and the emotional goals and responsibilities of their work.
Although the teachers in this study felt that the WVSD was a long way from becoming a DSD they all shared feelings of possibility and potential. In spite of the barriers they faced and being uncertain as to where they were heading the teachers continued to persevere with the initiative. Maria explained: “I think it has potential…There is a lot of good that can come I just hope.”
George best verbalized this feeling of shared optimism and potential: “Right now it has a lot of…of potential…I just hope we didn’t [propose] too many [changes] that were “unrealistic” because three years from now people [will] look at that and say this wasn’t done, this wasn’t done, this wasn’t done. They start lining up that shopping list of things that weren’t done [and then] people start to say well …it failed. [B]y taking a step back three years from now and seeing where we are, what we have to do, and also looking at what wasn’t accomplished…I think you start to look at it three years from now and you’ll be able to [assess the success of the initiative]. I don’t think you can now because you haven’t seen the whole thing. You haven’t seen the whole act or the whole play. It hasn’t been acted out yet, but once it is gearing toward the end then you can get an idea…Right now it has a lot of potential to [be] successful.”

This potential is best explained through four distinct issues: taking it slowly; looking to the future; the involvement of parents and the community; and a commitment to keeping a positive outlook.

Taking it Slow

The teachers wanted changes to happen quickly, especially when it came to the introduction of digital technologies into the schools and classrooms, but at the same time understood the need for slow measured progress.

Jane spoke of a conversation she had with a district administrator at the beginning of the school year: “His whole thing was that it is going to be slow and steady like a turtle and you are going to see it happen, but they are going to have to do it slowwwwwly.
Everybody thinks that you know you jump in and we are all going to get computers, and I am getting to see that it is going to be a while.”

Caroline stated: “We expect everything to happen all at once and it has not…Other schools have more than we do as far as technology. I guess it is just slow going to get it up and running and doing things…It is taking a lot longer to get the technology here. You know by this year I thought we’d have laptops and the kids could be working on laptops. We actually thought that all the kids would have a laptop, and that is not going to happen. So we have to just re-adjust thinking I guess, but it’s still exciting though…From what I hear of this school…we had so much infrastructure to do, so much wiring…that’s why we don’t really see a lot. A lot of it is behind the scenes stuff. So I guess we were behind there. Districts with new schools are wired that way.”

Diana was somewhat torn: “I’m seeing other schools now, they’re getting laptops for their classes and it seems like we’re so far behind…We’re kind of making progress but slow progress…[O]ther school districts that did not get the grant have way more things than we do…it seems like they’re going faster. I’m not saying faster is better because it’s good that they’re taking it slow and [deciding what is] best for the school district…[We’ll] see in the long run if we went [about things] the right way…or are we just slowing up and not getting things accomplished…taking our time…I know us teachers want to see a quick, quick, quick…we want to see it come quick…But it’s good to take it slow but then you get frustrated because I keep thinking, when am I going to have time to learn how to do all this?”

The teachers frequently spoke about other school districts and compared West Valley’s progress with neighboring schools. George shared: “[T]he more I look around I
realize how far behind our district was…with computers, with technology. I myself was far behind the eight ball so I guess I didn’t realize how far our district was behind…Now the digital district idea has just created a surge that all of a sudden is coming in and we hoping no only to bring ourselves up to speed with other districts, but to leapfrog above them. It’s going to take a while and I think we are noticing that now…Although the community is asking us why we aren’t doing more.”

In many ways Maria felt that the district was misleading the community: “I think the community and people are lead to believe that we have much more in place than we actually do. Specific programs have been mentioned that are not in place, and [there is] an overall sense that everything is in place and functioning. Whereas, in fact, there may just be pieces or promises, but it is not in place, people are not trained or people aren’t using everything.”

Future plans

“[W]hen I first heard that we got this grant I was thinking that we’d have computers in our rooms and the students will be working on the computers but it…didn’t happen that way. So I guess I don’t feel like that I’m a digital school district teacher right now. I see that in the future,” commented Caroline. This sentiment was shared by most of the teachers. When asked about future plans the teachers spoke enthusiastically about the changes they would like to see and how their teaching roles could change.

Barbara stated: “[I am] excited and hopeful that all of the things that we have planned will be able to be carried out…If and when we get technology available to us I would design a lot of PowerPoint presentations. So instead of having overheads [I could]
incorporate color, music, sound, graphics to make more interesting presentations…I would use it to create track star resources in areas, particularly where things are changing. [For] example, Jupiter has more moons that Saturn and in all [the] textbooks it says Saturn has the most moons…things in science class change…This ideal classroom of mine would be one where…students who are lagging behind could use technology…as remediation. Likewise students who are in need of enrichment would be able to do more advanced work on the same topics using internet, using computers to generate reports, creating PowerPoint [presentations], using Excel graphs and then allow them to present that to the class…Just today in the paper they had [an article] about the wireless lab that we’re developing…A wireless lab would be wonderful…So I certainly hope that we can use that. Instead of using almanacs for something in science we can use computers and they can look up things…I hope to have a lot of the interdisciplinary units at first [that] have components of technology that the students need to use and produce work by using those. I hope to use [technology] as far as science…[to] see 3-D pictures of volcanoes and mudslides and the Grand Canyon…a picture just doesn’t do it justice…I hope to see myself signing up for computers to teach and enhance science, interdisciplinary units, being able to require that students research and use the computer as a resource…I expect a reasonable amount of hardware and software so that the wonderful uses of technology are available to me and to the students. So therefore I will be very happy to spend the time designing and learning how to use technology and reach the students.”

Caroline shared: “I’d like to use…PowerPoint and Excel more…I would like to have four computers in my class which would be nice to use because then I could get
eight students on the computer at a time. I mean it took me a whole week to get each student to work through excel, to learn how to do the mean, median and mode.”

Diana recalled: “I see in the newspapers that other school districts have laptops for their students…I would like to see more computers in the classroom like laptops [but] we need the basics too like having internet access…I know at East Valley Elementary School they have a wireless system. That would be something that I think that with this initiative that we could get.”

George: “Students haven’t realized the educational uses for the computer yet…[L]ast semester when I took [students] to the computer room I say let’s look up this topic, and they wouldn’t know how to find it. I would say okay use a search engine. Several of them who claim to me that they have great computer experience [said] “What’s a search engine?” So you can tell that they haven’t used it for the educational aspect. They have used it to talk to each other and maybe buy music…but not to research items. It is hard to get students to research an item, not just simply print the item out. I say okay, I want you to go to this web site and I want you to research it…they come in with ten pages of that web site…printed right out. I [explain that I wanted them] to research it not just download it. I do think that though looking down the road it’ll be great…The Internet and use of technology, especially with government because that information is out there and it changes. Our books for example are ten years old…Right now you purchase a textbook and you use maybe sixty percent of it…everyone teaches differently…being able to create your own material…would be tremendous and that is where technology will really impact us…I’m hoping that I will be able to do more web activities….The students will have more of access to web material…Students will be able
to learn more about how to use the computer as educationally…I’m somewhat limited to what I can discuss now in class because I have to address items that…are in the book or…easily…accessible…You could do a lot more in-depth work…a lot of the books do not address depth, they address breadth of a topic rather than the depth of it…Where as if you have students on the laptops…[they could] open some websites, get more information. …Hopefully some day when we …have enough laptops…the goal will be [using] the Internet [to access different sites]…this side bring up one [site] and this side bring up the other [site]. So that is something that I am really anxious for and I was hoping that we would get into…but the reality of life is that it will be two years before until we get into that…[I]nformation is only as good as what the students can do with it, so that is where my job really comes into play.”

Parental and Community Involvement

Relationships forged between the parents and community can affect the successful implementation of educational change. In ideal circumstances schools are established in unity with their communities. In too many cases, however, parents and community are actually outsiders. Coleman (1998) found that collaboration between schools and parents was not well developed and an important task facing schools is collaboration with parents and building active communities of learners. Within this study, the support of parents and the community were identified as important components to successful educational reform within the WVSD.

Barbara stated: “I thought that [the DSD] would give us a connection with the parents, and it slowly will. …I also understand [the DSD initiative] as a community-wide
thing and of course I’m a teacher so I want that for the students. But I think it will be very, very beneficial to the community as well…[Part] of our mission…statement is that we want [to develop] life-long learners…[the DSD initiative] is demonstrating that…the school district is here to help you be life-long learners.”

According to Caroline increasing parental involvement and community involvement is crucial to the success of the DSD initiative: “I think that is…a big part of this [DSD initiative]…I am hoping that eventually parents will be able to check how their students are doing…I think that is important…because a lot of times they don’t know…I hope that parents will become more involved…Maybe they will feel that they have more of a role in their child’s education…But who knows how many parents are going to check and how many parents really have access to the Internet. I think we have quite a few who do. But how many are going to check? How often are they going to check?”

Barbara shared similar concerns about correspondence with the parents: “I think that the parents would appreciate that. I as a teacher would certainly appreciate having [this] communication…but I’m also afraid that how many parents out there . . . will actually take advantage of this?…I like the idea that it won’t be on my shoulders to contact parents about missing assignments and grades of students. That all parents will be able to…take charge of that, and then e-mail me if they need further explanation.”

Maria was hopeful that the DSD would eventually result in increased parental and community involvement: “One of the goals for the Digital is more parental involvement, and I do look forward to parents being able to look [at] information and be informed and I truly, truly think that will be a benefit. I am concerned that there may be less personal contact because that will be so easy…[There is] potential that parents will be more
interested and follow the student’s progress and maybe ask more questions and interact with the teacher…[Parents will be able to] look at grades and activities on the web they’ll be better informed, hopefully that will cause some of them to contact us as teachers more because most don’t contact us…I’m hoping that because…the district’s trying to make it a community program I hope that it will open up others that includes our senior citizens who are sometimes frightened by the technology. But once they get into it they’ll see the excitement…Then I think that creates in this community there’s so many people of the older generations who maybe reluctant to pay more taxes or contribute to a school district. Perhaps they will have some more excitement…and be more willing to…support this good work.”

Modeling technology use inside and outside of the classroom was important to George for many reasons. He recalled: “[T]wo weeks ago I did a presentation at the Altoona Kiwanis Club in which I used our technology…I try to model [technology use] for the students, faculty and the community, all three…Somewhere along the way we need to start to look more community-wide and we need to remember that once the state money runs out, we’re going to have to tap into community money…Today’s students are tomorrow’s taxpayers…[Maybe the community will] accept another mill increase in taxes…[if] we have people who tried…teachers…trying to do things…I think that’s the role that I need to get across…Teachers [often] take the blame…when you’re building more prisons…it’s because the schools aren’t teaching…This is a way for teachers to try to change that image, try to change that image publicly…I feel the more I can get out and do presentations I can use the technology, people can see the technology…They see that
their money is being used for community…I hope that all builds toward the success of
the digital district.”

The history of educational change and innovation is one of promising initiatives
that fade and fizzle after the first few years (Tyack and Tobin, 1994). According to
Hargreaves (2001) without a fundamental commitment to external support, the
successfulness of change in curriculum and assessment will likely be confined to
temporary, localized reform projects, and not be generalizable to or sustainable for large
groups of schools as a whole. Many of the teachers within this study clearly recognized
this.

Barbara was worried that financially the cost of updating and the upkeep of
computers and other digital technologies might be too much for the WVSD. Diana was
concerned that after the grant money is gone things will be “left go”. She concluded: “I
don’t think we’ll ever be as far as some other [districts] that did not get the grant.”
Caroline resigned: “I know the money will run out so I don’t know what they’ll do after
that…to keep everything going.”

George believed that partnerships were the answer: “The district obviously
realizes that the money is going to run out for the digital grant two years from now. And
that money is not enough to cover us, really, moving forward technologically. And I
think they’re hoping probably to create partnerships with local businesses to get that
money there…That’s going to be tougher than…it looks because we are so far behind
technology-wise…It’s a lot of catching up.
Staying Positive

The teachers never fully understood the goals of the DSD and encountered barriers as they worked through the restructuring initiative, but they kept a positive outlook throughout.

Barbara explained: “It is impressive to be able to say that we were one of three schools in Pennsylvania [to be chosen to receive a DSD grant]…There’s some pride with that. But I still need to be able to see the computers coming up the hall to my room…I see a building and…I am hopeful that [technology] will be in our classrooms next year and that we will see some things that even other districts who don’t have digital grants are experiencing…I am very hopeful that next year it will change and then the year after that it will even be better.

Regina felt that she hadn’t done her part when it came to integrating technology into her classroom and attributed much of that to a lack of resources. She stated: “[Things] could be a lot better, but this year it was still an improvement…We see the construction out here…driving through the mud everyday, but we are hoping.” With an eye on the future Regina has set goals for herself: “I hope to be a better teacher, a better facilitator of students because I think it is a world of technology out there and…I want to be able to do the best for [students] to prepare them [well]. That’s what I hope to get out of it.”

Caroline was a little frustrated with the progress the district had made and felt that she had to overcome more than her fair share of obstacles as she attempted to use the computer lab in the middle school. When asked if she was deterred she laughed: “No I guess not. I went right back…Maybe next year it will go better.”
Maria felt “pretty good” about the DSD initiative overall. She shared: “I mean I’ve been disappointed, but not disillusioned because I expected to be disappointed… I feel that I have more knowledge under my belt, and I feel like we will have at least some of the things we need…to use the technology better. So overall I am not a purely happy camper, but I am okay…[T]his semester has been better. There was a lab available when I needed it and the Internet is finally working at a better speed…so that’s good… I am trying to keep a positive attitude…There is a lot of good that can come. I just hope.”

George believed that it was imperative that he and his teaching colleagues positively influence the DSD initiative and should do everything they can to facilitate change. He explained: “Many times it’s easy for teachers to become a negative influence… I want to be associated with being a positive influence and let the kids see that [the DSD initiative is a]…chance for this district to be proactive as far as technology…It was a chance for the district to step up and say we want to offer this. There were some things that needed worked out…but if you, if…you start being negative about it, well then you’re not going to get something like that again… I was very positive about it from step one and I think it’s moving in the right direction…I feel it’s my job and if the digital district fails…then maybe I need to look…at myself… Either I’m [part] the solution or I’m part of the problem… I really don’t want to be part of the problem…I want to try to be [part] of the solution… I think it’s…a good initiative… Overall it’s positive for us and it’s good for us.”
Chapter 10

CONCLUSION

Overview

This research explored the experiences of select public-school teachers engaged in a school restructuring effort intended to transform West Valley School District into a Digital School District. The use of a phenomenological case study research design was used to answer the following questions: What did these teachers experience? How do these teachers understand and make sense of their lived experience of being a teacher during this change process? In what ways does a financial windfall to a school district inform the experiences it has in relation to school reform?

Through in-depth interviews, participant observation, descriptive field notes and document analysis I gathered data from a group of seven teachers in a rural school district in Central Pennsylvania. Ongoing reading of the data was complemented with the constant comparison method of data analysis provided by Glaser and Strauss (1967) and the operational refinements cited in Lincoln and Guba (1985). Through this lengthy process of analysis the data were broken down, conceptualized, and put back together in an attempt to provide a construction of the experience from the participants’ perspective (Lincoln & Guba, 1985). The techniques of prolonged engagement, persistent observation, triangulation, member checks, thick description, reflexive journals, and audit trail were employed to ascertain credibility for the findings.
In this chapter I will summarize the findings of the study and present seven assertions derived from the five themes presented earlier. I then describe the implications for theory and practice that have emerged from this study. The important distinction of the WVSD being a critical case will also be addressed. The chapter concludes with recommendations for future research and closing remarks.

**Summary of Findings**

The collective experiences of all seven teachers formed the basis for the five themes that emerged: uncertainty and frustration; learning to change; barriers to change; craft pride, care and responsibility; and potential. Throughout the course of the research study other issues and concerns came to light, but it was these recurrent five themes that remained constant throughout. Having presented and examined the themes individually in the previous chapters their interrelationship will now be discussed.

Nolan and Meister (2000) documented that teacher uncertainty is intensified by a lack of administrative leadership and teachers’ commitment to doing what is best for students. This appeared to hold true within this research study as the ambiguity of the district restructuring effort left the teachers feeling at a loss. Without the guidance and support of the administrations, the teachers felt like they were on their own. The teachers struggled to understand their role within the restructuring effort and questioned if they were doing enough to integrate technology. The teachers needed to talk with administrators so that they could better understand the DSD initiative and its implications for teaching and learning. They searched unsuccessfully for opportunities to engage in
dialogue with the administration. Given the complexity of implementing change, the teachers perceived that they did not receive the administrative support and guidance they needed.

The West Valley school district has made a substantial commitment to the DSD initiative and to integrating technology, but the teachers were skeptical that the changes taking place were superficial. To varying degrees, all of the teachers were concerned that the initiative was “all show and no go”. For the teachers, a shining example of this was the new VECC building. They perceived that the district was more concerned with self-promotion and less concerned with student and teacher needs. The teachers felt awkward and embarrassed about the image of innovation and change being projected by the district, because at the classroom level it was business as usual and very little had changed. With all of the media attention surrounding the initiative and with plans to invite other Pennsylvania school district representatives to tour the WVSD the teachers were frustrated with the progress made so far. The district is being flaunted as a model for other school districts to follow, and the teachers were concerned that they could be blamed for the lack of changes taking place inside the classrooms.

Lack of ownership and input into decision making have been documented as major issues in school change. The teachers felt that they had little or no say in the DSD initiative including the allocation of grant money. This lack of input created tension between teachers and administrators. They were frustrated about not having been involved in identifying and selecting the most appropriate educational technologies for their classrooms. The changes taking place were imposed upon the teachers and they wanted to be included in district decisions. This issue was compounded by the size of the
grant. The district is in the process of spending $4.1 million dollars over the next two years and the teachers had not been consulted. The teachers had many ideas about how the grant money could be spent and what they needed in their own classrooms to become “digital” teachers.

Teachers often work in isolation and behind closed doors, not interacting and collaborating with other teachers. This was the case within this study. Although it was intended that the I-Tech team teachers would meet on a regular basis, this did not happen. Without district-sanctioned meetings, the teachers began to form their own informal school-based teams. The I-Tech team teachers stopped to chat in the school hallways about technology integration and from time to time visited each other’s classrooms to lend a helping hand or to problem solve. There were a few reasons why the teachers did not meet regularly as a group. First, the district did not provide many opportunities for the teachers to collaborate. Second, the teachers in this study were involved in so many other school-based activities that when they did have an in-service day and opportunity to meet they had to be in two or more places at once. The teachers were torn between I-Tech team meetings and other commitments. By the end of the school year, the teachers had all but given up on trying to get together as a team.

Time and technical support were identified by the teachers as mitigating factors in their integration of technology and their willingness to experiment with emerging technologies. They suggested that more technical support was needed if they were to be really innovative. Because the administration had not successfully followed through with their commitment to provide them with opportunities to meet, the teachers felt
unprepared to integrate technology and many expressed reluctance to push ahead with changes, and to modify current practices.

The lack of technological resources added to the level of frustration the teachers were feeling. Without the technology, the teachers were unable to use the knowledge and skills they had acquired during the I-Tech training. The teachers were willing to integrate technology, but without the resources they required this was not possible. The teachers did remain hopeful that the resources would arrive, but without input into what the district was planning to purchase they were concerned that they would not receive exactly what they needed, or there would not be enough equipment to go around. Having to share limited resources significantly affected their willingness to explore new practices and plan lessons rich in technology.

Frustration with a lack of resources was magnified when the teachers read stories about other school districts near West Valley purchasing equipment and integrating technology in ways they were not. The teachers were worried that other school districts not receiving such substantial funding were doing more. When we consider the demographics and tax base of the West Valley area it is apparent that many other districts are better positioned to fund educational technology purchases. When compared to the other two DSD’s, Quaker Valley and Carlisle Area school districts, West Valley is a small, resource-poor district lacking both middle-class families and a strong tax base. When we look at the student populations of each district we begin to see great disparities, for example 34.8% of the West Valley students come from low-income families compared to 16.5% at Carlisle Area. With per student expenditures of $6,695 during the 2001 school year as compared to the $10,309 spent by the Quaker Valley school district
we can clearly see that these digital school district sites started at different places. It would be unreasonable to believe that the West Valley school district can expect the same kinds of results as these more affluent districts. The state of Pennsylvania should not have equal expectations for these unequal districts.

The teachers believed that the administration should be doing more to support their efforts by providing them with the tools they needed. They openly questioned why it was taking so long for the district to purchase equipment. Again, when we consider where the WVSD was before the DSD grant we are better able to understand this issue. Much of the initial spending by the district went to pay for cabling and wiring. It was important for all five schools to be connected to the Internet via high-speed broadband connections and being such a rural area this was an expensive and time-consuming endeavor. However, from the perspective of the teachers they wanted to know why it was taking so long to garner the technical resources they needed. The Digital Updates were useful, but the teachers needed more. They wanted to be more informed and involved in the decisions being made the administration. The districts autocratic approach to decision making was increasingly frustrating for the teachers. They wished for more collaboration and involvement in the governance of the school district and specifically the DSD initiative.

The themes of uncertainty and frustration, learning to change, and barriers to change would appear to be reason enough for the teachers to revert back to the way they have always taught or to not change. But these teachers could see the potential of educational technologies, took pride in their craft and ultimately understood the DSD to
be a good thing for their students. These themes motivated the teachers to persevere despite the obstacles they faced.

The teachers believed that the success or failure of the DSD initiative was partially dependant upon them. In many ways this group of teachers had been placed in the limelight. They were proud of being one of only three DSD’s within the state of Pennsylvania. Some felt more comfortable than others about being the pioneers and leaders within their respective schools, but they all agreed that the district needed to support their efforts more. The teachers felt a responsibility to the teaching profession, to their students and to the community for the success of the initiative.

Increased community and parental involvement were identified as potential outcomes of the DSD initiative. The teachers welcomed opportunities to forge relationships with parents and the community for two main reasons. The first and most significant was to support student learning. New technologies had the potential to assist parents in becoming more involved in the education of their children. For example, the teachers were increasingly using email to communicate with parents. The second reason was financial. The continued cost of operating and updating such a technology rich school district was a concern of every teacher. They believed that sustainability of the DSD initiative would be dependant on garnering the support of parents and the community. More than one teacher commented that the financial windfall of becoming a DSD would only help the district catch up to other more affluent districts. The DSD would provide a one-shot infusion of much needed funds that would be used to purchase the technological resources already present in other school districts within the state. After
the grant money is gone it will be an ongoing challenge for the WVSD to maintain and purchase additional educational technology resources.

The teachers were motivated by the potential of the initiative, but it was their sense of caring for students and their commitment to teaching that transcended all aspects of their work. Teaching is a caring profession and an emotional practice. The relationships the teachers had with their students were significantly emotional and involved a genuine ethic of care. The teachers defined their role as being more than a teacher. It was the emotional connections to students and the sense responsibility they felt towards the teaching profession that influenced almost everything they did. The teachers became involved with the DSD initiative because they wanted to become better educators to prepare their students for future success. The energy and motivation they needed to work through the uncertainties and difficulties they faced as teachers in Digital School District came from the intrinsic rewards of working with young people. The success of the DSD in the eyes of the teachers would be measured on the success of their students.

**Assertions**

The following seven assertions were derived from the themes of uncertainty and frustration; learning to change; barriers to change; craft pride, care and responsibility; and potential.

1) Teachers became involved in the initiative and worked to integrate technology because of their commitment to teaching and to their students.
The teachers saw the initiative contributing to their own teaching effectiveness and more importantly to student success. The teachers wanted to be involved in the DSD initiative because they see technology as an important teacher tool and something that is critical for the future success of their students. Although they struggled to understand the restructuring initiative they were sufficiently convinced that technology has an important role to play in education. Despite the barriers they encountered the teachers persevered because they were committed to the teaching profession and to the students in their care, not to the initiative itself.

2) Teacher uncertainty was intensified by the lack of administrative guidance.

Although the district administration was supportive of the initiative, the teachers perceived that they were left on their own to implement changes and to integrate technology. Relationships between teachers and administrators are important variables to be considered when implementing change. The teachers felt that the administrators did not have the time to listen to their concerns about technology implementation and this frustrated them. Without district-wide dialogue about the initiative, the teachers were left questioning their practice. The teachers desired opportunities to collaborate with the administration on issues directly related to the integration of technology. The teachers felt frustrated that the goals of the initiative were so unclearly defined and they were not given administrative guidance and provided with opportunities to ask questions.
3) Limited opportunities for teachers to meet and their lack of involvement into decisions made by the district caused frustration.

The teachers valued opportunities to interact with other teachers and share ideas, but these opportunities were limited. The teachers desired group meetings to receive and give help and more simply to converse about the DSD initiative. Without opportunities to meet, the teachers remained unsure about their technical skills and abilities to innovate effectively. The district was imposing a number of changes without much regard for the inclusion of teacher voices. The teachers felt that they had little or no say in the DSD initiative including the allocation of grant money and this was frustrating for them. Without opportunities to meet and without the direct input into the decision making process, the teachers felt disconnected from each other and the initiative.

4) A lack of resources and technology support slowed down the integration of technology.

The teachers were frustrated and confused as to why they had received such comprehensive in-service training, but were then placed back into the classroom without the resources they needed to be innovative and put into practice what they believed the district was supporting and promoting. A lack of resources was a key reason why the teachers were hesitant about using technology more in the classroom. Inadequate technology support has was also identified a barrier. Having to wait days to get technical problems addressed made the teachers increasingly apprehensive. Although the teachers
were confident the technology resources would eventually make it into the classroom
there was concern that they would have forgotten everything they had learned during the
I-Tech training.

5) The initiative intensified the work of the teachers.

The work of teachers intensified because their responsibilities widened when they
became involved in the initiative. As they attempted to integrate technology they also had
to attend to everyday teaching tasks in addition to balancing family responsibilities. The
teachers anticipated that they would be spending increasing amounts of time working
with technology and this was a growing concern. They often felt overwhelmed and were
worried that they would not have enough time during the regular school day to complete
every task, requiring them to take more work home. The role of the teachers was
becoming more complex, while time to accomplish this work remained fixed.

6) Potential of the initiative and benefits of technology integration fueled teacher
efforts.

Although teachers in this project were aware of the barriers that existed and
sometimes critical of the initiative, they believed that integrating technology was vital to
the future success of their students and would improve the quality of their instruction.
Shared feelings of possibility and potential helped to energize the teachers. The teachers
placed high value on technology in the classroom and saw the initiative as progress for
the district that could lead to enhanced learning and improve future employment opportunities for students. The potential for increased parental and community involvement are significant outcomes of the initiative. The teachers believed the initiative could improve communications and relations with parents, thus enhancing learning.

7) The success of the initiative will be measured by student achievement

The success of the DSD initiative would not be measured in awards, glowing newspaper stories, kind words from visitors to the district, but rather from student achievement. In spite of all the barriers that existed the teachers were committed to their students and cared deeply about their success. Their attempts at implementing change and integrating technology were based on their belief that it would have a positive effect on student learning. This was the most compelling reason for the teachers to persevere despite the obstacles they faced.

**Implications for Theory and Practice**

This study contributes to understanding the process of school change and technology integration in the context of one rural public school district. Through the lived experiences of seven teachers and my subsequent analysis of these experiences, we have gained insights into how teachers understand school district restructuring and technology integration. The findings of this research will not come as a surprise to those familiar with the extensive literature on school change and technology integration. It is the critical case elements of this study that make it especially intriguing. The West Valley school
district can be considered a critical case due to the substantial funding it is receiving from the state of Pennsylvania. Over the course of the two-year funding period the district will receive $4.1 million. This will eliminate one of the main barriers to school change, namely financial resources. If successful school change and the integration of new technologies do not happen in the West Valley school district what chance do other unfunded districts have? Of course we should be careful not to make broad generalizations from one context to another, but this research elicits new understandings and implications for theory and practice.

Few change issues are more compelling for schools today than the introduction of new technologies. Computers in particular are widely advocated as harbingers of the educational revolution where children will have independent access to rich sources of information, be able to integrate and apply knowledge in sophisticated ways and where their teachers will become coaches, guides and facilitators to assist young people in the new forms of learning that will engage them (Bigum & Kenway, 1998). With funding from the state the WVSD is investing considerable sums of money to introduce new technologies into each school.

Like other school districts across the nation WVSD is moving forward in its efforts to make computer technology more readily available to students. This investment in computer technology by school districts is consistent with the discourse that associates computers in classrooms with technological progress and future employment opportunities of students, as well as enhanced learning in the classroom (Iacono & Kling, 1996). Pennsylvania has been sufficiently persuaded of the importance of computers in schools and has made significant and ongoing expenditures to develop three DSD’s.
We are seeing record gains being made in providing students with access to computers and the Internet. As these technologies become increasingly available in K-12 schools it becomes incumbent upon teachers to make use of today’s technology related tools. But, as this study reveals many teachers are not yet using technology and the Internet well for achieving educational goals. Teachers primarily use the Internet as a research tool – a big electronic encyclopedia – and other uses of the Internet (communications, professional development, and classroom projects) are not fully realized yet by teachers. At this point the potential of technology and the Internet as a revolutionizing educational tool has not been effectively leveraged for educational results with the WVSD and across the country.

The WVSD is making progress to increase the technological infrastructure in the five schools, but there is a wide gulf between technology's promise and the reality of how it is being used. The introduction of new technologies has added to the challenges teachers face. Teachers are struggling to understand their roles and responsibilities in integrating technology into today’s classrooms. Experts in the field of technology acknowledge that technology involvement can pose an intimidating challenge under the best circumstances. Teachers grew up an environment that had far fewer electronic technologies available and many find the adaptation to working with computers difficult.

Today we are asking teachers to instruct in ways in which they have not been taught themselves. This is demanding even for the best teachers. Meaningful educational change that leads to more powerful teaching and learning is difficult and represents “a serious personal and collective experience characterized by ambivalence and uncertainty” (Fullan 1991, p. 32).
It is my belief that this study adds to the existing body of knowledge that attempts to define the perceptions of teachers involved in school change. This study can also assist policymakers and administrators with their understandings of the complexities of school change and technology integration from the perspective of teachers.

This study highlights the importance of the following realities that need to be recognized when schools engage in restructuring efforts; (a) teachers need to understand the initiative; (b) teachers need opportunities to learn and to collaborate; (c) teachers need adequate resources and support; (d) teacher need time to change; (e) teachers measure their success on intrinsic rewards of student achievement.

Successful innovation and infusion of technology in schools entails more than improving technical skills. Meaning and motivation are all at the heart of the change process. Although the WVSD wrote in the grant proposal that one-shot skills training would not be the answer to successful technology integration, this is ultimately what they offered. The teachers participated in the two week I-Tech training workshop and were then left on their own.

The issue of clarity is evident in virtually every study of change, from the early implementation studies when Gross and associates (1971) found that the majority of teachers were not able to identify the essential features of the innovation, to present studies of reform (Fullan, 1999). The problem of clarity increases with the complexity of the reform.

The teachers attempted to define what the initiative entailed and tried to piece together what they knew in the hope that they were indeed heading in the right direction.
Despite numerous efforts to elicit feedback from the administration, the teachers did not completely understand the goals of the DSD initiative.

In addition to understanding the meaning of change, a teacher’s motivation and commitment to any particular change, and not just change in general, is important for successful implementation. A common administrative and legislative delusion is that reform can be imposed, even forced, on teachers, without any regard for their values or inclusion of their voices (Hargreaves, 2001). Historically, this pattern of forced implementation has enjoyed little or no success, and within this study caused increased frustration on the part of the teachers.

Uncertainty surrounded every aspect of their work. The teachers were unsure about what it means to teach in a “Digital School District”. Very little time had been set aside by the district administration to help teachers understand the proposed changes. Teachers, like their students, are learners. The Digital School District initiative required new learning on the part of teachers. This learning was a sophisticated process of high-level thinking and conceptual understanding as new technologies were introduced. The teachers appreciated the two-week intensive training, commended the district for offering the session and encouraged other teachers to take advantage of this opportunity. This intensive two week workshop was to be supplemented with ongoing training opportunities and team meetings throughout the school year. Teachers value coming together to share ideas, engage in problem solving, undertake joint planning, pool resources and expertise, and explore ways to improve practice. This type of professional learning with colleagues is important.
According to Fullan (2001) there is a strong body of evidence that indicates that peers are often the preferred source of ideas for teachers. On the other hand, the evidence is equally strong that opportunities to interact with other teachers are limited, and that when good ideas do get initiated by one or more teachers, the support of others is required if the ideas are to go anywhere. This study demonstrated both of these points, the teachers did learn from their colleagues during the two-week I-Tech training, but further opportunities to collaborate were not provided. The West Valley administrators were hopeful the ‘I-Tech Team’ would lead and provide assistance to the other teachers of the district, but without professional learning opportunities built into the school calendar this will not happen. The school district must develop a plan that will encourage collaboration among teachers and provide opportunities for teachers to explore new technologies and modify practice. The teachers acknowledged that they still had a great deal to learn and that it would take time for them to integrate new technologies into their classrooms. Successful implementation on the part of the teachers will require continued professional learning, and it is imperative that this learning be nurtured and supported by the district administration.

Strong collaborative cultures in teaching are powerfully linked to effective classroom learning, stronger professional confidence, and feelings of self-efficacy among teachers and teachers’ capacity to initiate and respond to change. As the teachers grappled with change they would have found it helpful to discuss their concerns with other teachers in similar situations.

Relationships between teachers and administrators are also important variables to be considered. The educational change literature consistently points to school
administrators as agents for creating and supporting the conditions in which school reform can succeed (Hargreaves, 2001). Administrators certainly can help teachers if they are willing to listen to teachers concerns about technology implementation, and provide shared leadership. Just as the proper use of technology requires significant changes in how teachers teach, the successful implementation of technology into schools requires administrators to make significant changes in how they support their faculties (Fisher & Dove, 1999).

Principals are often cited as the gatekeepers of change because of their influence in determining the fate of educational change (Fullan, 2001). Research on innovation and school effectiveness shows that the principal strongly influences the likelihood of change, but it also indicates that most principals did not play instructional or change leadership roles. Principals' actions serve to legitimate whether a change is to be taken seriously and to support teachers both psychologically and with resources. Berman, McLaughlin, & Rand Corporation (1979) note that one of the best indicators of active involvement is whether the principal attends workshop-training sessions. Administrators within the West Valley school district did not attend the ‘I-Tech team’ training. The West Valley administrators would be in a better position to support the DSD initiative and the teachers within district if they took the two-week long I-Tech training.

Logically, a lack of resources is often a key reason why teachers do not using computers more in the classroom. With total state funding exceeding $4 million the issue of resources should not have been a barrier encountered by the teachers of West Valley. However, decisions as to what resources would be purchased by the district were still being made. The teachers were unsure as to what technologies would actually enter their
classrooms, what will be available to them within the school and when they would arrive. When the DSD initiative was funded the West Valley teachers and students were under the impression that they would all be receiving a personal laptop computer. This turned out to not be the case thus causing disappointment and frustration on the part of teachers and students.

Even after the teachers welcomed technology into their classrooms and used technology in their teaching, serious challenges remained in providing ongoing technology support. Inadequate technology support has been acknowledged as a barrier to effective teacher use of technologies. Within this study this issue was most evident in the elementary school. The elementary teachers had no technology support available to them and were left on their own to solve any and all technology problems they or their students encountered. One teacher commented that this lack of technology support was the main reason why most of her colleagues did not attempt to integrate technology into their teaching. Many of the elementary teachers dreaded taking students down to the school computer lab and avoided doing so if at all possible.

Teaching a classroom full of students in the midst of some activity that requires technology when the system goes down requires flexibility and skill. If technical problems arise frequently and teachers have to wait hours, days, or weeks to get them resolved, they will abandon their efforts to incorporate technology. Thus, quality technology support is needed to accompany and complement new technology purchases.

If there is a single thing that teachers always need more of, it is time. The role of teacher is becoming more complex, while time to accomplish teachers’ work generally
remains fixed. Time is a chronic problem in almost all kinds of teaching. It comes with the territory. Time is usually at a premium when changes are imposed.

Making time available for teachers can help to improve the quality of curriculum, teaching, and learning so that they can prepare for their students and cope with new technologies. Reductions and restrictions in teachers’ preparation time hamper their abilities to innovate effectively (Hargreaves, 2001). Clearly, time is more than a trivial problem to teachers. Shortage of time warps the course of innovation. It draws teachers away from their students and drains the energy of teachers.

In an attempt to create time, both quantitatively and qualitatively, West Valley provided days during the school year for teachers to use for professional development. Before introducing a new online grade book, the district offered teachers a full day training session and provided a substitute teacher to cover their classes. Not every teacher chose to take the training session during the day, opting instead to stay after school during their own time. This would support Lortie’s (1975) findings of 6,000 teachers in Dade County, Florida. When asked how they would spend additional work time if they were given a gift of 10 hours per week, 91% selected classroom related activities. Teachers want to be given more time, but not necessarily taken out of the classroom and away from their students. This finding would imply that careful planning on the part of school administrators and leaders is needed.

This study demonstrated that teachers are strongly motivated by the psychic rewards of teaching, the joy and satisfaction of working with young people. Teachers attain these psychic rewards when an ethic of care is balanced with group management and instructional effectiveness.
Despite the barriers they faced, the teachers remained committed to the initiative because of their commitment to teaching and to the success of students. They were motivated by their desire to improve student learning. Therefore, it is important that when we consider school change we focus on what is important to teachers, namely student success. Educational change should be framed from the perspective of improved student learning, and not focused on the methods or techniques being advocated. Meister (1997) writes, “No matter how ‘thing’ driven the administration may be, the teachers will remain ‘people’ driven. Therefore, impact on learners and learner reaction will be the deciding factor as to the failure or success of their implementation.” Understanding that teachers are motivated by the psychic rewards of teaching is crucial to successful school change.

Questions for Future Research

This study attempted to enliven and enlighten our discussion of educational change and technology integration. However, this study concluded before the initiative was fully implemented. The teachers believed that they were in the beginning stages of the DSD initiative, their work would undergo more changes as the resources arrived, they found time to collaborate and the district administration pushed for “action” and “results”. Continued investigation of this initiative and the experiences of the teachers are recommended.

This study asserts that teachers do not have a single shared perspective on educational change. The complexity of the emergent themes demonstrates the need for future studies to explore teachers’ perceptions and experiences as they engage in restructuring efforts. Every teacher experiences change differently and studying these
experiences will add to the growing knowledge base. Future studies should focus on how teachers experience change in different contexts. We could then begin to identify more clearly the key elements needed to support and sustain successful school change, and specifically the integration of new technologies.

This study looked at a group of seven early adopters as they struggled to understand and implement change. According to Adelman et. al. (1997) “the implementation stage of educational reform occurs after a few risk-taking teachers have piloted new materials, new instructional strategies, new governance structures, new organizational arrangements, and so on. If results are positive or at least neutral, a decision is made to expand the initiative – in the current language of systematic reform, to scale-up” (p.3). Future studies should focus on the teachers who did not volunteer to participate in the I-Tech training session. How do these teachers understand and make sense of being a teacher during the DSD restructuring initiative?

The rapidly changing field of educational technology has increased the interest in and need for future studies that address questions relating to implementation and what it all means for everyone involved. Researchers need to undertake studies that explore change from the perspective of various stakeholders. Future studies should focus on the impact educational technology has on students. Very little has been done to research educational change from the student perspective. Another study could involve administrators. Research into the experiences and perceptions of parents would also be very illuminating.

Another area for future research would involve other school districts within the state planning to integrate technology. The West Valley school district is one of three
model districts charged with leading the way and being models for other districts to follow. How are the other districts integrating technology and working towards becoming a Digital School District?

Identifying structures and conditions necessary for successful and sustainable school change and technology integration is beyond the scope of this study. Future questions should ask what structures are more effective? What conditions need to be in place? What qualities and expertise do teachers need to successfully integrate technology into the classroom? What kinds of supports are needed to help teachers with the demanding work of educational change?

**Concluding Remarks**

“Change is a double-edged sword. Its relentless pace these days runs us off our feet. Yet when things are unsettled, we can find new ways to move ahead and to create breakthroughs not possible…If you ask people to brainstorm words to describe change, they come up with a mixture of negative and positive terms. On the one side, fear, anxiety, loss, danger, panic; on the other, exhilaration, risk-taking, excitement, improvements, energizing.” (Fullan 2001b, p. 1)

This study looked closely at the experiences of seven teachers who have been willing to take on demanding changes in their classrooms in an attempt to make a difference in the quality of what takes place there. Their stories of change have not been wholly quixotic. The teachers continue to struggle with the changes taking place and to make sense of the unclearly defined initiative. They tried to ensure that any and all
changes taking place would benefit their students. The teachers should be applauded for their persistence and commitment to teaching and ultimately the contributions they are making to the success of their students.

It is my hope that school district administrators, teachers and students of qualitative research will read this study and benefit from both its insights and its methodological approach. This study serves an important role in describing many of the barriers teachers need to overcome or be aware of when integrating technology, or embarking on journeys of change. The DSD initiative will go a long way in helping the WVSD overcome the substantial financial burden of creating technology rich schools, but as this study has demonstrated other challenges exist. If we are to improve our schools and implement successful change we need to deal with all of these challenges. If we do not simultaneously attempt to overcome these barriers the money spent on educational technology will produce few meaningful improvements to educational outcomes. We also run the risk of reinforcing many teachers’ cynicism for educational technology.

This study does not come to an elegant conclusion, rather it is still enfolding. The teachers were asked to adopt new practices and to adapt their pedagogy to infuse technology in ways that are different from traditional notions of what it means to be a teacher. Responding to change and to the introduction of technology is an inescapable reality of teachers’ work. Successful and sustainable educational change and technology integration is dependent on how teachers understand, make meaning of and respond to these changes.
References


Appendix A

INITIAL CONCEPT MAP OF STUDY

Teaching, Technology and Change: The Lived Experience of Teaching in a Digital School District

Christian V. Penny

Questions:
1. What are WVSD teachers experiencing as they engage in district wide reform?
2. How do these teachers understand and make sense of their lived experience of being a teacher during this change process?

Participants:
Select WVSD Teachers

Research Design:
Phenomenological Case Study

Purpose:
The purpose of this qualitative study is to explore the experiences of select public school teachers engaged in a school restructuring effort intended to transform West Valley School District into a Digital School District.

Data Collection:
1. In-depth interviewing
2. Participant observation
3. Document analysis
4. Field notes.

Data Analysis:
1. NVivo
2. Ongoing
3. Initial reading of transcripts, field notes & documents
4. Constant comparison method (Glaser & Strauss, 1967)
5. Operational refinements (Lincoln & Guba, 1985).

Trustworthiness:
1. Prolonged engagement
2. Persistent observation
3. Triangulation
4. Member checks
5. Thick description
6. Reflexive journals
7. Audit trail
Appendix B
INTERVIEW PROTOCOL

Interview #1 – Context of life as a teacher in the WVSD

8) What do you teach?

9) How long have you been a teacher?

10) How long have you taught at West Valley?

11) How did you come to be a teacher?

12) How do you feel about teaching?

13) How do you feel about the WVSD?

14) Tell me about your past experiences with educational change?

15) What do you think of the DSD initiative?

16) Tell me about your past experiences with educational technology and computers?

17) What previous educational technology and computer training have you received?

Interview #2 – Details of job as a teacher in WVSD and member of I-Tech team

1) I would like you to reconstruct your day from the moment you wake up to the
time you fall asleep.

2) What is your role as a teacher in the West Valley school district?

3) How did you find out about the I-Tech team?

4) How did you come to be a member of the I-Tech team?

5) What about the I-Tech team appealed to you?

6) What kind of decision process did you go through in thinking about whether or
not to participate in the I-Tech team?
7) What particular things were you concerned about?
8) What is the role of the I-Tech team?
9) What is your role on the I-Tech team?
10) Now that you have made the decision to be part of the I-Tech team, how do you feel about it?
11) What role do you expect to play within your school as an I-Tech team member?
12) How do you use technology?
13) How would you describe your feelings towards the DSD initiative?
14) What lingering doubts or concerns, if any, do you have?
15) What are your expectations about how the DSD initiative will affect you personally?
16) What changes do you hope will result from the initiative?
17) What do you hope to get out of being part of the DSD initiative?

Interview #3 – What does it mean for them to teach in West Valley during this initiative?
1) Given what you have said about how you became a teacher and given what you have said about your work as a teacher, how do you understand teaching in your life?
2) How do you understand technology in your life?
3) How do you understand the role of technology in your classroom?
4) How do you understand the DSD initiative?
5) Given what you have said in these interviews where do you see yourself going in the future?
6) What does teaching in a DSD mean to you?
Appendix C

OBSERVATION PROTOCOL

Date:
Location:
Time:

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<tr>
<th>Descriptive Notes</th>
<th>Reflective Notes</th>
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Research Questions:
1. What are SCSD teachers experiencing as they engage in district wide reform?
2. How do these teachers understand and make sense of their lived experience of being a teacher during this change process?
Appendix D

EXAMPLE OF DIGITAL UPDATE

District Grade Book Selected!

COMMITTEE SELCTS CLASSROLL.COM

On Friday, November 16, the Grade Book Committee selected Classroll.com as our new Grade Book program. The selection process was extremely involved and thorough. Members of the committee actually started looking at programs over a year ago. Here's a basic overview of the program:

CLASSEROOM MANAGEMENT
Classroll.com is an online grade book, lesson plan, and attendance program for teachers that gives parents and students timely access to grades, attendance, homework, and assignments in detail. The program is available through the Internet, so it can be accessed at school or at home. Classroll.com calculates grades automatically, records attendance, and posts the information instantly giving parents and students the opportunity to check their child's progress at anytime. Double entry associated with some other products that were reviewed is eliminated since Classroll.com fully integrates with our student information system. All files are backed up on a daily basis.

LESSON PLANS
Classroll.com provides a convenient way to organize lesson plans, share lesson plans across a site or district, and correlate lesson plans to state standards. It has the capability to take the place of paper lesson plans. There are many flexible options for alternative lesson plans, which can be assigned to a student or an entire class. It will interface well with ALEM. It is the lesson plan area of Classroll.com that allows students and parents to access homework and assignments. It will be easy for teachers to improve, organize, file, and reuse lesson plans from year to year.

STATE STANDARDS ALIGNMENT
An important feature of Classroll.com is the capability to track students' progress on state standards. Because every grade is tied to its associated lesson and/or assignment, it can also be attached to a state standard or set of state standards. The work that we have done on standards and assessments will fit in nicely with this product and allow us to electronically track students' progress on state standards.

PARENTAL INVOLVEMENT
Parents can access timely information about their child so they can take an active part in their child's education. Through their own private password, parents can view information about their children, and their children only. This information is not limited to just grades and attendance. They can view a section on teacher's comments, class policies, and lesson plan content which translates to each day's homework assignments.

DISTRICT-WIDE ACCESS
Administrators and counselors will have electronic access to student information and be able to make better informed and more timely decisions.
Appendix E

EXAMPLE OF REFLEXIVE JOURNAL

February 1st, 2002

Okay it is Friday February 1st at 1:00 p.m. I’m heading back from Littleburg elementary school and grabbing a quick lunch at the Turkey Hill Mini-market. I have now completed three interviews, and have four more teachers to interview. Three of these teachers are scheduled to meet with me next Wednesday. I must get in touch with George at the High School with regards to his interviews. I have sent him e-mail's and he has yet to get back to me. I will call him this afternoon.

So how have the interviews gone so far? I would say overall they've gone well. I think all of the teachers have something to say, and want to say it. They do not seem to be afraid to inform me of how they feel about how the West Valley school district is handling the Digital School District grant. I'm not suggesting that these are disgruntled teachers by any means, but they want a voice in what goes on, how the money is spent, and how the Digital School grant turns out.

Of the three teachers I have spoke with Diana would appear to be the most nervous. She appeared to be very relieved when the interview was over. I could tell by her body language and the way she was speaking. She was a lot more relaxed once the tape recorder had stopped and the interview was complete. Is my hope that by spending time in her classroom during observations and chatting informally by the second interview Diana will be more relaxed and forthcoming with responses to questions. I'm not saying that she did not answer any question truthfully, I just feel that she would say more if she was more relaxed and comfortable. I would say all three teachers seem to be happy teaching in the West Valley school district.

So how were the questions I asked? I think the first round of questions were a nice way to ease into the first interview asking the teachers what they teach, how long they have been teaching, etc. They progressed nicely into how they feel about teaching, how they feel about the school district, how they feel about the Digital School district initiative. The question about past experiences with educational change will be very interesting. All three teachers alluded to the cyclical nature of educational reform. One teacher explained that the same things keep coming around they are just called something different. It appeared that the teachers were a little cynical of educational change.

I was worried that the questions would be difficult and a little too open ended, but this was not the case. In fact I was surprised at how quickly and easily teachers answered my questions. All of the interviews will over within 45 minutes. The questions I asked are all leading towards answering my big research questions. I'm not sure I'd change any of the questions, but rather I may want to find out more about where the teachers went to college, as well as their training with computers and technology. Two of the teachers
explained how their immediate family had been resource people for their working with technology.

So are there any emergent themes? The issue of time has come up already, the intensification of teachers work. Diana mentioned not having enough time, having too much paperwork and the added responsibility of the Digital School drive grant was worrying. Especially having to learn the PC platform after being an Apple user for so long will be difficult. She said she would rather be in the classroom working with students and have somebody else working with the technology and integrating that into her classroom.

Another important theme has been the training. All three teachers said that the I-Tech training was very beneficial. They had two weeks of intense instruction and were given a high-tech computer loaded with wonderful software. But since that time nothing. This is a source of frustration for all three teachers. The school districts have said that this team would meet on a regular basis and would receive more on site training from Temple. This has not happened.

Related to the issue of training is the issue of resources. All teachers were ready and raring to go at the beginning of the school year, but are experiencing roadblocks in the classroom. No LCD projectors, no hookups for their laptops to the TVs in the classroom, no computers in the classroom, or rather one or two computers, but not a lot of computers. The middle school shares one computer lab. I am not sure how these teachers are supposed to implement some of the changes the district is proposing without having the necessary equipment, never mind the necessary training and supports. One teacher was frustrated that she doesn't even have a laptop right now.

A very interesting theme that is related to support structures and training is the issue of family. Her own children have been very influential in helping Regina work with emerging technologies and computers. Maria mentioned that her brother and father are into computers. They take them apart and put them back together. She said they have been good people to talk to about technology. I'm not sure if Diana has any similar kind of resource person like that in her life. I need to probe deep more deeply into this issue. Maybe I can put a question in Interview two that would try to get at that issue?

The weather has improved and the roads are drying out. I am driving on Interstate 99 with the cruise control set at 75 m.p.h. I have my headset on and my laptop plugged into the cars 12 V socket. IBM ViaVoice is typing away as I speak into the microphone. This is very effective use of my time. Rather and listening to music and singing tunes to myself I can be dictating my reflexive journal into a Word document.

Although I am heading to Denver tomorrow I hope to be able to transcribe these interviews by next week. I have three interviews set up for Wednesday. I hope to schedule classroom observations on Tuesdays and Thursdays, the days that I'm in the school district supervising. This will limit my driving to and from the site. I also need to
start putting together a portrait of school district and more in-depth descriptions of what has happened at West Valley up to this point and what is happening now.

All three teachers mentioned that they are happy with the school district, but they are not happy with all of the decisions made by the administration. One teacher explained that she doesn't feel that teacher voices are taken as seriously as it should be. This I feel is part of the reciprocal process that I'm engaging in. These teachers may feel empowered that they are having a voice in what is happening. What they say will be recorded and then reported in my dissertation. Not that anyone will read my dissertation, but maybe people will read the papers that I produce from this study?
Appendix F

DIAGRAM OF INITIAL CATEGORIES
Appendix G

EXAMPLE OF CODING REPORT

NVivo revision 1.0.118    Licensee: Chris penny

Project: Dissertation    User: Cpenny    Date: 10/22/02 - 1:10:57 PM

NODE CODING REPORT

Node:  Intensification & Time

Created:  10/18/02 - 8:44:27 PM

Modified:  10/22/02 - 1:10:48 PM

Documents in Set:  All Documents

Document 1 of 7    R_combined

Passage 1 of 2 Section 0, Para 16, 344 chars.

16: B: I love teaching. It is like a lot of the other stuff that goes with it I don’t like. If I could come in everyday and just shut my door and teach it would be a great job. But there is the down side to it. There is a lot of the paper work or different things you are asked to do and it sometimes I feel talks away or I could be using my time.

Passage 2 of 2 Section 0, Paras 42 to 44, 491 chars.

42: By the end of that I had this great comfort level.
43: C: Do you still have that?
44: No (both laugh) because even like when the kids went to PowerPoint, because we had the students do PowerPoint presentation with the smart boards. I had to think a minute, now that was something I could have bee at everyday, but because I don’t have it in my classroom, and even my computer at home I don’t have PowerPoint because I don’t have the program on it. Now I have it here but I just don’t have the time.
23: I have had PowerPoint presentations for the whole class and found it very frustrating where I had to have two things planned just because I never got the projection system till 8:30 and I had to start at 9:10. That is not me, I am ready before. So I find it very difficult right now to plan two things when I don’t have the time to plan two things. I also find it difficult to wait for someone else’s timing to rely on other people.

174: my own technology savviness [is a barrier] Time to investigate. For example when you go to conferences and they give you a little taste of web page and then they list five or six others. When do you have the time to do that? So time and my own limited knowledge of technology. I

178: maybe that’s why ITEC was so successful, we were there for six hours two weeks and we could practice design, practice, do it and get it in the brain and, and keep it in the brain. So it would be wonderful if we would have in-service updates where we could [learn about] the technology that we’re using The trouble that I’m finding is the people who are using technology such as ITEC people are also the ones that are trying out to do other things. And so you have to be in three different places at one time I always hate the fact that you might have to think about getting a substitute working and practicing while the students are still there. I
180: I don't think we have enough time for everything. I mean family, being prepared for school I think the students should have to go longer because we feel so cramped to get the things in that we need to teach them. I

Document 3 of 7  C# case study

Passage 1 of 8 Section 0, Para 9, 449 chars.

9: Most of the time its pretty good. But right now I am at the point of my life when it is real hectic because I have two small children Five and Nine Just trying to, and with all the changes and things that are going on in education right now, it hasn’t gotten any easier. Especially with my children at home that demands my time at home. It is hard sometimes to get everything done and sometimes I have to just prioritize they keep me pretty busy. I

Passage 2 of 8 Section 0, Paras 61 to 65, 414 chars.

61: As a student we didn't feel pressure like to do well on the standardized tests but now we spend lots of time getting the kids ready for the PSEA tests. I we explain to them that these tests are really important and I am sure that they feel pressure

62:
63: it is overwhelming when I look at everything, I can’t review everything. I
64:
65: when I taught at Big Spring I did not feel as much pressure there as I do here.

Passage 3 of 8 Section 0, Para 99, 197 chars.
99: I wasn’t particularly concerned about anything Maybe just a little bit [about being] the one who doesn’t know anything about computers Are we going to be expected to spend lots of outside time?

Passage 4 of 8 Section 0, Para 125, 239 chars.

125: I hear that they have smart boards at the administrative office and I mean no one has ever said if you want these you can use them. I guess I could ask, but I just don’t have time to sit down and figure out how to do it right now either

Passage 5 of 8 Section 0, Para 133, 147 chars.

133: The grade book thing, I am wondering, I don’t need a whole lot more work for myself, so I am wondering how much more work is this going to make?

Passage 6 of 8 Section 0, Para 135, 655 chars.

135: As a parent, like I said before it will be nice to be able to check my son's grades. At school I am hoping that eventually parents will be able to check how their students are doing I think that is important because a lot of times they don’t know But on the other hand that means that I have to enter all my lessons and all my assignments the grades will have to be entered on time, which I don’t always get around to doing right away after the tests or homework assignments. If I have to enter all of those that is going to create even more work, but maybe it’ll make my job easier in the long run, I don’t know are parents that are going to do that?

Passage 7 of 8 Section 0, Para 197, 266 chars.

197: I spent an hour entering grades on Friday [and] Saturday and it shouldn’t have taken me that long because I didn’t enter that many You click the refresh button and
it saves [your work] It just took forever to do that and it might be my computer. It is hard to say.

Passage 8 of 8 Section 0, Para 203, 72 chars.

203: [Technology is] exciting but at the same time it is sometimes wearying.

Document 4 of 7 J-combined

Passage 1 of 2 Section 0, Para 19, 143 chars.

19: Well I love it, but I just don't like the stuff that the districts been putting on us, the extra pressure of you know, we are going to do this.

Passage 2 of 2 Section 0, Paras 298 to 300, 346 chars.

298: What are your expectations about how the DSD initiative will affect you personally?

299: 

300: J: (pause) Well, I see it as having less time. I am not going to have enough time to do it in school, so I’m going to have to do it at home which some does anyway, but what I see coming I don’t want to do at home. I tried to do most of my work before I go home.

Document 5 of 7 D-case study

Passage 1 of 9 Section 0, Para 8, 353 chars.
8: I like it. I wish it was less paper work and more interacting with the students. That is my concern about the technology. When do I have time to type all the things into the computer and receive all the information from the computer. I feel that that is going to lessen my time sometimes, but then on the other hand it could free me up from paper work.

Passage 2 of 9 Section 0, Para 14, 118 chars.

14: I think it [the DSD] is interesting. I have some concerns about it when are we going to find the time to sit down?

Passage 3 of 9 Section 0, Para 30, 278 chars.

30: I don’t see how they’ll be able to provide us enough time to get everything done so that is a big concern. I think sometimes things look good on paper but when it comes into actuality of doing it, it is hard to get it accomplished that is what my worry is about actually doing it

Passage 4 of 9 Section 1, Para 88, 331 chars.

88: Time, when we’re going to have time to do everything. I think it is a good idea but I really don’t see how it is going to fit in with the teachers using it and the students using it at the elementary level. I can see more use at the high school and middle school but I don’t see how we’re going to make use of it at the elementary.

Passage 5 of 9 Section 1, Para 90, 604 chars.
90: In elementary we have so many grades that we have to keep track of and to go in to the computer and put every grade in, put all the assignments in, it is going to take a while. Once we have them in it is going to be nice but when are we going to have the time to do that? And I know administration says well do you have computers at home that you can do this on the Internet. But my philosophy is you know if you want us to do it you should provide us with the materials to do it I already do a lot at home and this is just one more additional thing that they’re expecting us to doWhen does that stop?

Passage 6 of 9 Section 1, Para 92, 104 chars.

92: I know in the high school and middle school they have 90-minute blocks of time that they have to work.

Passage 7 of 9 Section 1, Para 106, 327 chars.

106: [O]nce I understand how to put things on the computer it would be easier [I]f we were given time where teachers or where aides could put information in the computer it would save us time[But] with all the paperwork it is not really going to make us do less work but once you get the hang of it will be less papers to look at.

Passage 8 of 9 Section 1, Para 108, 117 chars.

108 I'm going to have to spend a lot of time [putting] my lesson plans [and] grades on there that is a concern of mine.

Passage 9 of 9 Section 1, Para 118, 229 chars.

118: [How has the DSD] impacted me as a teacher? A lot of stress and how am I going to get things done?...I think it will be fine once we all understand where we’re going and how we’re going to get there and it is all up and running.
58: The elementary teachers are not given as many opportunities to work outside certain assignments. We have a little more flexibility at the High School level, but again then some of us do many things. You either do a little, or you do a lot and there isn’t necessarily a lot in between.

72: I was concerned that there [would be an] unreasonable time commitment I was concerned that we would not be able to implement what we had learned, which did happen

78: The training itself was fine, they did a good job. I am not tickled with the program because it is quite cumbersome it is not intuitive very time consuming. I think that the benefits are good, that parents and others can get in and see all of this, but time I am not sure that this particular program that the benefits outweigh the time that it takes to do and the cumbersome manner, but we share see.

86: I guess lastly, I am always fearful that when you are asked to do more, and more time consuming things, because it still amazes me today I think that I am going to
just sit down and do a PowerPoint presentation, well it takes hours to do a quality thing. The kids become more and more accustomed if you put bells and whistles on, and their expectations grow. So I am very fearful of us loosing time to do these things in the future and to have good preparation time.

Passage 5 of 7 Section 1, Para 108, 630 chars.

108: [The negative is] time we’ve been working at it for a while. I still find it very cumbersome. It is not teacher friendly. You can’t see all the information you want at one time. [It is] very slow cannot be done quickly. For years now [I have] encouraged the kids to retake tests if they fail or do poorly. I work with them or let them study more. They come back, they retake it [and] I average the two grades together. It is always work for me but it is been worth it. [With the new grade book it is] very awkward to go back and change those grades you can do it but it takes a very long time I may not encourage it as much.

Passage 6 of 7 Section 1, Para 116, 466 chars.

116: I think that it will demand more of my time. Preparation time for PowerPoint presentations, preparation time to develop activities for the kids. All that is extremely time consuming and you can save time by using other people’s ideas on the Internet but it takes time to find them and to modify them to your classroom. I wanted to have a teacher web page and I want to keep that updated. Now it takes time to make the web page, it takes time to keep it updated.

Passage 7 of 7 Section 1, Para 132, 319 chars.

132: [Levels of trust between district and teachers could be improved if there was] more communication, keeping us updated on decisions being made and why decisions are being made. Being sensitive to adequate preparation time assurance that there will be adequate preparation time. More face-to-face contact with teachers.
88: I'm still very concerned with time on that grade book

126: That is a big thing too the time that it takes and we have 75 minute prep period which sounds like a lot of time but when you’re dealing with three different preps trying to get computer technology ready to go, it is not much time
Appendix H

MEMOS OF INITIAL CATEGORIES

1) Allocation of resources - This category relates to how the teacher feels about the way the DSD money is being spent. For the most part they have expressed frustration with the allocation of money and resources.

2) Barriers to tech integration – This category is about how at this given time the teachers are struggling to bring technology into their classrooms and teach with the technology. What are the barriers that they identify? Within this category time issues, lack of resources, etc could probably be subsumed. Things that are helping could be receiving I-Tech training, getting a laptop, etc.

3) Change is cyclical – teachers keep mentioning that they feel that change is cyclical. To be included in this category the teacher mentions that this is the same thing we did years ago, or what goes around comes around, etc.

4) Community involvement – This category includes incidents that mention the involvement of the community in the DSD. Whether the involvement will help or not does not determine the incidents inclusion, only that the teacher mentions community in some way.

5) Competition for resources – Incidents that speak to the competition the teachers are experiencing in using resources such as scanners, digital cameras, projectors, etc. This category relates to lack of resources and barriers to tech integration.

6) Competition for space – Incidents that mention how difficult it is to get lab time. Again probably related to barriers.

7) Current uses of tech – Properties of this category include anything the teacher is currently doing with technology. How are they experiencing this change in their everyday teaching? Examples include PowerPoint presentations. The category ‘successes’ should probably be here?

8) Distance between elem and secondary – This is something that didn’t surprise me, but may be significant. To be in this category incidents should be related to the lack of communication and distance between Mac’s and PC’s. Although the platform problems won’t be much of an issue soon.

9) District is behind the 8 ball – George’s own words. This category includes any incidents related to comparisons teacher make between WVSD and other districts as it relates to being behind the curve when it comes to technology.

10) Family responsibilities – Teachers talking about how family responsibilities are effecting how they are experiencing district wide reform.

11) Frustration with VECC – Mention of the VECC in a negative sense. This category is probably related to community involvement, allocation of resources and frustration with district.

12) Frustration with district – The incident must be related to teacher frustration with the WVSD in general.

13) Future plans – Properties of this category include incidents that speak of the plans teachers have for the future as teachers in a DSD.

14) Good district – Incidents that mention the good points of the WVSD, anything positive that the teachers say about the district.
15) Imposter – This is an inductive category from the words of Regina. At this point to be coded here the incident should be related to pretending to be competent. This might become a more encompassing category if I include incidents that are now included under ‘PR’ as they relate to the way the district is promoting itself as a DSD. My feeling is that the teachers view this as being an ‘imposter’, the district is pretending to be hi-tech and digital when they are not. It sounds like some teachers are worried that they will be found out when other schools come to visit the district.

16) Intensification – This is a deductive category and incidents that relate to the increasing responsibilities, pressures, etc. of teaching in a DSD are included here. The big category of ‘time’ could, and maybe should, be included within this more all-encompassing category.

17) Keeping positive – Properties include incidents where the teachers talk about keeping a smile on their face, talk about being a positive influence, not a negative and resistant teacher. This feels like a very key and significant theme that emerges from the data.

18) Lack of resources – This was the first and most prominent category for me going into this study. Properties include mention of no hardware, software, etc. This could also include the category of competition for space, resources, as well as technical support.

19) Laptops – Not sure if this is a good category. Properties include incidents that speak of the upsides of having their own laptop. Probably related to the positives (as opposed to barriers), would this theme be called ‘enabling factors’?

20) Learning from family – Incidents that include mention of family influence in technology use of the teachers. Maybe this could be part of a theme titled learning, or learning from others?

21) Learning from students – Important category that includes incidents related to the way teacher have, and continue to learn, from own children as well as students in their classes.

22) Loss of face to face interaction – Although Maria was the only teacher to have incidents placed into this category, I believe that it could an important and significant theme.

23) Meaning – Incidents that speak directly to what it means to teach in a DSD. Some incidents are easy to category here, others will come…I hope 😊

24) Need for technology – Properties include incidents that speak to the need for technology in schools.

25) No opportunities to meet – This category includes incidents that relate the few opportunities teachers have had to meet with each other to discuss technology integration and the DSD in general. This has caused frustration and could be related to the frustration with district category.

26) Parental involvement – One of the DSD goals and something that teachers talked about frequently. Any mention of parental involvement, good or bad, is included here.

27) Potential – Incidents that speak of the potential of the DSD and WVSD as they become digital. Probably related to keeping positive category and future plans.
28) PR – (Public Relations) Properties include talk of the image the district is putting out there. Is the WVSD an imposter waiting to be caught?

29) Professional development – Any mention of past and continuing professional development as it relates to teaching in a DSD. This includes incidents related to the I-Tech training.

30) Resource person – Incidents that include the words resource person. Could also include being a role model, but at this point incidents mentioning role model have been coded in teaching role.

31) Slow change – A category that includes mention of the speed of change from traditional to digital. Moving “slowwwly like a tortoise”.

32) Successes – Encompass teachers’ current use of technology. Incidents related to in-class and out of class success the teachers have had.

33) Supported by district – Incidents related to support and backing from the district as this reform effort takes place.

34) Teacher collaboration – Properties include any mention of teaming or meetings (formal or informal).

35) Teaching role – This category is very large and contains many incidents. Probably needs to be split up and sub-divided. This theme may eventually evolve into ‘changing role’? Incidents that relate to how these teachers understand their roles as teachers and their jobs in general.

36) Technical support – Mention of computer help and technical support within the school or district. This seems to be lacking and maybe relates to district support or how about ‘supporting change’?

37) Time – A significant theme form the literature and from the data. Mention of the issue of teacher time…could be related to intensification.

38) Unclear expectations – Any mention of the teachers being unsure about their role; What is a DSD? How will this all play out? Where the district is heading? Lack of communication, etc. Could be called ‘what is a DSD?’ because at this point in time teachers are unsure.
Appendix I

DIAGRAM OF CATEGORIES
EDUCATION

The Pennsylvania State University, University Park, Pennsylvania.
Doctor of Philosophy in Education, Curriculum & Instruction with an emphasis in Curriculum & Supervision, May 2003

East Stroudsburg University, East Stroudsburg, Pennsylvania.

Lock Haven University, Lock Haven, Pennsylvania.
Bachelor of Science, Health and Physical Education, May 1996

Grimsby College of Arts and Technology, Grimsby, England
City and Guilds, Leisure and Recreation, May 1991

CAREER HISTORY

West Chester University of Pennsylvania, Assistant Professor, West Chester, Pennsylvania, Fall 2002 – present

The Pennsylvania State University, Instructor, University Park, Pennsylvania, Fall 1998 – Spring 2002

The Pennsylvania State University, Teaching Assistant, University Park, Pennsylvania, Fall 1999 – Spring 2002

East Stroudsburg University, Graduate Assistant in the Movement Studies and Exercise Science Department, East Stroudsburg, Pennsylvania, Fall 1997-Spring 1998

Just-4-Kicks Soccer Camps, Co-Owner and Director of Coaching, 2002 – present

Hershey Wildcats Professional Soccer Team, Director of Coaching for Summer Camps, 1999 – 2001

The Pennsylvania State University, Student Athlete Mentor, University Park, Pennsylvania, Fall 1999

Lock Haven University, Assistant Women’s Soccer Coach, Lock Haven, Pennsylvania, Fall 1998-Spring 1999


PROFESSIONAL MEMBERSHIPS

American Educational Research Association
Association of Supervision and Curriculum Development
Association of Teacher Educators
Pennsylvania Association of Supervision and Curriculum Development
Pennsylvania Educational Research Association
Society for Information Technology and Teacher Education