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A Multi-Case Study of the Contextual Attributes of the School that are Critical for Adoption and Sustainability of Exemplary Technology Practices

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A Multi-Case Study of the Contextual Attributes of the School that are Critical for
Adoption and Sustainability of Exemplary Technology Practices

by

Tami Crader

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of the requirements for the
Degree of Doctor of Education
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Abstract

A Multi-Case Study of the Contextual Attributes of the School that are Critical for Adoption and Sustenance of Exemplary Technology Practices
by Tanti Crader

Since the 1980s, educators and policy-makers have been talking about technology in schools. Hundreds of millions of dollars have been spent annually on the purchase of computers and computer training for teachers. Many educators believe that technology has the power to change teaching and learning into active and engaging processes. Despite huge investments in technology, broad disparities exist among schools in regard to the quantity and quality of technology use. Teaching and learning have remained vastly unchanged. However, many schools have been successful at adopting and sustaining exemplary technology practices. The disparity among schools in the quantity and quality of their technology use would lead one to believe that various conditions exist at these schools that have been successful. This study examines the school culture and school leadership in an elementary school, a middle school, and a high school, to identify common factors that may be critical for the adoption and sustainability of exemplary/innovative technology practices. Additionally, the study attempts to describe any changes in technology practices observed across the three grade level configurations. Relying on the conditions that exist at three schools that have been identified as state Best Practices in Technology award winners, the researcher aligned results with extant literature. Based on the findings, the researcher has identified various cultural model and
leadership model components that exist in all three schools, across the three grade level configurations. Using interviews, observations, and document analyses, the researcher has described the context of each of three schools and has made recommendations for school leaders who are interested in implementing innovative technology programs in their schools. Recommendations include activities related to high expectations, parent involvement, collaboration, transformational leadership, and accountability. Suggestions for future research are also listed.
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Freddie and Scott, the other two legs of the Bermuda Triangle: I will never forget the laughter, the love, and the arguments that we've shared. I am so glad that we traveled this road together.
DEDICATION

In my life, I have been blessed with...

loving parents, who have given me the invaluable gifts of self-confidence and a
determined spirit,

a supportive husband, who has understood my need for challenge and independence,

and three beautiful children, who have presented me with moment after moment of
pure joy.

I dedicate this work to my parents, Frank and Phyllis, my husband, Bob, and my three
children, Kristen, George, and Daniel. I love you all.
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CHAPTER I

Background and Problem

Technology has long been used to supplement the educational process. Since the early 1980s, the education reform agenda of each American President has included the concept of increased access to new technologies in schools (Cuban, 1999). Three different goals have under-girded this agenda: to make schools more efficient and productive, to change teaching and learning into engaging and active processes, and to prepare the current generation for the future workplace (Cuban, pp. 13-15). Over the last two decades, hundreds of millions of dollars have been spent annually on the acquisition of computer hardware and software, training, and implementation.

Over time, educational technology has become increasingly prevalent in our nation’s schools. Many schools have ready access to computers and other technologies, yet teaching and learning practices remain vastly unchanged (Cuban, 2001). In contrast, some schools with limited access to technology and with limited overall resources have used technology tools to transform classroom practices. Despite huge investments in technology, disparities exist among schools and among school districts in their levels of successful adoption and subsequent sustainability of innovative technology practices.

Although many critics of increased spending on computers in schools contend that the continued high cost of technology is unjustified, most do acknowledge that we have become a computerized society. Teachers, students, and communities are using computers for research, for communication, and as tools in the learning process. A
2001 national study of computer use reported that 82% of 8th-graders and 86% of 12th-grade students had indicated using a word processor to write reports at least to some extent; 77% of those respective groups reported using the computer for research (DeBell & Chapman, 2003). Additionally, the No Child Left Behind Act of 2001 approved over $700 million to improve student achievement through the use of technology in elementary and secondary schools.

Educators acknowledge that the tools students use to learn are changing. These tools are becoming part of the equipment of 21st-century scholarship. Information technology is drastically changing the way the world operates. Information literacy is a 21st-century prerequisite for success in a global economy. Currently, common expectations for college students include the ability to use spreadsheets, use data analysis tools, create electronic presentations and portfolios, write and revise using a word processor, and access, evaluate, and apply Internet research. Future generations will describe information literacy as a basic skill, along with the ability to think critically, and to globally communicate (November, 2001). It is no surprise that districts spend vast sums of money on technology. As job-market skills become increasingly technological in nature, educational systems will be influenced to reform their instructional practices, curriculum content, and learning environments to meet the demand for workers who are competent in technological skills.

Unfortunately, reform movements in education do not necessarily lead to changes in classrooms (Parr, 1995). Historically, very little has changed in teaching and learning, despite many cycles of school reform. Innovative technology-related school
reforms have been relatively slow to "take hold" in classrooms, and yet computers are ubiquitous features in schools with even limited resources. Organizational structure, school culture, implementation and planning, leadership, pedagogy, and parent/community involvement are just a few of the many institutional concerns that are much discussed in school reform and organizational change research and literature. The research is not clear as to whether technology initiatives present their own set of barriers, unique to school reform research.

To the frustration of many school leaders, teachers learn from experience that new "waves" of reform or innovation fade (Schlechty, 2001). Teachers may view the latest dialogue about technology reform as yet another "wave" that can be ignored. Teachers find it difficult to stay current in the field of technology, given the rapid rate of change and present time constraints in school schedules. Teachers prioritize their time, a valued resource, and focus on strategies that they have determined will result in better student learning. Since there are conflicting views concerning the value of technology in schools, it is highly unlikely that a teacher who lacks a positive attitude toward the use of technology will use it in the instructional process (Becker, 2000).

Advice given to teachers about computer use is often confusing and biased, consonant with the values of administrators (Cuban, 1999).

The process of innovation in the school arena has been much less researched than in business and industry (Sharma, 2001). Although the process of organizational innovation has been intensely studied (Anderson & King, 1993; Damanpour & Evan, 1984; Rogers, 1995), innovation in education has received much less focused
attention. Examining innovations at the school level would help provide insights about factors that facilitate initiation and sustainability of innovations in school (Sharma).

The adoption of innovative programs is a complex and challenging process that involves a number of important considerations. Technology program implementation offers a formidable challenge. Technology planning and implementation efforts vary from district to district, and from school to school. The existing broad disparities in the sustainability of exemplary and/or innovative technology practices in schools would lead one to believe that specific contextual factors are critical to the successful adoption and sustainability of exemplary technology practices. For the purposes of this study, the researcher will focus on leadership factors as well as factors associated with school culture.

Problem Statement

What contextual attributes of school leadership and of the school culture are critical for the adoption and sustainability of exemplary technology practices? This study examined New Jersey schools that have been identified as having exemplary or innovative technology practices, to identify those cultural and leadership factors that are essential to the implementation and sustainability of these practices.

Relevance and Purpose of Study

"Internet technologies provide ways to interconnect people around the world in ways and on a scale that has never before been possible. Combining these technologies with innovative ways to improve and reform education thus represent significant challenges to teachers, students, schools, school systems, and national educational systems" (Jacobson & Jacobson, 1998, p. 6).
Education technology is not a panacea for educational reform or school improvement. However, when integrated into the curriculum to achieve specific learning goals, many researchers and educators believe that technology has the potential to produce dramatic results. The 21st century will require an improved educational system, one that will train students to be critical thinkers in a global economy. Education must adapt, to ensure that students have the necessary skills to thrive in the digital age.

Research in the area of technology, in general, shows an increase in technology use; however, innovative, meaningful technology integration practices are rare (O’Neil, 1995). Technology planning plays an important role in the integration of technology into curriculum. Many school districts have three-to-five year technology plans. The emphasis in past years has been on the acquisition of computers and computer hardware and software. Recent proponents of technology in schools, however, have urged school leaders to provide intense teacher training that will emphasize the integration of technology in curricula. Technology is viewed no longer as a supplement but as an integral component of education (Kleiman, 2000). School reform and technology initiatives are often linked.

Technology use in schools is not universally lauded as an appropriate strategy for reform. Critics of the technology movement have concerns over the development of man-machine systems, technological momentum, individualizing instruction, gender inequities and bias, and dehumanization (Januszewski, 1995).

Most educational innovations do not affect substantive changes in teaching and learning (Elmore, 2006). The cause of this unfortunately may be due to the obstacles
presented by traditional school structuring. In traditional school structures, state policy makers have very little to do with school operations. In turn, local school boards have little control over the technical level, the teaching and learning, in the schools. There is rarely agreement among educators on the appropriate knowledge base or pedagogy that guides teachers' instruction. Nor is there a consensus on criteria for student success in many cases. Our schools are well versed in traditional structural concepts. The "grammar of schooling" ---subjects, grades, grade levels, individual teachers---has contributed to organizational rigidity that inhibits communication among levels within the organization (Lunenburg, 2001) and prevents overall changes in teaching and learning. This model has remained relatively unchanged throughout most of the 20th century (Elmore, 2000).

"The structure of an organization is founded upon its policies, procedures, rules, and relationships. The culture of an organization is founded upon the assumptions, beliefs, values, and habits that constitute the norms for that organization---norms that shape how its people think, feel, and act" (Dufour & Eaker, 1998, p. 131). Changing a school's culture is a messy, complex task. The "status quo" will always resist change. If a change initiative is to be sustained, the elements of that change must be embedded within the school culture (Dufour & Eaker, 1998).

School improvement and school reform efforts may be especially challenging when technology is a major component. In addition to the problems inherent in the well-established culture of schools, various other factors affect the implementation of technology in school curricula. This study will examine these factors that contribute
to successful implementation of sustained, exemplary and/or innovative technology practices, in an attempt to help school leaders replicate conditions conducive to technology innovation adaptation. For the purposes of this study, "exemplary" and/or "innovative" practices are considered those practices that are worthy of imitation (Webster, 2005) because they promote high student achievement, address specific educational needs of students and the Core Curriculum Content Standards, yield documented results meeting set objectives, and can be replicated (New Jersey Department of Education, 2005). Throughout this study, "exemplary" and "innovative" will be used as interchangeable terms.

Historically, school improvement has been a topic of educational dialogue. Reform movements, focusing on innovations and exemplary teaching practices, have been documented, but on a relatively small scale. Research on educational innovations has focused on the impact of various factors on the adoption, generalization, and subsequent sustainability of innovative programs and practices. Research includes studies of people, actions, and contextual conditions (Anderson & Dexter, 2001); leadership, organizational structure, communication, support, organizational capacity, and evaluation (Sharma, 2001); school culture (Mells, 1994, DuFour & Eaker, 1998); and educational integrity, program components, pedagogy, access, and decision-making (Parr, 1995). Although this list is not exhaustive, much of current research on school change, as it is determined by innovative or exemplary practice, falls into the above-mentioned categories. For the purpose of this study, the researcher will focus on two factors: school leadership and school culture. School
culture and more specifically, change in school culture, is seen as significant in school reform efforts (Finnan, 2000). Fullan (1993) suggests that in order to change the culture of an organization, changes need to occur in norms, habits, beliefs, and skills. Fullan maintains that re-culturing must occur before any change can take place. School leadership and school leaders’ actions also have been well researched in their relationship to school reform (Buckner, 1997). Relationships between school leaders and members of the school faculty are developed over time. Predictable patterns emerge, so that these interactions set the stage for future influence over the beliefs and actions of the members of the school. The unique mix of people, processes, history, and contexts that shape school events can not be ignored by school leaders in the change process (Hart, 1994).

Research Questions

A. What contextual attributes of school culture and school leadership are critical for the adoption and subsequent sustainability of exemplary and/or innovative practices in education technology?

1. What commonalities in school culture exist among schools that have been recognized as having introduced and sustained exemplary and/or innovative practices in technology?

2. What commonalities in leadership styles and leaders’ actions exist among schools that have been recognized as having introduced and sustained, exemplary and/or innovative practices in technology?

B. How has the winning of a state Best Practices award influenced technology
practices in schools?

C. How does the configuration of the school (K-8 vs. K-12, etc.) impact technology practices?

Limitations/Delimitations of the Study

1. Not every school that has implemented and sustained exemplary and/or innovative technology practices will be included in the study, due to the delimitations of the selection process.

2. Criteria for Best Practices recognition were developed by the New Jersey Department of Education, which are outside the scope of this study. These criteria may be de-limiting.

3. Much of data collected in this study is of a self-reported nature, limiting the objectivity of the study.

4. The lack of researcher's experience with the use of an interview guide presents a limitation.

5. For organizational purposes, this study is de-limited by the two main categories mentioned above in the Research section. The researcher acknowledges the existence of many factor categories, but will confine this study to school culture factors and school leadership factors.

6. This study is de-limited by the selected research under review. Given limited time and scope of the study, it would be impossible to review all existing research in the areas of school culture and school leadership.
7. A limitation exists in the researcher's bias toward transformational leadership practices.

*Definition of Terms*

Culture—a sequence of complex shared behavior patterns that connect the artifacts, core values, and underlying assumptions that form a cultural paradigm (Mells, 1994, p. 17).

Educational technology (used synonymously with "technology" in this study)—a variety of electronic tools, media, and environments that can be used to enhance learning, foster creativity, stimulate communication, encourage collaboration, and engage in the continuous development and application of knowledge and skills (U.S. Department of Education, 2000).

New Jersey Best Practices—those innovative or exemplary strategies that promote high student achievement, address specific educational needs of students and the Core Curriculum Content Standards, yield documented results meeting set objectives, and can be replicated (New Jersey Department of Education, 2005).

Exemplary/innovative-worthy of imitation (Webster, 2005)

Innovation—the introduction and application within a group, organization, or wider society, of processes, products or procedures new to the relevant unit of adoption and intended to benefit the group, individual or wider society (West & Farr, 1990, as cited in Sharma, 2001)
Leadership style—a constant pattern of behavior which the leader exhibits, as perceived by others, when she/he is attempting to influence the activities of the group (Hersey & Blanchard, 1976)

Diffusion -process by which an innovation is communicated through certain channels over time among the members of a social system (Rogers, 1995, p. 5)

Sustained- Something that is maintained; something that continues to exist—encyclopedia dictionary.

Chapter I Summary

Chapter I presents the problem statement, the purpose and relevance for the study, the research questions, the limitations/de-limitations, and the definitions of terms. Background information provides the context for the study. There is broad disparity among schools in the level and quality of technology practices, despite national, state, and local initiatives and support for technology use in schools. Researchers have presented findings that support a wide variety of school factors that contribute to the success or failure of innovative practices in schools, but little is known about why technology "takes hold" in some schools and not others. For the purpose of this study, the researcher has focused on the cultural and leadership factors that contribute to the successful implementation and subsequent sustainability of exemplary technology practices in schools.
CHAPTER II

Introduction

As mentioned in Chapter 1, education technology is commonplace in the nation’s schools. States report increasingly desirable computer-to-student ratios, schools across the country are partnering with community resources to increase student access to technology, and reform efforts are often linked to technology. Each American President has offered technology-related goals as part of his national education agenda. States have made great strides in acquiring the infrastructure and training necessary for technology integration (CEO Forum on Education and Technology, 2001). A national effort to increase technology use in schools has been motivated by three main goals: to make schools more efficient and productive, to transform the teaching and learning process, and to prepare our youth for the demands of the future. More computers have been purchased for schools, on the assumption that their increased availability in classrooms would lead to increased and innovative use. Yet, this assumption has been proven time and again to be faulty (Cuban, 2001). As recently as the late 1990s, very few of elementary and middle school teachers were computer users (Cuban). Relatively few exemplary and/or innovative technology programs have been sustained in educational settings, despite enormous monetary investments.

While most educators believe that technology has the potential to reform the instructional process and enhance achievement, enthusiasm for educational
technology is not universal. Much of the criticism of educational technology falls into five categories: concerns about the development of man-machine systems; concerns about technological momentum; concerns about individualizing instruction; concerns about gender inequities and bias and concerns about dehumanization. Often, too, those who criticize educational technology also criticize the broader field of education, disagreeing over the purpose and meaning of the concept of education and the process involved with bringing purposes and meanings to reality (Januszewski, 1995).

Critics of educational technology contend that disparities regarding access exist across socio-economic levels and ethnicity differences among schools, across ability groups of students, across teachers, and across ability grouping of students taught by the same teacher. In schools with large numbers of ethnic minorities and in schools that face poor conditions and competing demands for resources, the implementation of technology programs may be seen as less important than other initiatives (Becker & Ravitz, 1997).

New Jersey considers “Best Practices” as those exemplary and/or innovative strategies that promote high student achievement, address specific educational needs of students and the Core Curriculum Content Standards, yield documented results meeting set objectives, and can be replicated (New Jersey Department of Education, 2005). Webster (2005) defines “exemplary” as “worthy of imitation.” For the purposes of this study, “exemplary” and/or “innovative” practices are those practices that are considered worthy of imitation (Webster, 2005) because they promote high
student achievement, address specific educational needs of students and the Core Curriculum Standards, yield documented results meeting set objectives, and can be replicated (New Jersey Department of Education, 2005).

New Jersey's Best Practices recognition is awarded not only to "exemplary" programs that are linked to improved learning and that can be replicated, but also to "innovative" programs that have been shown to improve student achievement and that can be replicated. West and Farr (1990) define "innovation" as the introduction and application within a group, organization, or wider society, of processes, products or procedures new to the relevant unit of adoption and intended to benefit the group, individual or wider society. Since New Jersey considers both "exemplary" and "innovative" as worthy of imitation, the two terms will be used interchangeably throughout this study. The researcher acknowledges that, in reality, the definitions of "exemplary" and "innovative" should be distinguished. Linking the two terms, in this study, will not affect the focus or outcome.

According to Pisapia (1994), the difference between the classroom of exemplary technology-using teachers and that of low (or non-exemplary) technology-using teachers is in the way their classrooms are conducted. In exemplary programs, student use of technology is integrated within the curriculum, within the patterns of teaching and learning. The technology may be used as a presentation tool, a communication tool, or an analysis tool as opposed to an activity isolated from the main purpose of the class. Exemplary technology practitioners use technology in a variety of ways: drill and practice, tutorials, simulations, problem-solving,
communication, and productivity. The types of technology applications change as teachers' philosophy and knowledge base evolve (Pisapia, 1994). Many educators believe that education technology is a tool for facilitating school improvement.

School improvement has been thoroughly studied over the last decade. Exemplary reforms have been documented on a relatively small scale. Innovative programs have not been replicated and subsequently sustained from one school context to another (Lunenburg, 2001). Research on educational innovations has focused on the impact of various factors on the adoption and sustainability of innovative programs and practices. Research includes studies of people, actions, and contextual conditions (Anderson & Dexter, 2003); leadership, organizational structure, communication, support, organizational capacity, and evaluation (Sharma, 2001), school culture (Mellis, 1994), and educational integrity, program components, pedagogy, access, and decision-making (Parr, 1995). Although not exhaustive, this list reflects the salient focus concepts of many studies on the introduction and sustainability of educational innovations. These factors can be more generally organized into six main categories: organizational structure, school culture, program management, leadership, curriculum and pedagogy, and parent/community involvement. The researcher acknowledges that there may be overlapping components across categories, as well as components that may exist beyond these six established categories. Each of the above-mentioned categories is worthy of study. For the purpose of this study, however, the researcher will focus only on attributes of school leadership and on attributes of school culture.
that are common to schools that have been identified as having implemented and sustained exemplary and/or innovative technology practices.

This chapter will begin with an overview of research findings in the area of innovation and/or implementation of innovative programs. Additionally, this chapter will discuss important attributes of school culture and accompanying change strategies as well as the attributes of school leadership that affect school reform and/or school change.

_Innovation/Implementation_

Though the need to adopt innovations at the school level is repeatedly underscored in reform literature, practical examples of such innovations are rarely found. West and Farr (1990, as cited in Sharma, 2001) describe “innovation” as the “introduction and application within a group, organization, or wider society, of processes, products or procedures new to the relevant unit of adoption and intended to benefit the group, individual or wider society (p. 2). Research on innovations in organizations has focused on a number of factors that either facilitate or hinder the initiation, application, or continuation of innovations. These factors include, among others, leadership, the members of an organization, structure of the organization, organizational size and resources, organizational climate and culture, and group processes.

Much discussion about the innovation process highlights the concept of “tipping point,” the point at which a trend or innovation is accepted and then is quickly espoused by members of the organization. The tipping point concept has its roots in
diffusion theory, which describes conditions conducive to successful organizational change (Orr, 2003). Diffusion is defined as the "process by which an innovation is communicated through certain channels over time among the members of a social system (Rogers, 1995, p. 5). Rogers contends that each member of the system follows a five-step process when faced with an innovation. Initially, at the knowledge level, a person becomes aware of the innovation and its function. At the persuasion stage, a person forms an opinion, either in support of or against the innovation. A personal decision is made at the third step, either to adopt or reject the idea. If the innovation is adopted, the fourth step involves the implementation of the innovation. Finally, a person confirms the results of his/her innovation decision (Rogers, 1995, p. 162).

People will generally adopt an innovation if they feel that it is useful and enhances their utility. They consider existing values and habits, the ease of implementation, and the resulting opinion of their peers when making the decision to adopt or reject an innovation. Innovation decisions are framed by personal characteristics. Rates of adoption distributions follow a bell-shaped curve pattern. Diffusion theory researchers divide the curve to categorize five categories of system member innovativeness, where innovativeness is defined by the degree to which an individual adopts new ideas relatively earlier than other members of the system (Orr, 2003). The five categories are innovators, early adopters, early majority, late majority, and laggards. Innovators are eager to try new ideas and innovations, and, in turn, influence the early adopters, who look to data provided by the innovators before
making decisions. The people within this early adopter group are well-respected for their informed decision-making. As a result of this group’s adoption of an innovation, many “early majority” members are quick to adopt, in order to belong to the respected group. It is at this point that the adoption process reaches the “ tipping point,” since the adoption process now begins to resemble the domino effect. Late adopters, despite their caution and hesitation, begin to adopt, in order to prevent the loss of status in the group. “Laggards,” for a variety of reasons, take a much longer time to adopt innovations (Rogers, 1995, pp. 162-165). Diffusion theory research implies that the spread of an innovation hinges on the acceptance of a very small group of opinion leaders in an organization.

Despite an extensive history of research in the area of adoption and diffusion of innovations (Surry & Ely, 2001), very few innovative practices involving technology have been successfully sustained (Cuban, 2001). The field of technology has suffered from a lack of widespread acceptance (Burkman, 1987). Many researchers believe that this general lack of acceptance of technology is due in part to the over-emphasis on superior hardware and software development (Surry & Ely, 2001) and a disregard for even rejection of the other factors that influence successful adoption of innovations. Understanding why people use technology and why they don’t is at the core of the process of adoption of technology innovations (Surry & Ely, 2001).

Researchers in the field of educational technology have used diffusion theory to study the lack of utilization, adoption, and sustainability of technology by schools. Burkman (1987) described steps for the school leader to use when implementing
technology. These steps include identifying the potential adopter, measuring relevant perceptions, designing and developing a user-friendly product, informing the adopter of the innovation's user-friendliness, and providing post adoption support. Other researchers (Stockdill & Morehouse, 1992) used diffusion concepts to develop a checklist of factors for use when implementing distance learning and other educational technologies. Sherry, Lawyer-Brook, and Black (1997) use diffusion concepts as the basis for an evaluation of a program intended to introduce teachers to the Internet.

Although adoption and diffusion research offers a model for the adoption of innovative programs, it does not shed much light on why, after a period of time, some innovations are sustained and others are not. A growing number of researchers have become interested in the implementation and sustainability of innovations.

Implementing innovative programs requires change. Any substantial change involves risk-taking. Busick, Hammond, and Inos (1992) describe the change process in three phases: The Overview and Initiation Phase, the Implementation Phase, and the Institutionalization and Renewal Phase. Fullan (1993) acknowledges the various phases of implementation and contends that successful change occurs naturally and willingly when the members of organizations develop necessary skills and share a deep understanding of the program. Fullan contends that change cannot occur organizationally unless change takes place in individuals.

Schools that learn to implement reform efforts and become successful at sustaining innovative practices may not resemble current organizations (Elmore,
This point is made clear by a 1999 (Hannay & Ross, 1999) study of cultural outcomes related to structural or organizational changes in secondary schools. In this study, nine secondary schools were studied over a three-year period. The focus of the study was on the cultural outcomes of deviating from traditional subject-department structure. After three years, researchers discovered that the restructuring initiative had indeed resulted in cultural changes, including an increase in collaboration among staff members, an increased capacity to change and accept change, and a collective paradigm shift from a content-centered mindset to a student/learner-centered focus.

This student/learner-centered focus is emphasized in much of the research on technology innovations. Do innovative technology programs respond to implementation and innovation theories much the same way as innovations in other pedagogical or curriculum areas? Ely (1999) lists eight conditions that appear to facilitate the implementation of educational technology innovations. The conditions are:

1. Dissatisfaction with the status quo. Dissatisfaction with existing circumstances seems to push people toward change. This dissatisfaction can be an innate feeling or an emotion brought about by an external campaign.
2. Existence of knowledge and skills, required by the ultimate user of the innovation.
3. Availability of resources. Resources include hardware, software, resource material, and teaching materials.
4. Time. Implementers need time to acquire skills and reflect upon their use of the innovation.
5. Rewards or incentives exist.

6. Participation in decision-making and communication.

7. Commitment. Visible evidence of support for the implementation of the innovation is noticed by participants, and

8. Leadership. Leadership of the school or district administrator as well as the leadership of the project administrator is important in the implementation process.

Ely (1999) contends that these eight conditions are present, in varying degrees, in successfully implemented programs.

School Culture

While many past studies have examined organizational innovations from the perspective of organizational structure, researchers in business and in education have urged exploration of organizational culture, recognizing the interaction between structure and culture (Oberchain, Johnson, & Dion, 2002). Sergiovanni (1996) often criticizes the use of organizational models to describe schools, stressing that schools should be seen as communities, with shared values and norms. School culture is seen as significant in school reform efforts (Finnan, 2000). Fullan (1993) suggests that in order to change the culture of an organization, changes need to occur in norms, habits, beliefs, and skills. Fullan maintains that re-culturing must occur prior to any restructuring.

Over time, organizations develop a culture of "distinctive beliefs, values, and patterns" (Bolman & Deal, 2003, p. 244). Culture is the "way things are done around here," according to Deal and Kennedy (1984, as cited in Bolman & Deal, 2003, p.
243). Schien (1992, p. 12) defines culture as "a pattern of shared basic assumptions that a group learned as it solved its problems of external adaptation and integration, and that has worked well enough to be considered valid and therefore to be taught to new members as the correct way to perceive, think, and feel in relation to those problems." A school's culture may be more informal than its structure, but no less influential. Any reform effort, including innovation adoption, will require consideration of school culture (Mells, 1994). Fullan (2001a) maintains that, rather than thinking in terms of school reforms, educators must plan for re-culturing school.

Throughout the various definitions of school culture, emphasis is placed on values, assumptions, and behavior patterns. Based on these commonalities, school culture will be defined in this study as "a sequence of complex shared behavior patterns that connect the artifacts, core values, and underlying assumptions that form a cultural paradigm" (Mells, 1994).

Models of school cultures help educators describe current patterns in schools. These models characterize the school by the shared behaviors, values, and norms of the school participants (Cavanaugh & Dellar, 1997). The ability to improve schools will always require a shift in school culture. Any reform effort will require a transformation that is grounded in elements of organizational culture (Mells, 1994).

Researchers differ in their explanations of school culture. Some models focus strictly on the interaction of teachers. For example, Fullan and Hargreaves (1992, as cited in Cavanaugh & Dellar, 1997, p. 5) describe school culture in terms of separation, connection, and integration. They note a culture where teachers work
mainly in isolation, independent from each other, which leads to disjointed improvement efforts. A connected culture may include balkanization, where teachers are hostile to those who do not conform to an expressed expectation, or a level of comfortable collaboration that is accompanied by contrived congeniality. The community categorized as fully integrated values both the needs of individuals and needs of the groups within the community. A similar model is defined by Hargreaves (as cited in Cavazzaugh & Deßar, 1997) as a “mosaic” cultural form, characterized by collaboration, opportunism, partnerships, and alliances. The members of this culture are motivated by continuous learning and growth.

Innovative practices in technology often involve a more constructivist format (Ertmer, Ross, & Gopalakrishna, 2000). Becker and Reil (1999) examined the impact of teachers’ collaborative and leadership practices on constructivist teaching. Becker and Reil point to two types of cultures—bureaucratic or professional—that teachers encounter when trying to integrate technology. Bureaucratic cultures tend to allow for autonomy in the classroom, but limited participation in curriculum and organizational decisions. In contrast, professional cultures support innovation and collaboration. Bureaucratic cultures tend to inhibit innovative practices and collaboration. Becker and Reil compared how teachers who had regular discussions with other teachers about pedagogical and subject-matter issues differed in classroom practices from teachers who kept to themselves. The teachers who were more collaborative were three-and-a-half times more likely to employ a constructivist approach in their classrooms. In this study, the researchers classified teachers
according to their level of involvement with mentoring, taking college classes, going to workshops with peers, publishing articles, teaching strategies, etc. Four groups were established: extensive collaborative professional practitioners, professionally oriented practitioners, mixed practitioners, and classroom-focused practitioners. The analysis demonstrated that the more teachers orient themselves in professional activity beyond the classroom the more constructivist their teaching practices become.

Maxwell and Thomas (1991, as cited in Cavanaugh & Dellas, 1997) introduce an interactive model of culture whereby the belief system embodies tacit assumptions and understandings of the community, which then influences the group value system, which in turn influences norms and standards. These three concepts interact continuously and give meaning to behavior.

Levine (1980) supports the notion that academic institutions are designed and structured to resist innovations, that they perpetuate the culture of well-established customs. Teachers identify with their school’s culture by aligning themselves with the structures and processes within the school. They define themselves and their roles according to the school’s underlying assumptions. Teachers’ beliefs and behaviors have the power to reinforce the culture that already exists (Reames & Spencer, 1998).

Kluckhohn and Strodbeck’s organizational-cultural paradigm (1961, as cited in Mells, 1994) is used to study an effective school’s cultural assumptions as these assumptions relate to the school environment and to staff members’ ability to perform within that environment. Using data collected from a challenged urban school that
had been repeatedly identified as effective, Mells (1994) summarized the cultural assumptions held by staff members in relationship to Kluchon and Strodbeck's five dimensions: humanity's relationship to nature, the nature of reality and truth, the nature of human nature, the nature of human activity, and the nature of human relationships.

Mells (1994) used a qualitative approach to investigate the culture of the school. Interview responses, document analysis, and observation notes were grouped according to the following categories: continuous improvement ethic, self-regulation, openness to feedback, extension of trust, pride in work, resource development, freedom to innovate, active involvement, dispersed leadership, and cultural and symbolic management. Major themes were identified and compared to the behavior of members of the school community to determine the core values and underlying assumptions that existed (Mells, 1994).

Relying on Kluchon and Strodbeck's work (1961, as cited in Mells 1994), Mells describes three cultural orientations that relate to cultural assumptions. These are the "doing orientation," "being orientation," and the "being-in-becoming orientation." The doing orientation is aligned with a belief in human perfection and an assumption that the environment can be controlled. The being orientation is marked by a belief that nature, or the environment, controls all human behavior. The being-in-becoming orientation is characterized by a belief in self-actualization, the fulfilling of one's potential (Mells, 1994).
When staff members view their environment as dominating, they often exhibit passive behavior. This behavior would signify a "being" orientation (Mells, 1994). The underlying culture of the effective school in Mells's study opposes this behavior. Instead, the school had developed processes for self-regulating. In effect, the culture of the effective school viewed its relationship to nature (or its environment) as one of harmonious cooperation.

In regard to the nature of reality and truth, schools vary in their approach to time and space. Often, school teaching staff members resist change that threatens what was done in the past. It is not unusual in ineffective schools to find outdated practices that have been rationalized as the "way things have always been done." The Mells (1994) study describes effective schools as having being futuristic. An underlying assumption of cultures has to do with how members view each other and the other members of the school in the context of their environment. Cultures may view individuals as good, evil, neutral, or a mixture of good and bad. Stemming from a "being" orientation, effective school cultures, according to Mells, demonstrate a belief that students and teachers are basically good and perfectible, mainly through hard work.

When members of the school view the activities within the school as having a positive impact on the environment, the results are positive, according to Mells's study of the nature of human activity. Crucial to the effective school culture is the nature of human relationships within the school. Teachers view their relationships with each other as cooperative rather than competitive (Mells, 1994).
Mells' (1994) model of school culture rests on the belief that a set of core values influences all behavior in the community. These core values stem from the knowledge that the behavior patterns that have been developed over time have shown to be beneficial in accomplishing school and community goals. Mells argues that this culture will sustain itself over time "as long as the linkages help the school survive" (p. 17).

Cavenaugh and Dellar (1997) use a six-element framework to describe a model of school culture. The elements are teacher efficacy, emphasis on learning, collegiality, collaboration, shared planning, and transformational leadership. This model is used to provide a representation of the relationships between the six cultural elements and their contribution to overall school culture (Cavenaugh & Dellar, 1997). At the hub of the Cavenaugh and Dellar wheel-shaped model are the individual norms and values. Well-developed cultural elements, like the axles of the wheel, produce a working environment with features that are conducive to the development of positive, effective school culture. In this culture, teachers are bonded together by common needs and expectations, the community places emphasis on student learning, and collegiality is standard and gives rise to confidence and active participation. An atmosphere of trust exists, problems and successes are shared, and the professional growth of teachers builds upon the experiences of others. Control of the school is divested from the administration to the community as leaders focus on growth of the participants. The school culture is strengthened when leaders facilitate an inter-dependency among staff members (Cavenaugh & Dellar).
The six elements of the Cavenagh and Dellar (1997) model are inter-dependent and interactive. The balance between the six elements is important, and can be strengthened when all elements are strengthened. School culture declines when there is a weakening of elements that is not mitigated by the strengthening of other elements. Changes in both internal and external conditions of school culture have the potential to stimulate changes in the overall culture, since the beliefs and attitudes of teachers which are collectively expressed through the school culture are not static (Cavenagh & Dellar).

Dufour and Eaker (1998) argue that the school culture that is most effective in bringing out change in schools is one of professional learning. Dufour and Eaker describe six characteristics of professional learning communities. The six characteristics are:

1. Shared mission, vision, and values. These mission, visions, and value systems are not only articulated regularly in professional learning communities, they undergird all decisions, thoughts, and actions.

2. Collective inquiry. People who work in a culture of professional learning continually question the status quo, take risks, and evaluate progress. This same cyclical process is described by Senge et al. (1994, as cited in Dufour & Eaker, 1998). Collective inquiry facilitates the acquisition of new skills and capabilities, which in turn, allows for new experiences and awareness. This new awareness results in paradigms, allowing for continuous growth.
3. Collaborative teams. Teams in this model share a common purpose and work toward common goals. The emphasis is less on the individual and more on the learning that can occur from the momentum of the group.

4. Action orientation and experimentation. In a culture of professional learning, members are not willing to tolerate inaction. They are willing to experiment, to try new ideas and test new strategies. "Even seemingly chaotic activity is preferred to orderly, passive inaction (Dufour & Eaker, p. 27).

5. Continual improvement. Members of a professional learning community are committed to continually challenging the status quo. Innovation, in this model, is viewed not as a task to be completed but as a way of life.

6. Results orientation. Purposeful improvement is a theme of the professional learning culture. Improvement plans are regularly assessed.

Most models of school culture emphasize the effectiveness of teacher collaboration as it relates to staff development. Even management-oriented models of the past emphasize the need for managers to identify staff development needs and to structure training programs accordingly (Dufour & Eaker, 1998). Staff development in schools is frequently met with opposition, due to the strong resistance of some school cultures. Often, implementation of innovative practices involves traditional staff development models, with little or no consideration of school culture. Although research supports the social and collegial nature of people in organizations, teachers often work in isolation (Fullan, 2001). Teachers explore individual staff development that further isolates them from their colleagues. Schools that support this model of
professional development endorse the autonomy of teachers. Individual autonomy and isolation are barriers to school improvement (Elmore, 2000). This common practice of fragmented and individualized staff development may hinder the collective exploration of sound classroom practices that integrate technology, discussion about technology implementation, and successful reform or school improvement. Despite extensive research on adult learning and human development which supports teachers' need for a variety of opportunities to interact and to develop deeper understandings and theories in a collaborative setting, school administrators have frequently left teachers out of the reform process (Novick, 1996). Technology planning, training, and managing the change process are important considerations for the implementation of innovative practices.
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Cultural Change

"The structure of an organization is founded upon its policies, procedures, rules, and relationships. The culture of an organization is founded upon the assumptions, beliefs, values, and habits that constitute the norms for that organization—norms that shape how its people think, feel, and act" (Dufour & Eaker, 1998, p. 131). Changing a school’s culture is a messy, complex task. The “status quo” will always resist change. If a change initiative is to be sustained, the elements of that change must be embedded within the school culture (Dufour & Eaker, 1998).

Finnan (2000) contends that successful implementation of reform programs or innovations depend on the compatibility of the underlying assumptions of the program and the underlying assumptions of the culture. Often, schools are looking for results and tend to pay less attention to the “fit” between the assumptions of the culture and the assumptions of the new culture (program). In some cases, the interaction between these cultures provides positive motivation, while in other cases, constant clashes sabotage successful implementation. In addition to assumptions about learning, cultural assumptions include assumptions about students, assumptions about leadership and decision-making, assumptions about best practices, assumptions about the role of adults in the learning process, and assumptions about the value of
change. When schools identify compatibility and incompatibility issues, they are better equipped to make decisions about cultural gaps and cultural changes.

From a different perspective, educators believe that influencing and changing school culture involves the identification, articulation, modeling, promoting, and protecting of shared values. Once identified, the articulation of shared values can serve to direct staff toward important changes in practice. As more and more staff members model the commitment toward the new paradigm, new norms emerge, which will be guarded and protected in the same way that the previous norms had been protected (Dufour & Eaker, 1998). This cycle, described by Dufour and Eaker, is also described by Cavanaugh and DeClerq (1997) as part of a disequilibrium process. An evolution takes place when individual and group needs influence the development of collective values and norms which in turn govern behavior and professional activity.

Along with the identification and articulation process, the process of reflective dialogue serves as an important strategy in the cultural change process. When staff members engage in this type of dialogue, they examine their practices with a critical eye, working hard to evaluate them according to their newly established and articulated norms. As dialogue increases, teachers and staff members become more aware of their cultural norms and begin to internalize them (Dufour & Eaker, 1998).

Although the term "collaboration" is often mentioned in connection to effective school cultures, top-down, authority-oriented cultures seem to be prevalent in today's schools (Sergiovanni, 1996; Fulüan, 2001; Dufour & Eaker, 1998). Wagner (as cited
in Edmonson, Fisher, Brown, Irby, Lunenburg, Creighton, Czaja, Merchant, & Christiansen, 2001) recommends a constructivist approach, based on collaboration rather than compliance, as an effective method of school reform. Wagner states, "It is a process of action in which everyone works to understand the problem, engages in discussion to reach agreement on the goal, and shares responsibility for implementing change, assessing progress, and achieving results" (p. 517, as cited in Edmonson et al., 2001). DuFour and Eaker (1998) supports this idea, recommending that schools allow time for interaction among colleagues so that they can plan, share concerns, and work together to solve problems. According to Wagner, when a constructivist approach is followed over an extended period of time, a different culture emerges.

The new culture is one in which the norms involve high-performance expectations for all members. Outcomes may include higher morale as well as commitment to teaching (Edmonson et al., 2001).

Teachers have not rushed to jump on the technology bandwagon. Teaching practices, in general, have remained unchanged, despite huge investments in technology resources and despite national standards for teachers in this area. "Teacher resistance to change is primarily due to their concerns regarding the influence of instructional technology integration on their preparation, beliefs, and values" (Wetzel, 2001, p. 1). In other words, the culture of the school resists changes in pedagogy. Yet, successful technology integration requires a change in traditional pedagogy. Sustained change in pedagogy will occur only when teachers become dissatisfied with their existing conditions; view change as intelligible; view change as plausible;
and find change useful in a variety of new situations (Posner, Strike, Hewson, & Gertzog, 1982, as cited in Wetzel, 2001). Teachers need to be convinced that technology is valuable to their practice and to their students. School culture is a powerful force that often resists any change. In a study of six hundred eight teachers, Buck and Horton (1996) found that teachers believed that technology integration had transformed their teaching practices. They believed that these pedagogical changes resulted in more complex material and concepts for their students, that their students' needs were met, and that teaching had shifted from teacher-centered to student-centered instruction.

Teachers' instructional style and pedagogical philosophy are the result of personal factors and of the contextual factors that exist in the educational environment in which they teach. Research has examined the relationship among teachers' technology use and years of experience (Hadley & Sheingold, 1993), efficacy (Marcinkiewicz, 1994), and access to resources (Gilmore 1995), factors considered critical for successful classroom technology integration. Hadley and Sheingold (1993) also argue that school factors, such as community, policies, individuals, and purposes may contribute to teachers' technology practices. School culture factors may serve to facilitate technology innovations in some schools and as barriers in others.

Traditional pedagogy supports an "instructivist" approach. In contrast to constructivist methods, teacher-directed delivery may hinder reform efforts in schools that hope to create a more information-literate student population. Understanding teachers' experiences and beliefs about classroom learning, inherent in every school
culture, is an important step in the reform process if we are going to "...initiate and sustain the kind of systemic changes required for innovation to become a practice" (Ertmer et al., 2000, p. 7).

Many researchers believe that the use of technology can influence instructional practices. Technology use may encourage teachers to develop lessons that facilitate higher order thinking. Technology projects also tend to involve students in more integrative tasks, requiring them to set goals, plan, and use resources across the curriculum (Herman et al., as cited in Pisapia, 1994). However, integration of technology in classrooms is not easy for teachers. Planning for the logistics of a lesson requires an understanding of hardware, software, and resources. Additionally, the skill demands of every-changing technology make it difficult for teachers to stay current in this field. Teachers adopt innovations in light of their own goals, accustomed practices, the culture of their school community, and their own interpretations of the innovations. According to Pisapia (1994), teachers are more likely to begin using technology at the suggestion of their school or district computer coordinator than they are at the suggestions of their administrators or colleagues.

In a recent study of technology integration and its relationship to teacher expertise, Pierson (2000) found that the phrase "technology integration" can connotate different meaning for teachers. Schools rarely take this into account when attempting to foster exemplary technology use. In the 2000 study, the researcher examined the technology and teaching practices of teachers with various levels of technology and teaching expertise. The findings suggest that teachers at the lower end of the
continuum of teaching expertise, regardless of their high level of competency in technology, lacked the ability to link technology to teaching or to other learning opportunities in a pedagogically sound manner. Expert teachers who lacked expertise in technology use continued to separate technology practices from existing instructional practices. Teaching practices, in this case, remained static. In contrast, teachers who were on the upper end of the continuum in regard to teaching expertise and technology expertise were prolific in their ability to make decisions about the appropriateness, planning, and timing of integrated technology, based on the needs of the students. Their teaching practices continuously evolved. These findings suggest that school leaders interested in changing instructional practices in regard to technology need to remediate for the differences in not only technology knowledge and skills, but also for differences in pedagogical skills. More important than teachers who know how to use computers are teachers who know how to effectively use all of the tools at their disposal for the learning benefit of students.

Effective use of technology requires changes in teaching; in turn, the adoption of a new teaching strategy can be a catalyst for technology integration. Policy-makers expect direct results, measured in improved student performance, from monetary investments in technology. In reality, it is only the combined effect of pedagogically sound teaching practices and appropriate technologies that lead to improvements in learning (Byrom & Brigham, 2001). Many school districts hire technology experts and curriculum experts and hope that they work together. Teachers need coaching and assistance from someone who has expertise in both areas.
Leadership

School leadership has been well researched. The critical role of building principals is acknowledged and well documented (Buckner, 1997). Principal leadership is significantly related to student achievement (Waters & Grubb, 2004). Leadership theories of the past stressed attributes of leaders such as personality, motives, values, and skill (trait approach). Until the 1950s, researchers attempted to find correlations between individual leader attributes and a criterion of leaders’ success, without examining underlying explanatory processes. After years of dissatisfaction with this approach, researchers began to attend to what “managers” actually do on the job, either in terms of activities, responsibilities, and functions of the job, or in terms of leadership behaviors that influence indicators of leaders’ effectiveness (behavior approach). Power-influence leadership research examines the influence processes between leaders and other people in an attempt to explain leadership effectiveness in terms of how much and what type of power a leader has, how leaders influence the attitudes and behaviors of others, and how leaders empower other people and/or influence other people’s perceptions of their leadership. While all three of these approaches are leader-centered, other leadership research focuses on contextual factors that influence leadership processes (situational approach). Situational leadership research attempts to compare leadership practices across different types of organizations, different levels of management, and/or different cultures. This context-centered research also aims to identify aspect of the situation that moderate the relationship of leader attributes to leadership effectiveness (Yukl, 2002).
Current research often demonstrates an integrated approach to understanding leadership effectiveness (Yukl, 2002). As evidenced by the leadership literature review included in this study, leadership models often overlap, in regard to orientation. Components of a model can actually be included in more than one orientation. The models described in this study were categorized according to the main thrust of the research findings.

Behavior Approach Theorists

The school leader must take on the role of change agent. School improvement should always be on the school principal’s agenda. How principals perceive problems, involve stakeholders, implement innovations, monitor progress, provide resources and training, and evaluate outcomes will determine the success of change (Ubben, Hughes, & Norris, 2001). Tye (1994) identifies the school principal as either focused, diffuse, or coping, when implementing change. Focused principals have a clear vision and have well-articulated goals; they are able to find ways to help their schools approximate their visions. They are also able to communicate ideas and beliefs to others in a way that provides meaning. In comparison, some principals have a “diffuse” goal focus (Tye). They keep themselves informed about trends in schooling and frequently articulate school goals in terms of such trends. As a result, principals with diffuse goal orientation provide a myriad of often changing and sometimes conflicting goals. Principals who are coping take on a primarily management-oriented role (Tye). Rarely do they initiate goals; rather, they tend to respond to directives from their districts.
At a time when school leaders are expected to transform schools into effective learning communities, they are also held accountable for high scores on standardized tests. Principals who are able to see past the immediate high stakes furor recognize "the big picture" and provide direction for their school staff will effectively transform their schools from organizations to learning communities (Rancière, 1996). Leaders who can see the possibilities know their business, know how to access the markets and environments, mobilize their staffs to generate ideas and plans, know their clients, and are able to do many things to make changes happen (Galbraith & Lawler, 1993).

Instructional expertise is a valuable commodity that school leaders may or may not possess. When a school leader possesses instructional knowledge, curriculum knowledge, and knowledge of students' various developmental stages, he/she has far greater influence than if his/her knowledge base is lacking or is perceived as lacking (Rancière, 1996). An effective school improvement leader understands the elements that contribute to student learning, can assemble these elements into workable, coherent instructional programs, and can work with faculty and other stakeholders to implement these instructional programs in a fashion appropriately tailored to particular students and local circumstances (Hoachlander, Alt, & Beltranena, 2001). An essential requirement of strong school leadership is the ability to blend many practices into a balanced, well-managed package. According to Hoachlander et al. (2001), the combined practices that have a positive impact on school reform initiatives are:
1. raising the bar—elevating expectations;
2. increasing student engagement and motivation (adopting authentic pedagogy and providing additional support services);
3. providing focused, sustained professional development;
4. organizational and management practices;
5. building linkages (with parents, employers, and the community); and
6. monitoring and accelerating improvement (implementing policies for assessment and accountability.

Waters, Marzano, and McNulty (2003), discuss a “balanced leadership” framework, based on an analysis of research and literature, and predicated on the belief that effective leadership means knowing what to do as well as when, how, and why to do it. Effective leaders understand how to balance the push for change while they preserve culture, values, and norms that are viewed as important. To support this point, Waters et al. (2003) found that the average correlation effect size between leadership and student achievement is 0.25 (Waters, et al., 2003).

In addition to a general impact of leadership on student achievement, Waters et al. found twenty-one specific leadership responsibilities significantly correlated with student achievement. Analyzing data from leadership studies that span the last three decades, Waters et al. found a positive relationship between the following responsibilities (and the extent to which the principal fosters, establishes, possesses, or has the ability to extend the responsibilities) and student achievement. These include:
1. culture (fosters shared beliefs and sense of community)
2. order
3. discipline
4. resources
5. curriculum, instruction, and assessment (is directly involved with)
6. focus
7. knowledge of curriculum (is knowledgeable in these areas)
8. visibility
9. contingent rewards (recognizes and rewards individual accomplishments)
10. communication
11. outreach (is an advocate and spokesperson for the school to all stakeholders)
12. input (involves teachers in important decisions and policies)
13. affirmation (recognizes successes and failures)
14. relationship
15. change agent
16. optimizer (inspires and leads innovations)
17. ideals/beliefs (communicates and operates from strong beliefs about schooling)
18. monitors/evaluates
19. flexibility
20. situational awareness
21. intellectual stimulation (ensures that staff are aware of current theories and practices)
The effect size of the relationship between each of these responsibilities and student achievement ranges from a low of 0.15 to a high of 0.33 (Waters et al., 2003).

Two primary variables determine whether or not leadership will have a positive or a negative impact on achievement, according to Waters et al. (2003). The first involves the ability of leaders to properly identify and focus on improving the school and classroom practices that are most likely to have a positive impact on student achievement in their school. The second variable involves the leader’s ability to gauge the magnitude of the change and to adjust his/her leadership practices accordingly.

*Power-Influence Approaches*

Using a power-influence approach (Yukl, 2002), Goldman (82-83, as cited in Fullan, 2001) describes six leadership styles that influence school performance. Leaders need to understand these styles, understand the change process, and develop a mind-set for leading complex organizations during innovative reform. Goldman analyzed the relationship between leadership style, organizational climate, and financial performance. Through the perspective of working environment factors and performance indicators (in this case financial performance was the focus), Goldman identified the following six leadership styles (Fullan, 2001):

1. Coercive (leader demands compliance)
2. Authoritative (leader mobilizes people toward a vision)
3. Affiliative (leader creates harmony and builds emotional bonds)
4. Democratic (leader forges consensus through participation)
5. Pacesetting (leader sets high standards for performance)

6. Coaching (leader develops people for the future)

Goleman reports that the “coercive” and “pacesetting” leadership styles were shown to have a negative impact on climate, and, in turn, performance. The remaining four styles had a significantly positive impact on both climate and performance. This information can shed light on the actions of school leaders.

School leaders must also practice “symbolic” leadership in order to promote positive change. Symbolic leadership helps followers to see the “big picture” by emphasizing what is important, what is valued, and what is wanted (Rancifer, 1996). When principals represent the meaningful symbolic behavior that they expect from teachers, especially in regard to the modeling of the teaching and learning process, the school culture supports the development of a learning community.

Principalists who demonstrate both proactive and reflective leadership are more likely to transform schools into learning communities than those who do not. Proactive leaders are not content to leave well enough alone; they constantly strive to implement improvements. In order to know where there are potential weaknesses, leaders must practice analysis and reflective thinking (Rancifer, 1996).

In addition to personality and human relationship skills, school leaders can benefit from several strategies to transform schools into learning communities. These strategies include having a shared purpose, covenant, and mission; assisting staff in recognizing a shared school vision; becoming an expert in teaching and learning;
being a symbolic leader; developing effective teams; and demonstrating proactive and reflective practices (Rancifer, 1996).

Transforming schools is not a simple process for leaders. Researchers agree on a fundamental aspect of leadership involving school reform: Change is a complex and formidable task. Leaders who attempt to initiate change must accept the existence of a firmly-entrenched school culture. Those within that system will always resist change, to preserve the system (Dufour & Eaker, 1998). Many educators contend that, once accepted, the turmoil of the change process can offer stakeholders the chance to explore, to collaborate, and to create meaning from chaos. This is a desirable feature of a school’s culture, and leaders are urged to accept conflict as an essential component of the change process (Fullan, 1997). Cavanaugh and Dellar (1997), too, support the notion that leaders must begin to facilitate collaboration in their schools, if school improvement is to occur. The immersion of teachers and staff members in the problem-solving process allows for a vested interest in the school and its success. By challenging existing knowledge, this process also facilitates professional growth.

School leaders are faced with not only problems within their schools; they are also challenged by negative public opinion. Many critics of public education are convinced that schools can not and will not change. They point to a long history of failed school reform efforts. To them, schools represent monopolizes in most communities. They see compulsory education laws and teacher tenure systems as factors contributing to widespread complacency in schools (Dufour & Eaker, 1998).
Many educators and policy-makers argue that this critical viewpoint threatens the future of public schools. Leaders are often overwhelmed by the efforts needed to counter this attitude and to overcome the obstacles presented by the mindset of public school critics.

"Leaders who are collaborative, open, and inclusive can accomplish remarkable improvements in schools and deeply affect student learning" (Lambert, 2003, p. 43). To work well with others, school leaders need to be clear on their own values and confident in their ability to influence, facilitate, guide, and mentor. According to Goleman (as cited in Lambert, 2003), emotional intelligence is an important leadership attribute. The emotionally intelligent school leader is self-motivated, empathetic, and committed to his values and towards educating all children. He manages his emotions and his stress levels well, and is optimistic and hopeful (Lambert, 2003).

According to John Kotter (1996, pp. 4-14), of the Harvard Business School, leaders make eight mistakes during the change process. These mistakes include:

1. Allowing too much complacency. A high sense of urgency is needed to ensure that the change effort is successful.

2. Failing to create a sufficiently powerful guiding coalition. A critical number of people will champion the change process and ultimately affect others.

3. Underestimating the power of vision. A vision will direct people’s actions and help to keep them aligned toward the goal.
4. Under-communicating the vision. Much communication must exist between and among groups of people and the leaders of the organization.

5. Permitting structural and cultural obstacles to block the change process. These obstacles must be considered and addressed or they will impede the process.

6. Failing to create short-term wins. Publicly celebrating short-term wins will help to maintain motivation and commitment.

7. Declaring victory too soon. Unless the victory is sure, celebrating too early will lead to compacency.

8. Neglecting to anchor changes firmly in the culture. "Until new behaviors are rooted in social norms and shared values, they are always subject to degradation as soon as the pressures associated with a change effort are removed" (p. 14).

Fullan (2001), too, warns leaders against underestimating the change process as organizations attempt to implement innovative practices. He includes the following guidelines in understanding the process:

1. The goal is not to innovate the most.
2. It is not enough to have the best ideas.
3. Appreciate the implementation dip.
4. Redefine resistance.
5. Reculturing is the name of the game.

If necessary changes are to occur in schools, schools need to become learning organizations (Darling-Hammond, 1996). Approaches to leadership that support the
development of learning organizations emphasize the need to move away from
 technological, hierarchical, rational planning models, toward cultural, collaborative
 approaches in which staff members participate (Sheppard & Brown, 1999). Lewin
 and Regine (2000) stress the importance of developing relationships in the
 organizational environment. The care and attention paid by leaders to their workers is
 essential to the creation of a collaborative culture.

 Anthony Alvarado, a former School Superintendent successful in reforming New
 York City’s troubled District 2 schools, proposed seven organizing principles of
 reform (Fullan, 2001, p. 57). The principles include: it’s about instruction and only
 instruction; instructional improvement is a long, multistage process involving
 awareness, planning, implementation, and reflection; shared expertise is the driver of
 instructional change; the focus is on system-wide improvement; good ideas come
 from talented people working together; set clear expectations, then decentralize;
 collegiality, caring, and respect are paramount. Alvarado clearly supports the
 leadership concepts of care, respect, and collaboration along with high expectations.

 Elmore agrees with Fullan and Alvarado’s contentions. He describes the role of
 organizational leader as “primarily about enhancing the skills and knowledge of
 people in the organization, creating a common culture of expectations around the use
 of those skills and knowledge, holding the various pieces of the organization together
 in a productive relationship with each other, and holding individuals accountable for
 their contributions to the collective result” (Elmore, 2000, p. 15).
A common culture of expectations cannot be achieved without a clear and shared purpose. A school mission or purpose statement can be used to reflect the values guiding decisions and behavior in the school. Schools that are guided by a collective mission or purpose work toward, not against, common goals (Sergiovanni, 1996).

Along with a mission, a school vision can help provide direction to the school leader as the leader compares the current status of the school with the goal. Visionary leadership also includes the ability to see potential and possibilities in current practices. Visionary leaders are not satisfied with the current school situation. They continuously look for ways to improve (Rancifer, 1996).

**Situational Approach Theorists**

Relationships between school leaders and members of the school faculty are developed over time. Predictable patterns emerge, so that these interactions set the stage for future influence over the beliefs and actions of the faculty of the school. The unique mix of people, processes, history, and contexts that shape school events cannot be ignored by school leaders in the change process (Hart, 1994).

Not all change is of the same magnitude (Waters et al., 2003). Heifetz (1994) sees leadership as technical or adaptive, contending that the leader’s most valuable task is to advance goals and design strategies that promote challenging, adaptive work and/or change. While many leaders spend the majority of their time managing the technical aspects of the job, technical leadership will not elevate followers to a higher level of understanding. Adaptive work, in contrast, requires the continuous search for
and the tackling of tough problems within the school culture. Adaptive leaders recognize that some changes have greater implications than others.

Waters et al. use the terms “first order” and “second order” to further describe the differences between the orders of change (Waters et al., p. 6). The following table compares the characters of first and second order changes (Waters et al., p. 7):
Table 2

Comparison of First- and Second-Order Change

<table>
<thead>
<tr>
<th>First Order Change</th>
<th>Second Order Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>An extension of the past</td>
<td>A break from the past</td>
</tr>
<tr>
<td>Within existing paradigms</td>
<td>Outside of existing paradigms</td>
</tr>
<tr>
<td>Consistent with prevailing values and norms</td>
<td>Conflicted with prevailing values and norms</td>
</tr>
<tr>
<td>Focused</td>
<td>Emergent</td>
</tr>
<tr>
<td>Bounded</td>
<td>Unbounded</td>
</tr>
<tr>
<td>Incremental</td>
<td>Complex</td>
</tr>
<tr>
<td>Linear</td>
<td>Nonlinear</td>
</tr>
<tr>
<td>Marginal</td>
<td>A disturbance to every element of the system</td>
</tr>
<tr>
<td>Implemented with existing knowledge and skills</td>
<td>Requires new knowledge and skills to implement</td>
</tr>
<tr>
<td>Problem-and solution-oriented</td>
<td>Neither problem-nor solution-oriented</td>
</tr>
<tr>
<td>Implemented by experts</td>
<td>Implemented by stakeholders</td>
</tr>
</tbody>
</table>

Leaders must adapt their practices based on the “order” of change. To the degree that individuals and/or stakeholders in the school system hold conflicting values, seek different norms, have different knowledge, or operate with varying mental models of
schooling, a proposed change might represent a first order change for some and a second order change for others (Waters et al., p. 7). Deciding which changes are first or second order changes for which individuals or groups can help leaders select practices and strategies that further enhance student achievement. Failure to do so can result in a negative impact on student achievement.

Recognizing the magnitude of change and for whom the change matters is the first step, according to Marzano, Waters, and McNulty (2005). Marzano et al. (2005) have identified seven of the 21 (Waters, et al, 2003) leadership responsibilities/behaviors, positively correlated to student achievement, that are essential during second-order change. These responsibilities are identified in rank order, in regard to their correlation with student achievement. They are:

1. Knowledge of curriculum, instruction, and assessment
2. Optimizer
3. Intellectual stimulation
4. Change agent
5. Monitor/evaluate
6. Flexibility
7. Ideals/beliefs

Three major findings support the notion that school level leadership is related to student achievement. First, principal leadership is significantly correlated with student achievement (Waters & Grubb, 2004). Secondly, meta-analysis identified sixty-six leadership practices that fulfill twenty-one responsibilities and are
significantly related to student achievement. The third major finding relates to the "differential impact" of leadership. Just as leadership behaviors can have a positive impact on student achievement, they can also have a negative impact. This could mean that principals may have mistaken a second-order change for a first-order change or may have addressed the wrong classroom practices in an effort to reform instruction (Waters et al., 2003).

Hersey and Blanchard (1976) also contend that leadership style is situational. One style may work in a given situation and then not work in another. The situational leadership model includes four sections or quadrants that characterize basic leadership styles according to the level of direction (task) provided by the leader and the level of emotional support (relationship) provided by the leader according to the following style descriptions:

1. high task/low relationship (telling)
2. high task/high relationship (selling)
3. high relationship/low task (participating)
4. low relationship/low task (delegating)

The leader, in Hersey and Blanchard's (1976) model, must be flexible enough to adapt to changes in situations. The level of maturity of the leader, as well as the length of time with staff, affects the effectiveness of the varying leadership style.

Another example of a situational model of leadership is presented by Bolman and Deal (2003) in their "Four Frame Approach." Bolman and Deal suggest that leaders display leadership behaviors in one of four types of frameworks: structural, human
resource, political, or symbolic, depending on the situation. In the structural frame, the effective leader is concerned with analysis and design, focusing on structure, strategy, environment, implementation, experimentation, and adaptation. In the human resources frame, the effective leader is intent on empowerment, support, and advocacy. A leader operating in the political frame assess the distribution of power, use persuasion and negotiation to accomplish their goals, and continuously build linkages to stakeholders. In an effective leadership situation, the leader inspires through the symbolic frame. He/she understands the importance of symbols in the organization and celebrates their importance.

The “Four Frame” approach (Bolman & Deal, 2003) recognizes that each of the frames applied in isolation is inadequate. Effective leaders combine knowledge and skills in each of the frames and determine the appropriate leadership behaviors according to the situation. Additionally, each of the frames can be attached to negative leadership behaviors. For example, the structural leader can be a petty tyrant, far too concerned about details. A human resource leader can take the belief in people too far and become a pushover. The political leader can take advantage of his/her skills in this frame and manipulate others, while the leader operating in the symbolic frame may be a fanatic.

Leadership vs. Management

A great deal of time and energy has been spent distinguishing between leadership and management. While some researchers contend that leadership and management behaviors overlap and can be observed in the same person, other researchers believe
that the two concepts are mutually exclusive (Bennis & Nanus, 1985). Those who believe that there is a clear distinction between the two contend that managers are concerned with systems, controls, procedures, policies, and structures, while leaders are concerned with trusting people, innovating, and initiating. Management is about efficiency and leadership is about effectiveness. Other researchers view management and leadership as distinguishable processes, but do not assume that leaders and managers are different types of people (Bass, 1990; Kostner, 1988; Mintzberg, 1973; as cited in Yukl, 2002). Most scholars seem to agree that success as a manager or administrator in modern organizations depends on the ability to employ leadership behaviors (Yukl, 2002).

The discussions about transformational leadership and transactional leadership are similar to the rhetoric surrounding management/leadership debates. Transactional leadership supports the notion that people prefer to be led and is based on the exchange of services for various kinds of rewards that the leaders basically control (Yukl, 2002). Transactional leadership could be compared to management, as described by Bennis and Nanus (1985). “Transformational leadership, on the other hand, appeals to the moral values of followers in an attempt to raise their consciousness about ethical issues and to mobilize their energy and resources to reform institutions” (Yukl, 2002, p. 241).

Burns (1978) pioneered the idea of transformational leadership and Bass (1985) extended the idea. Bass believed that transformational leadership and transactional leadership were not just opposite ends of a continuum but were two independent
dimensions. Kouzes and Posner (1987) proposed a more concrete description of transformational leadership behaviors to include the following:

1. challenging the process
2. inspiring a shared vision
3. enabling others to act
4. modeling the way
5. encouraging the heart

Transformational leadership is based on a belief in empowerment and participatory decision-making. It includes consideration of ethical behavior, a high standard of morality, and the development of character. The transformational leader has not only the responsibility to develop his/her own moral character but also has to create opportunities for followers to develop patterns of moral and ethical behavior (Kouzes & Posner).

In implementing technology programs, principals must be able to think and plan creatively in an area for which they are often under-prepared. Principals must create and manage conditions that foster innovative technology practices. Much of the research on principal leadership and its relationship to school reform stresses the instructional role as favored over the managerial role of the principal (MacNeil & Delafield, 1998). Lou Gerstner (as cited in MacNeil & Delafield, 1998), claims that the future of America’s schools depends on finding competent school principals. Principals should be adept at team building skills, shared decision making, and technology. School leaders should understand the importance of technology in
management as well as in instruction and leadership if schools are going to meet the

demands of the 21st century.

Table 3

<table>
<thead>
<tr>
<th>Researcher(s)</th>
<th>Research Orientation</th>
<th>Key Principals/Concepts/Beliefs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tye</td>
<td>Behavior Approach</td>
<td>Focused, Diffuse,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Coping/leadership style</td>
</tr>
<tr>
<td>Waters et al.</td>
<td>Behavior Approach</td>
<td>Balanced leadership actions</td>
</tr>
<tr>
<td></td>
<td>Approach/Power</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Influence</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Approach/Situational</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Approach</td>
<td></td>
</tr>
<tr>
<td>Rancifer</td>
<td>Behavior/Power-Influence Approach (Integrated)</td>
<td>Learning communities, symbolic leadership</td>
</tr>
<tr>
<td>Galbraith &amp; Lawlor</td>
<td>Behavior Approach</td>
<td>Market paradigm and market-driver, actions</td>
</tr>
<tr>
<td>Hoachlander et al.</td>
<td>Behavior Approach</td>
<td>Balance of practices</td>
</tr>
<tr>
<td>Fujian</td>
<td>Power-Influence</td>
<td>Create meaning from chaos,</td>
</tr>
<tr>
<td></td>
<td>Approach</td>
<td>reculturing</td>
</tr>
<tr>
<td>Goleman</td>
<td>Power-Influence</td>
<td>6 Leadership Styles (coercive,</td>
</tr>
<tr>
<td>Author(s)</td>
<td>Approach Type</td>
<td>Leadership Model/Description</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>------------------------</td>
<td>------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Burns, Bass, Kouzes and Posner</td>
<td>Power-Influence Approach</td>
<td>Transformational leadership (?)</td>
</tr>
<tr>
<td>Lambert</td>
<td>Power-Influence Approach</td>
<td>Collaboration, optimism, hope</td>
</tr>
<tr>
<td>Darling-Hammond</td>
<td>Power-Influence Approach</td>
<td>Learning organizations</td>
</tr>
<tr>
<td>Elmore</td>
<td>Power-Influence Approach</td>
<td>Enhancing skills, common culture</td>
</tr>
<tr>
<td>Sergiortani</td>
<td>Power-Influence Approach</td>
<td>Shared purpose</td>
</tr>
<tr>
<td>Heifetz</td>
<td>Situational Approach</td>
<td>Technical/adaptive leadership</td>
</tr>
<tr>
<td>Marzano</td>
<td>Situational Approach/Behavioral Approach</td>
<td>First/Second order change, essential behaviors</td>
</tr>
<tr>
<td>Herzey &amp; Blanchard</td>
<td>Situational Approach</td>
<td>Situational leadership</td>
</tr>
<tr>
<td>Bolman &amp; Deal</td>
<td>Situational Approach</td>
<td>Four Frames: Structural, Human resources, Political, Symbolic</td>
</tr>
</tbody>
</table>
Chapter II Summary

Chapter II begins with an overview of the research involving innovations and implementation of innovations. Theories associated with diffusion and adoption concepts are briefly described. Diffusion theory has been used in developing checklists for leaders, when implementing programs (Stockdill & Morehouse, 1992), for developing evaluation systems (Sherry, Lawyer-Brook, & Black, 1997), and for providing action plans for schools. Diffusion theories do not, however, give practitioners information on why, after time, some innovations are sustained and why some are not. In addressing innovations in education technology, this chapter also points to research on conditions that may facilitate implementation (Ely, 1999).

School culture research and school leadership research are explored in Chapter II. Various models of school culture and school leadership are described and key principles of each model are summarized at the end of each section. An examination of cultural and leadership attributes in each of the schools under study will provide insights about factors that facilitate the initiation and sustainability of technology innovations, as compared to existing models of school culture and school leadership. School leaders interested in implementing change need to be aware of the leadership styles and practices that are effective in specific contexts. These leaders also need to understand the current culture as well as the desired culture that is conducive to the initiation and sustainability of innovative practices.

Technology innovations present a unique set of challenges. Resistance to technology-based innovations involves the interpretation of the impact that
technology has or will have on beliefs and values about learning and pedagogy. Any change initiative in schools will require leaders to reflect on their own style and behavior in addition to better understanding the relationship between organizational culture and organizational effectiveness (Mells, 1994).
Chapter III
Methodology

Introduction

This study examined those leadership and school culture factors that contribute to successful adoption of sustained, exemplary technology practices. As described in Chapter I, the research questions of this study are:

A. What contextual attributes of school culture and school leadership are critical for the adoption and subsequent sustainability of exemplary and/or innovative practices in education technology?

1. What commonalities in school culture exist among schools that have been recognized as having introduced and sustained exemplary and/or innovative practices in technology?

2. What commonalities in leadership styles and leaders’ actions exist among schools that have been recognized as having introduced and sustained exemplary and/or innovative practices in technology?

B. How has the winning of a state Best Practices award influenced technology practices in schools?

3. How does the configuration of the school (K-6, 7-8, and 9-12) impact technology practices?

Chapter II begins with an overview of the research involving innovations and implementation of innovations. Theories associated with diffusion and adoption concepts are briefly described. School culture research and school leadership
research are explored in chapter II. Various models of school culture and school leadership are described and key principles of each model are summarized at the end of each section.

In Chapter III, the researcher has discussed the research questions, population and sampling information, data collection, and data analysis.

**Qualitative Research**

According to Peshkin (as cited in Leedy & Ormrod, 2001), qualitative research studies are useful when the researcher intends to describe the nature of certain situations, relationships, settings, or systems. In contrast to quantitative research, which involves primarily the collection and analysis of numerical data, qualitative research involves mostly non-numerical data, such as observation and interview notes. Because qualitative research can help the researcher to gain insights about the aspects of a phenomenon as it occurs within a complex naturalistic setting, it is the preferred research method in this study (Gay, Mills, & Airasian, 2006). In the current research, qualitative research can be used to describe settings, relationships, and systems within each of three schools that have been recognized as having exemplary technology programs. The researcher, in the present study, searched for insights into the school culture and school leadership that have contributed to the adoption and sustained employment of successful technology practices. The researcher’s goal was to understand what is happening and why it is happening with regard to technology practices in schools. Although the researcher is less concerned about the
generalization of the findings than about their relevance to the audience of this study (Gay, et al., 2006), the study is valuable in its applicability to specific contexts.

Case Study Methodology

A case study methodology was chosen to explore the research questions, since this methodology is appropriate when a "particular individual, program, or event is studied in depth for a defined period of time" (Leedy & Ormrod, 2001, p. 149). Case study is an ideal methodology when an in-depth investigation is needed (Creswell, 2003). Since the researcher was looking for key factors that contributed to a successful innovation (specifically, an exemplary technology program), the study of schools that have been recognized as having a successful innovative practice could promote a deeper understanding of this phenomenon under similar circumstances. By analyzing each case and describing the context within which the technology program has thrived, the researcher can share insights with others who may read the case study to help them draw conclusions about their own context. The researcher acknowledges the limitations placed on this study by its small size and limited timeframe.

The case study approach to this qualitative analysis involved the collection of comprehensive, detailed information about each of three schools. Although case studies are not meant to be exhaustive (Murk, 1997), a thorough analysis of the context of each school within a specific time period helps to facilitate further understanding of the factors that contribute to the phenomenon under study. Collecting data directly from individuals from each school site allowed the researcher to identify the characteristics of the school. Within each school, data was collected
from multiple sources, further strengthening the validity of the investigation. When similar patterns and themes emerged from the collected data, the findings were more credible than if triangulation had not occurred. On the other hand, differences that emerged added richness, depth, and rigor, and also enhanced the credibility of the findings (Murk, 1997). Each school in this study represents a case; cross-case comparisons were conducted only after each case was studied. A case record, which includes all information obtained from interviews, observations and document analysis, was developed for each school.

Population and Sample

To identify schools that have introduced and sustained exemplary technology practices, the researcher obtained the names of schools from the New Jersey Department of Education's list of New Jersey Best Practices in Technology award-winning public schools (over the last five years). The decision to use the Best Practices award-winners was based on the congruence between criteria for Best Practices consideration and the research goals of this project. Any New Jersey school district or charter school is eligible to submit a Best Practices application. The competition is open to public schools serving students in grades preK-12, with the exception of those schools who did not meet Annual Yearly Progress status described in the No Child Left Behind Act of 2001. Additionally, a school's exemplary/innovative technology practice must have been in place for a minimum of two years prior to submission for consideration, congruent with the key consideration of sustainability processes in this research. Information describing New Jersey Best
Practices is available to the public through the department's website. The state considers Best Practices as those exemplary and/or innovative strategies that promote high student achievement, that address specific educational needs of students and the Core Curriculum Content Standards, that yield documented results meeting set objectives, and that can be replicated (New Jersey Department of Education, 2005).

This initial list identified a sample that is potentially "information-rich" (Patton, 2002, p.40). Information-rich cases allow us to learn a great deal about the questions and issues central to the study. In each case, members of a school have shared an experience, and their perspectives can potentially provide insight into that common experience. In this study, the strategy of intensity sampling has been applied. Already recognized for having sustained exemplary technology practices, the schools on the Best Practices Award Winners list are "intense" samples. The success of these schools can shed light on the factors important to the success of technology adoption.

To further refine the sample, the researcher identified those high schools, middle schools, and elementary schools on the Best Practices website in those schools whereby the principal and/or staff involved in the winning program had remained constant since the receipt of the Best Practices award. The Superintendents of each of these school districts was contacted by mail, in an attempt to obtain permission for the study in his/her district. Five superintendents granted permission for research in their districts. Based on the response rate, the desire for similarity in demographics, the desire for representation of each grade level configuration, and manageability of the study, three schools were chosen. The study focuses on one high
school, one middle school, and one elementary school. Once permission was granted, the researcher submitted the research application to Seton Hall’s Institutional Review Board. Upon IRB approval, the researcher contacted the principal of each school to confirm the principal’s willingness to participate in the study and to arrange for distribution of letters of solicitation. Those teachers who agreed to participate in the study were contacted by e-mail or by phone and interview dates and times were scheduled.

*Instrumentation and Data Collection*

Qualitative inquiry allows for deep exploration. Careful attention to detail, context, and nuance is typical of qualitative research (Patton, 2002). There are three general categories of qualitative data: interviews, observations, and document analysis. This study will involve all three categories of data.

A researcher-designed interview guide was used to interview teachers and administrators at each site. The questions in this guide were derived from the research in the areas of school culture, technology, and school leadership, as reviewed in Chapter II. All questions were open-ended in nature. An informed consent letter was collected from each voluntary participant. Through a combination of individual interviews (direct recipients of Best Practices awards, teachers, and principals) and one focus group interview, the researcher interviewed teachers and principals in each school, using the above-mentioned interview questions. All interviews were voluntary. These interviews were recorded and transcribed. The researcher chose to also observe teachers interactions with each other and with members of their school
communities, and with their principals, in an effort to confirm the validity of interview responses.

Qualitative interviewing is based on the assumption that the perspectives of the respondents are meaningful. Using an interview guide, rather than a list of interview questions, allows for consistency but also allows for flexibility toward the direction that an interview takes, once begun. The interview guide also keeps the interview focused and efficient. Limitations to the success of interviews include interviewer/interview participant bias as well as observer effect (Gay, et al, 2006, p. 424) due to the interview process. The interview guide also allowed the researcher to establish a conversational tone with the interview participants, without sacrificing the consistency of organized lines of inquiry. The flexibility of the interview guide allowed the researcher to ask probing questions to follow up on interviewee’s response, to clarify a comment, or to explore an unexpected remark (Patton, 2002).

The researcher has aimed for a stance of neutrality in this study. A statement of the researcher’s neutral position in regard to content, informing interviewees that they can respond openly and honestly to any question with no risk of engendering the favor or disfavor of the researcher, was made at the beginning of each interview (Patton, 2002, p. 365). Additionally, the researcher has been mindful of the need to be empathetic in regard to the motives, beliefs, thoughts, etc., of the interviewees (Schwandt, 2000, as cited in Patton, 2002, p. 52).
Data Analysis

Analysis includes descriptive statistics on the demographic backgrounds of participating principals and schools. Interviewees were asked to describe their positions, educational backgrounds, years of experience, and opinions about educational technology. Asking questions of this type in an open-ended manner elicits the respondents' own categorical views (Patton, 2002, p. 351).

In addition to the interviews, documents were collected and analyzed, as suggested by Yin (as cited in Mells, 1994). Internal documents such as faculty meeting agendas, minutes of meetings, intra-school memoranda, progress reports, etc., were reviewed. Organizational documents can prove valuable not only from what can be learned from direct analysis of them but also from their links to other paths of study. In this study, as mentioned above, documents offered the researcher further insights into the leadership and cultural factors in each school. Document analysis in this study was sometimes limited by the incomplete nature of a document.

The use of a variety of data sources (principal interviews, teacher interviews, focus group interviews, document analysis, and observations) has offered a practical and reasonable method of triangulation, strengthening the trustworthiness of the study.

To answer research questions A.1, A.2, and B, "What commonalities in school culture exist among schools that have been recognized as having introduced and sustained exemplary and/or innovative practices in technology;" "What commonalities in leadership styles and leaders' actions exist among schools that have
been recognized as having introduced and sustained, exemplary and/or innovative practices in technology,” and “How has the winning of a state Best Practices award influenced technology practices in schools,” information obtained from site-based individual interviews, focus group interviews, and document analysis was examined for patterns and themes, using content analysis within a grounded theory approach. Question C, “How does the configuration of the school (K-6, 7-8, and K-12) impact technology initiatives” was answered by a cross-case analysis of the three cases.

Content analysis of interview notes and document analysis notes was done through the processes of pattern analysis and theme analysis. Grounded theory supports the process of the researcher becoming “grounded” in the data and identifying embedded meanings and relationships (Patton, 2002, p. 454). Grounded theory involves both inductive and deductive processes. Deriving concepts and hypothesizing about the relationships between these concepts are processes that involve induction and deduction. Grounded theory emphasizes systematic rigor and thoroughness of design (Patton, 2002, p. 489). An analysis coding system was used to produce a framework for organization and description of data. Using an inductive approach, “whereby the researcher did not impose and organizing structure or make assumptions about the relationships among the data,” each case was analyzed for patterns and themes and then summarized accordingly. Subsequent cross-case analysis revealed common themes and patterns as well, contributing to the overall understanding of cultural factors and leadership factors that were important to the sustainability of exemplary technology practices.
All interview notes and documents were subsequently coded, in order to preserve confidentiality. The school code was matched to a master list, to coordinate findings. The master list will be kept in a locked safe at the researcher's home, along with study notes, for a period of three years, and then will be destroyed.

Chapter III Summary

After restating the research questions, Chapter III describes the methodology involved with this study. The researcher has identified the sample population from the list of New Jersey Best Practices in Technology award-winning schools, found on the State Department of Education website. After further refining the sample population to include those programs whose initiating staff members had remained in place, the researcher requested permission to study from each district superintendent. Eventually, three school sites were identified as the three cases to be studied. A researcher-developed interview guide was used to interview principals and teachers at each site. Additionally, observations of staff interactions and analyses of school documents were conducted. All interview notes and transcripts, focus group notes and transcripts, observation notes, and document analysis notes were analyzed and summarized. Cross-case analysis was conducted as well.
Chapter IV

Findings

Introduction

This study examined those leadership and school culture factors that contribute to successful implementation of sustained, exemplary technology practices, in an attempt to help school leaders replicate conditions conducive to the adoption of technology innovations. As described in Chapter I, the research questions of this study are:

A. What contextual attributes of school culture and school leadership are critical for adoption and subsequent sustainability of exemplary and/or innovative practices in education technology?

1. What commonalities in school culture exist among schools that have been recognized as having introduced and sustained exemplary and/or innovative practices in technology?

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B. How has the winning of a state Best Practices award influenced technology practices in schools?

C. How does the configuration of the school (K-6, 7-8, and K-12) impact technology practices?

Chapter III begins with an overview of the research involving innovations and implementation of innovations. Theories associated with diffusion and adoption
concepts are briefly described. School culture research and school leadership research are explored in Chapter II. Various models of school culture and school leadership are described and key principles of each model are summarized at the end of each section.

In Chapter III, the researcher has discussed the research questions, population and sampling information, data collection, and data analysis.

In chapter IV, the researcher presents information obtained from interviews, document analyses, and site observations. As described in Chapter 3, the researcher used an interview guide during all interviews, so that a conversational style could be established without compromising the consistency in the basic lines of inquiry. The chapter has been divided into three cases, each case representing one school site. Demographic statistics are presented for each case. All information obtained for demographic reports was retrieved from the New Jersey Department of Education website. Each interview within each case is described, along with a document analysis for each case record. A summary of each case record and a final cross-case summary are presented. Schools are described as School A, School B, and School C and schools’ respective principals are referred to as Principal A, Principal B, and Principal C.

Too identify cultural factors at play in the school setting, the researcher asked each participant to describe the school in terms of the norms, habits, beliefs, and skills of the school community (Fullan, 1993). To identify predictable patterns of leadership, the researcher asked participants to describe their leader’s actions and relationships to
staff (Backner, 1997). To connect research on innovations to technology innovations at the school level and to determine the impact of the Best Practices award in the area of technology, the researcher asked the key question, “How has the winning of the Best Practices award in Technology impacted technology practices here?” Subsequent probing questions, in all categories, helped to clarify and extend participants' responses. So that interview participants' responses could be viewed as stemming from their own perspectives, the researcher did not define or explain terms or phrases contained in interview questions. Interview comments will be presented in three main categories for each case. School Culture, Educational Technology, and Leadership.

Case I. School A

Case I involved an elementary school in northern New Jersey. The school district factor group has been identified as F/G. Total enrollment at the time of this study was 361 and average class size was 18.7, as compared to the state average of 19.4. Although the average state percentage of rooms within buildings that are wired for internet is 96.5%, this school contain internet access in 60% of classrooms. 97.7% of the students in this school speak English as their primary language, with approximately 1% speaking Spanish and 1.3% speaking Russian, Hindi, or Polish. There are no LEP students at this school and the mobility rate is 5.9%, compared to the state average of 12.8%.

The most recent NJ-ASK scores in third grade show that 9.7% of students scored in the “Partial Proficient” range, 87.1% scored in the “Proficient” range, and 3.2%
scored in the "Advanced" range in language arts literacy. In Mathematics, 19.4% of students scored in the "Partial Proficient" range, 51.6% in the "Proficient" range, and 29% in the "Advanced" range. In fourth grade, 6.9% of students scored in the "Partial Proficient" range, 87.9% scored in the "Proficient" range, and 5.2% scored in the "Advanced" range for language arts literacy. In Mathematics, 20.7% of students scored in the "Partial Proficient" range, 43.1% in the "Proficient" range, and 36.2% scored in the "Advanced" range. Corresponding district NJ-ASK results were similar.

The school has a 95.9% average attendance rate, compared to the state average of 94.4%. Few suspensions and no expulsions have taken place. The student/administrator ratio is 393/1 and the student/faculty ratio is 13.7/1. Average faculty attendance is 96.7%, compared to the state average of 96.5%. Faculty turnover is 7.0%, compared to the state average of 6.3%, and 0.6% of teachers have emergency or conditional certificates. No faculty members have doctoral degrees or national board certification, although 66.7% have a master's degree.

There are eight schools within this district, and the median administrator salary is $103,839. The median teacher salary is $61,500. The district spends 59% of their total comparative expenditures on teacher salaries and benefits and 9% on administrator salaries and benefits. The total cost per pupil is $11,705, compared to the state average of $11,903.

The researcher arrived at this elementary school on a cold winter morning at approximately the same time as incoming students, and many students offered
greetings. Although several buses idled alongside the bus lane while unloading students, many other students were dropped off by parents and walked between the buses to the front door. Several parents, too, walked through the front door and into the main office.

Upon entering the front door, several staff members greeted the researcher, offered polite small talk, and gave clear directions to the main office. Although the secretary's view was blocked by a high wooden barrier, she looked up to assure the researcher that the principal was expecting the visit.

The researcher spent approximately six hours in the building, visiting with the principal and teachers, observing the teachers' interactions with the principal, with students, and with each other, and noting the actions of the parents within the school community. Although the researcher had suggested a focus group for the volunteer interview participants, the principal had arranged for three individual interviews. One teacher had e-mailed the researcher in advance to establish a time for arrival. The second teacher had spoken to the principal before responding to the letter of solicitation. In addition to the scheduled interviews, the researcher was permitted to walk through the building and was able to talk with many children and adults in the building outside the realm of the interview process. Parent volunteers worked in classrooms, but many were in the hallways and in the cafeteria. The researcher walked through the halls, visited and observed in the cafeteria. Although the researcher attempted to observe covertly, it was obvious from the reactions and statements of the staff and parents that they had been made aware of the researcher's
purpose. The researcher acknowledges the fact that covert observations are "more likely to capture what is really happening than overt observations, where the people in the setting are aware that they are being studied" (Patton, 2002). Staff members spoke openly to the researcher about the school. Their comments included the following:

"This is a great school."

"This is the best school. I've worked in others here and this is the best...everyone knows it."

"Even though the parents are pushy, we love it here."

"It's not easy here. We have a lot to do; we don't have enough staff...but it's a really good school."

"The principal is so supportive here. She's tough, but she knows her stuff."

"The principal is good and the parents are good. If you do your job, it's a good place to work."

"Parents are everywhere, whether we want them here or not."

"There's always something brewing."

"We don't always get along, but we always know what's important."

The building itself is almost forty years old, but has recently undergone renovation to build an extension. At the time of the visit, 361 students were enrolled in the school. According to the principal, the school has seen a rapid growth in the special education population.
The principal of the elementary school has been principal for nine years and had also been a teacher as well as a K-12 Language Arts supervisor in the district. She has worked in the district for over thirty years. Like most of the staff, she lives in the community.

There is no vice principal in this school and no guidance counselor. Despite a comment about the lack of assistance, the principal noted that she was supported by an itinerant student assistance counselor and various special services personnel.

During a building tour on which the researcher was accompanied by the principal, the researcher noted that each classroom contained approximately four computers. In many upper grade classrooms and in one resource room, small groups of students worked at the computer stations. Although the researcher noted many television monitors and DVD players, none were in use. No large presentation screens were noted. Students in approximately half of the observed classrooms were observed sitting at desks and completing paper and pencil activities or interacting with the classroom teacher. No isolated computer lab existed.

The researcher was able to formally interview three staff members at this school, as well as to informally observe and interact with teachers, secretaries, and students. To further strengthen the credibility of findings, information obtained from formal interviews was compared to information obtained from observations and informal interactions. Interview questions were asked according to the three main categories of the interview guide (School culture, technology, and leadership); the interview questions were open-ended in nature. The interview guide offered the researcher the
flexibility to choose all of none of the questions listed, in an effort to uncover information in each category.

**Interview One A**

In the first interview, the researcher interviewed the teacher directly involved with the Best Practices award-winning program. The interview lasted for an hour and a half. This particular veteran teacher had been in the district, in various schools, for 30 years and was currently working as the media specialist. Formerly, she had been a fourth-grade teacher. She brought to the interview several examples of grants that she had written and received, as well as documentation describing the implementation of the grants. She also shared the research that she had done, compiled in large binders, for each of her many projects. Prior to the interview, the teacher had readied three separate computers to share PowerPoint presentations, websites, and photographs of various grant-endorsed projects. Based on observations of documents, technology use, and discussions, this teacher seemed to be an exemplary technology user, according to Piapia's (1994) description. The teacher demonstrated examples of integrated technology throughout her program. She had used technology as a presentation tool, a communication tool, and an analysis tool, as opposed to in an activity isolated from the main purpose of the class (see chapter I).

Throughout this interview, the researcher made several unsuccessful attempts at re-focusing the interviewee. Although a great deal of information was shared, the teacher often strayed from each original question. This may have been due to
observer effect (Gay, et al., 2006), whereby the person interviewed or observed behaves atypically in the observation/interview setting.

**School culture one A**

Throughout the interview, the participant spoke about the socio-economic diversity in the district, of the high expectations of the parents and the principal, and of the strong support of the parent community. The interviewee offered specific examples such as classroom helpers, fundraising events, cultural arts presentations, field trips, and outreach programs. She described the parents as "well-educated" and "professional." She also described the faculty as a "diverse group of men and women and a wonderful group of para-professionals who are an integral part of the team at school." She described building-based committees that had worked on character education programs, children's book initiatives, social plans, and community charity projects. In regard to expectations for students, the interviewee spoke of the high expectations held by the parent population and of the high expectations of the principal. She stressed that the principal held high expectations in both the academic and social arenas. As examples, she pointed out the homework policy and the fact that all classrooms had rules and consequences. The researcher noted at this time that the respondent's comments reinforce the interactive model of culture proposed by Maxwell and Thomas (1991, as cited in Cavanaugh & Dollar, 1997) whereby the belief system embodies tacit assumptions and understanding of the community, which then influences the group value system, and in turn influences norms and standards. She said, "Each teacher also holds every child responsible for his or her own
behavior.” This perception of a collective expectation of self-control is evidence of
the respondent’s view toward culture as the “norms that shape how people think, feel,

Discussing how staff members behave toward each other, the interviewee
mentioned a recently-begun book club, where at least one person from every grade
level and even one of the aides had participated. She alluded to an internal conflict
that was taking place in
the building and commented, “Everyone has to deal with it on their own level.” The
researcher made a note to explore this topic with other participants in order to
establish the credibility of the comment. The teacher mentioned that often people
share their feelings with the principal when it came to interpersonal conflicts.

Technology one A

When asked to define educational technology, the interviewee responded, “It’s
just part of the tools of the trade. It’s just like crayons and pencils....Whatever works
to convey the message, to help people think, write and learn.” Her definition gave
evidence of her opinion of “exemplary” technology practices, based on Pisapia’s
(1994) definition (see Chapter II). She emphasized that the staff wants more in the
way of technology, but that money is always a problem. From her comments, the
researcher concluded that the teacher felt hindered by factors outside of her control.
Despite her insistence that this school needed more technology than it currently had,
the respondent offered long lists of equipment currently accessible in classrooms in
the building. She did not, however, mention that any other teachers had used the
equipment. In fact, she commented that she herself "turns on all of the computers," which led the researcher to conclude that perhaps the technology use in the building had not yet become standard.

When asked about the change in practice from a traditional pedagogical mindset to a more non-traditional mindset, the interviewee became obviously uncomfortable, even defensive. To the researcher, the interviewee’s reaction indicated a sensitive area of discussion. The teacher commented, "I am not a traditional teacher. I was never a traditional teacher."

As the recipient of a Best Practices award, this interview participant referred to herself as "not a traditional teacher," and went on to report on the many technology projects she had implemented in the 1990s. Despite her enthusiasm for the Best Practices award, the teacher did not feel that the award had influenced other teachers in the building. She mentioned the secret of influencing others was to "network" and "branch out," as you learned and shared new ideas. She spoke of how much she enjoyed former students coming back to her to share the memories of many technology-based projects.

**Leadership one A**

When discussing the decision-making process and the leadership in the building, the respondent commented "whether it is through PTA, the custodial staff, or the cafeteria help, always check with the principal first—that's the mantra."

Using the word "diplomatic" to describe how people in the building should behave when sharing information with the principal, the interview warned that they should be
careful to act appropriately. She remarked, "Are they answering as a member of the union or as a member of the staff or as a friend?" She described the principal as having a "welcome open door policy" with parents and that at times, this was problematic. She stressed the fact that the principal had very high expectations that were shared with teachers individually and at meetings. Building expectations, academic and social, and rules articulating these expectations, were important to the principal, according to this respondent.

In discussing vision and expectations, the interviewee spoke of the competitive nature of this district, as she perceived it to be. She mentioned the ranking of test scores as one factor for comparison among the schools and the tracking of college acceptance rate as another. Additionally, the respondent spoke of the principal’s need to be positively perceived in the educational community, in both the local community and in the larger state and national community. She added a negative comment regarding the state testing system.

When asked how the principal imparts her vision and her expectations, the interviewee replied, “Oh, she has spoken. Oh yes.” She mentioned that each year, the school’s goals are posted on the web site. She felt that it was a realistic expectation for the principal to want her scores to be the best.

When discussing the leadership role in implementing technology programs, the interviewee described two instances where she had needed leadership support. In the first example, she discussed a time she had gone to a former administrator for assistance in writing a technology grant. She commented, “I left the meeting so
frustrated because that’s not what I wanted him to tell me. It left me totally blank.”

After graduate school, the interviewee had gone to the current principal for assistance, and in contrast to her former experience, had found the current principal to be of greater help. The current principal had helped to articulate objectives, etc., and the result had been the Best Practices award. The interviewee spoke about the principal going against the district technology director on her behalf. She talked about how much she loves the banner and is very proud of her achievement.

The interviewee described her relationship with the principal as one in which she feels comfortable speaking honestly and openly. According to the teacher, the principal had advised her to learn to “say no.” “However,” the teacher jokingly commented, “she has made it quite clear to me that I must not say no to her.” Although the teacher assured the researcher that she had indeed said no to the principal on a number of occasions, she also said that the principal “takes it well” because of the honesty of their relationship.

*Interview Two A*

The second teacher interview, an hour in length, involved the building’s Reading Specialist, who had been in the district for 34 years as a classroom teacher and then as a reading specialist. She works with children in all aspects of literacy, but also is in charge of the testing and the support necessary for teachers. The researcher was told by the principal, by the media specialist, and by the secretary that this teacher is treated as an administrator and often is in charge of the building in the principal’s
absence. Despite her quasi-administrator role, this teacher is also a union
representative in the building.

School culture two A

In discussing the school culture, the teacher described the environment as "definitely
academic." She attributed this strong academic focus to the atmosphere generated by
the income level and education of the parents, as well as to the strong academic
background of the principal. She pointed out that most of the staff also resides in the
district and felt that this fact added to the level of academic focus in the building.

Although the interviewee described the school culture as "child-centered," she was
quick to mention a lack of collegiality in the building. She felt that there were many
cliques within the school culture, despite the fact that when it came to academic
issues, there was a united effort. She also felt that, in many cases, the principal's habit
of getting involved in internal conflicts had exacerbated the conflicts.

The teacher described also a sometimes "push-pull between administration and
staff, or more likely, between parents and staff." When elaborating on the relationship
between the school staff and parents, the teacher believed that the staff would say that
parents generally have high expectations for the staff, but not necessarily for their
children's behavior. Although there was perceived to be a core group of parents,
probably the majority, who trust the school and support the school, the staff does not
necessarily feel 100% supported.

Comparing this school to other schools, the teacher used the phrase "tunnel vision"
to describe the perceived self-importance of the collective staff. She linked this
“tunnel vision” to the parents’ view as well, commenting, too, that the school community has “somewhat of a negative view of the educational community and that this view is skewed by high taxes.”

Commenting on how things had changed over the years in the community, the teacher maintained that, in general, the community members “very much value education and all that it offers.” She felt that the staff members were capable of high quality instruction and were committed to providing it.

**Technology two A**

In defining educational technology, the interviewee used the word “tool.” She said, “Educational technology is a tool to access information for the children…to help them express…it is a TV…into the bigger world that we cannot bring them in any other way.” The teacher expressed the opinion that technology affords students more of the experiences and opportunities that they might not get otherwise. She also commented that, in this middle-to-upper income school community, technology has had less of an educational impact in providing new experiences for students than in poorer districts, since schools in affluent communities can already count on many of the outside experiences to have been provided by the home.

When the researcher questioned the training of teachers in the area of technology, the interview participant spoke about this as a “sore spot,” a “stumbling block” that had to do with resources. She blamed these problems on the current technology director. She described, too, a certain amount of resistance among staff, some of whom (including herself) have a real prejudice against “plugging a kid into a
computer.” Her comment indicated a concern over the “dehumanization” and the “individualization” attributed to technology by critics of its appropriateness in school settings (Januszewski, 1995). This comment also prompted the researcher to consider the philosophical and cultural disparities that may have existed in this school, specifically in the area of technology. The teacher felt that, despite her own prejudice, she knew of many ways to use technology herself, if the resources were made available.

Lamenting the frustration of her colleague, the interviewee also described the Best Practices award-winning teacher as a “tremendous resource in the building and the catalyst for many things.” She did not, however, list the “many things.” Although she felt that the winning of the Best Practices award had not impacted the technology practices in the building, she considered the staff anxious and ready for new technology.

_Leadership two A_

When discussing innovations, the interviewee considered the principal “not a technological person, or a math person, but yet always supportive, encouraging, twisting arms for teachers to move in different directions.” Additionally, she described the principal as a very global person and said that this fact creates an atmosphere where teachers are encouraged to try new roles and new strategies.

In responding to questions about the principal’s decision-making practices, the teacher commented that the principal never makes split-second decisions. She again described her as a global person who tries to gather information from various sources
when faced with a decision. The teacher felt that the principal was often shackled by
the top-down demands of the district, that she had sometimes had her "wings
clipped," after making decisions independent of central office input. The teacher felt
that this is what had, at times, lead to reversals of decisions. According to the
interviewee, the principal had been forced to handle certain situations politically,
rather than with right in mind. The researcher concluded from this comment that this
teacher, similar to the first teacher, believed that factors outside of her control or the
principal's control had hindered progress.

When asked about the principal's relationship with staff, the teacher described it as
somewhat "awkward." The teacher, in her role as building representative, had found
herself in the position of reminding teachers that the principal was not their friend,
but their boss. She attributed this confusion to the lack of congruence between the
principal's social behavior and professional behavior, citing for example the fact that
the principal likes to be a part of the staff, but also is in charge. For some staff,
determining which role the principal was playing had often been the source of
ambiguity and confusion.

The teacher described the principal as having an "interesting sense of humor,"
being "well-read on everything," and "intelligent." The teacher felt that throughout
the district, the principal had earned a great deal of respect. According to the
interviewee, there was never a single person on staff who would have viewed the
principal as incompetent or who would have questioned her judgment. The principal
had "no ego issues," and "co façade." The teacher shared many conversations she
had herself had with staff members as she attempted to explain the principal’s behavior. She commented, “The bad news for some staff members is that she will give you a rope long enough to hang yourself. The expectation from her is that we will all be the utmost professional teachers, professional educators, and she assumes that. Don’t mistake her standing in the background for not being involved. She has no qualms about calling you in and saying ‘this is not going to happen this way.’” As she made these comments, the participant raised her eyebrows and shook her head, and from this body language, the researcher inferred that the situation had become tiresome. Despite the negative overtones, the teacher felt that this aspect of the principal’s leadership style was appropriate.

Interview Three A

The third interview in this case involved the principal of the school. She had been principal in this building for nine years, but had been in the district for thirty years, working as both a teacher and a K-12 Language Arts supervisor. The researcher spent approximately one hour observing the principal and the office staff at the beginning of the day. After spending time interviewing other participants, the researcher came back to the main office, where she spent one hour interviewing the principal and an additional hour touring and observing in the building.

School culture three A

The principal described the staff as a kind of family. She said that she was most impressed, upon her arrival as principal, with the culture that they had established,
having had a dissimilar experience in her previous role. There were no cliques here, according to the principal. The veteran staff members worked well with the young new teachers, and on social occasions, everyone attended. Social events included cafeteria workers and custodians. She stressed that the smallness of the staff contributes to its family atmosphere. To understand the setting and context of the school more clearly, the researcher asked the principal to categorize her staff by their level of involvement in professional activities outside of the classroom (Becker & Rhé, 1999). When describing her staff, the principal felt that 30% of them were extensively involved in professional activities outside of the classroom, that 20% of them were somewhat less involved, that 25% of them participated just enough to get by, and that 25% of them were classroom-focused.

In discussing the school community, the principal described it as diverse. She stressed the high expectations that were held by parents as a result of their high socioeconomic status. She mentioned the now-high special education population as a factor contributing to the recent slip in test scores. She explained that throughout her tenure as principal, the school had been aptly nicknamed “The Academy,” and suddenly parents had begun to question the “slip from the top” in test scores. She attributed the high test scores again to the socioeconomic level of the parents and had felt responsible to maintain high test scores. She shared that fact that she had recently held an evening “coffee” where she had solicited the assistance of the district mathematics supervisor in explaining the lack of statistical significance in the drop in test scores.
The principal continued to describe a very involved parent community, citing several examples of activities and events that the parents had sponsored. She contrasted their level of involvement to the level of involvement that she had observed in her own children’s school, another school in the district. She mentioned that 40-45 people regularly attended PTO meetings. This was dissimilar to her prior experience. During the interview, the PTO president entered the room without knocking and shared her “shopping finds” with the principal, who complimented her on her success and thanked her for helping to buy gifts. Based on the observed familiarity between the principal and the PTO president and comments made by the previous interview participants, the researcher concluded that the PTO president was afforded some degree of latitude in the school.

According to the principal, the parent community is very supportive of the staff often providing lavish meals and celebrations for them. The staff appreciates these efforts, but often resents the intrusion of the parents in academic issues. The principal felt that when she first became principal, she had to establish clearer guidelines for parents, who had “run amuck” throughout the building under a previous administration. She commented, “I like to keep parents under my thumb; I like to keep them very close.” According to the principal, parents worked well with her and also held high expectations for student performance. Communication is good, further supported by a weekly “Thursday folder” that contains all of the weekly flyers that must go home. The principal reported that parents have come to expect the folder, and that PTA often comes in to help the primary grade teachers “stuff the folders.”
When discussing parent-teacher conflicts, the principal maintained that she has an "I'd rather know than not know" attitude and felt that the staff was "pretty good about that." She felt, though, that staff members were more likely to hide interpersonal problems among themselves. She shared an anecdote about a current internal conflict that she herself had inadvertently created. She said, too, that she often depended on her secretary to sort things out and to be the liaison between her and the staff. This comment confirmed comments made by other interview participants.

Technology three A

The principal expressed the opinion that technology "clearly impacts learning as, increasingly, it does every aspect of everybody's life." She described technology as something that "should support and extend academic areas" rather than an academic area unto itself. She also talked about the fact that technology is a sore spot within the district, due in part to the attitude of the current technology director. The principal and the director have an adversarial relationship, as described by the principal when she said that she and he have "locked horns several times and rather uncomfortably." She went on to report the difficulties that had been encountered when a teacher in the building had wanted to implement a technology program and was thwarted by the director. The teacher involved had later won a New Jersey Best Practices award. The principal mentioned that her school was the only one in the district that had won an award, and had told both the Superintendent and the Director of Technology that technology was used far more effectively in her building than in
others. She also reported that the technology director knew very little about technology.

When asked how the winning of the Best Practices award had impacted instruction and/or technology use in the building, the Principal said, “I would like to say a lot, but I would not be being truthful with you. We got a lot of snob appeal. I think it may have eased the way a little bit for an increase in hardware finally migrating down to the elementary level. They were surprised that not only did we use it, we used it well, skillfully enough to win an award.”

**Leadership three A**

The principal, in this interview, endorsed site-based management as her preferred choice of decision-making style. She mentioned the committees that had been formed for National Children’s Book Week and Character Education. She also said that periodically, she lets staff know that this is a “benevolent dictatorship” and that every now and then, she may do something that they don’t necessarily like. However, she viewed the staff as flexible and reasonable and said that she enjoyed working with them.

The principal reported that she likes to use positive motivation as much as possible. She related a story about bribing her staff with bagels to meet a 100% website creation goal. She said that, although this had not been “noble” motivation, she had used it to “thumb her nose” at the superintendent and the technology director. She also talked about the many shared celebrations that the staff enjoys: Columbus Day parties, St. Patrick’s Day parties, and a Super Bowl party. Additionally, the
principal said that she teases them about these parties, but she makes “no bones” about what she expects from them as professionals. When asked how she lets them know, she responded by describing how she models attendance and dress code, as well as her positive view of education.

In articulating her vision, the principal felt that she would like students to leave her school after “having had a very positive experience” and after having developed a “lifelong love of learning, a sense of security and readiness for what’s out there and what’s next.” She reported that she and her staff often track the later successes of her students.

Repeatedly, the principal spoke of the high expectations she has for staff. She commented, “I think I give a lot, but I expect a lot in return. I’ll reward them in any way I can, but... if you can’t do your job, watch out. They know that, too.”

Documents A

At the researcher’s request, the school secretary at this site compiled a packet of school documents that included three commendation letters for staff members, a copy of the school newsletter, a monthly parent letter/lunch menu, a daily announcement letter, and a faculty meeting agenda. Additionally, interview participants shared with the researcher portfolios of research and lessons, along with assessments of various grant-sponsored projects.

The faculty meeting agenda included the following items for discussion:

1. Best Practices and Star School applications—we’re still the only winner!
2. The Food Police—treats, prizes, party fare—allergies/obesity—Halloween festivities
3. Walk of Honor—buy a brick
4. Budget requests/input—let me know soon
5. Spelling grades for Resource Room students—refer to memo
6. Resource Room students and NJ-ASK preparation—must be there!
7. February Staff Development Day—request for presenters (hand out)
8. K-6 Homework Policy and Guidelines—hand out at Parent Conferences
9. Requests for Personal Days/School Business Days—timely fashion/contract
10. Supplemental Educational Services—employment opportunity
11. Readin’, Writin’, and Rosemary
12. Other items/discussion

The announcement page, which is done daily by the principal, and then distributed by the principal to each staff member, included various items regarding school spirit day, deli day, and the day’s lunch entrée. Additionally, three trivia questions (Holiday Trivia, Caring Trivia, Staff Trivia) were included, as well as the answer to the previous day’s trivia question.

The monthly newsletter was several pages in length. The principal had summarized the previous month’s school events, each grade level’s current academic focus, news from each school department, advice from the school nurse, and PTO news. She had advertised the various upcoming PTO fundraisers and had also
included a section highlighting community boy scout and girl scout news. A final page was entitled, "Parent Page," and continued a character education theme by offering tips for raising children of good character.

The monthly letter contained information regarding upcoming school events, such as concerts, holiday shopping, a ribbon-cutting ceremony, and the PTO meeting.

It concluded with the principal's wish for a "truly wonderful, magical holiday season.

Summary of Case I: School A

A thorough content analysis identified the following patterns and themes.

School Culture Summary A

Regarding culture in Case I, four main themes were elicited from an analysis of the interviewees' comments and the documents collected: high expectations for students, high level of parent involvement, tension between staff and administration, and inconsistent interpersonal relationships among staff. All three respondents spoke of the high socio-economic level and high level of education in the parent population as having influence over the high expectations for students in the school. "High expectations" was mentioned six times throughout the interviews, "competitive" was mentioned four times, and "test scores at the top" was mentioned twice. Contained in the documents were eight references to concepts such as winning, NJ-ASK preparation, Star School/Best Practices Award applications, homework policies, and grades. It seems that many of the school's staff, including teachers and assistants,
reside in the community in which they work. This fact is viewed by the staff and by
the principal as helpful in maintaining an "academic" environment with high
expectations for performance. Parents question the principal when test scores drop
and the staff feel the pressure to raise the scores. There seems to be a competitive
nature to the school, with references often made to test scores, the only school that
has won awards, and the nickname "The Academy."

Although the percentage of students receiving free lunch is less than 1%, all three
interviewees mentioned the socio-economic "diversity" in the building. They did not
relate this diversity to any instructional challenge or academic obstacle. They raised
the point when discussing the various outreach projects that had been established
within the school.

The subject of parents came up in all interviews, with similar comments regarding
the support and involvement of the parents, even the intrusiveness of the parents.
Even the principal remarked that she had to work at keeping parents "under her
thumb." All three interview respondents considered parents supportive, but ten
comments referred to the tension between parents and staff. Contained in the
documents were nine parent-related or PTO-related items.

Although the teachers interviewed and the teachers in the building made positive
comments about the principal's knowledge and competence as a leader, there were
also nine comments about the tension between the administration and staff.

A stated expectation of professional collaboration exists in this school, as
evidenced by comments from teachers and by three items in the documents. Words
and phrases such as “team,” “high expectations,” “collegial,” “professional
development request for presenters,” and “we’ve always been the top” reinforce this
generalization. However, this collaboration may be forced by the principal. This
school culture, on the surface, seems to emphasize teacher collaboration as well as a
shared mission and values (Dufour & Eaker, 1998). However, interview comments
about lack of collegiality and lack of agreement among staff in regard to educational
philosophies were made. There seems to be ongoing internal conflicts that, although
not interfering with the professional nature of teaching, are “always brewing.”

Teachers mentioned “cliques,” but the principal felt that there were fewer “cliques” in
this school than in schools in which she had previously worked. With regard to the
social atmosphere, all interviewees spoke of the inclusive environment. Eight
document items referred to social events or items that represent the social aspect of
schools (“deli day,” “Holiday Trivia question,” etc.). The staff seemed to be
comfortable in planning and celebrating social occasions together. However, two out
cf the three interviewees made comments about the lack of professional collegiality.

Technology Summary A

In regard to technology, two themes emerged. For one, all three formal
interviewees felt that technology should be viewed as “a tool” that should extend the
academic areas but not be an academic area unto itself. Although the principal does
not describe herself, nor is described by staff as a “technology” person, she seems to
have clear opinions about the role of technology.
Secondly, all participants mentioned the problematic obstacle presented by the attitude and actions of the district's technology director. It seems that, despite the perceived obstacles placed in their path by the director, they were able to make progress in technology. Three out of three interviewees commented on the ability of the principal to intervene when necessary in order to further the goal of improved and increased technology in the building. The principal described the award-winning teacher as a "pioneer" in technology and the teacher herself had evidence of several grants she had received in this area.

The principal did not feel that the winning of the Best Practices in Technology award had strengthened her staff's technology program. The two teachers interviewed also felt that the staff's "readiness" for new technology was not due to the winning of the award. Two of the three interviewees described the staff as "ready and anxious" for new and more technology. One interview participant mentioned that the building had acquired several technology tools, including LCD projectors, a Smart Board, film strip projectors, laser players, recorders, TV/DVD/VCRs, Alpha Smarts, and laptops. None of these items was in use during the researcher's observations. No other staff member mentioned either the equipment or its use by teachers. Additionally, no technology-related items were observed in the document analysis. The principal did point out that the winning of the award helped to open the door for more hardware "migrating down from the high school and middle school," since the district now viewed the use of technology at the elementary level more appropriate. The principal also lamented the fact that technology use had not yet become the norm.
Leadership Summary A

The principal described herself as a "benevolent dictator," and this sentiment, if not the words, was echoed to some degree by all of the teachers in the building. The staff has a great deal of respect for her ability to run the school, for her academic background and experiences, and for her ability to get beyond the bureaucratic obstacles that were placed in their path. One participant commented that she "governs with an iron hand." Eight comments about her competence, knowledge base, and/or background were made.

The teachers also described the principal as someone who not only encourages people to take on new roles and try new things, but as someone who will twist arms to make those changes and who will "stick with staff" to help. All interviewees, including the principal, remarked on her "in the background" leadership style, but cautioned that this strategy lasted only as long as a staff member was doing his/her job appropriately. If not, the principal had no qualms about calling staff members in and exercising her administrative power.

There appeared to be somewhat of a disconnection between the principal's perspective on the level of collegiality in the building and that of the staff. The teacher interviewees remarked about the sometimes awkward nature of the principal's relationship with staff. Five comments included the word "inconsistent" in describing the principal's interactions with staff and/or parents. According to the teachers, there was some confusion over the ambiguity of the principal's actions. At times, she assumed the role of colleague or social peer, but at other times, she assumed the role
of “buss.” This perceived vacillating created tension in the staff. Additionally, the staff perceived some sense of favoritism exercised by the principal, leaving some staff members to feel “left out.” Although the principal relayed an anecdote that exemplified this favoritism, she did not feel that this particular example was evidence of a common practice.

Throughout the three interviews, it was clear that the leader had a clear vision and well-articulated goals (Tye, 1994). She had raised the bar on expectations for her staff and created a linkage with the parent community (Hoachlander, et al., 2001). She had demonstrated an awareness of culture, although at times had overestimated the level of collegiality in the building, and had established order, communication, and affirmation for her staff and community (Waters, et al., 2003). The principal had emphasized what was valued by the community, and what was desired (Rancifer, 1996), especially when discussing test scores. Further analysis will be presented in Chapter V.

Case II: School B

Case II involved a middle school located in a central New Jersey county, with a district factor grouping of I. Total enrollment at the time of the visit was 562. Average class size in the school was 19.4, compared to the state average of 20.8. In regard to internet connectivity, all computers in this school were connected to the internet. 99.6% of the students used English as their primary language, with .04% using Portuguese or Russian. 0.4% of students were Limited English Proficient, according to the 2004 New Jersey School Report Card. According to recent GEP
scores, 5.8% of students scored in the "Partial Proficient" range, 77.4% scored in the "Proficient" range, and 16.8% scored in the "Advanced" range. In Mathematics, 20.4% of students scored in the "Partial Proficient" range, 45.5% scored in the "Proficient" range, and 34.0% scored in the "Advanced" range. Since this is the only middle school in the district, scores could not be compared to other district GEPA scores. However, when compared to other middle schools in the same district factor grouping, fewer students in the case II middle school scored in the lower range (approximately 5% fewer) and more students scored in the advanced range (approximately 5%). Scores in the average room were similar.

The average daily student attendance rate in this middle school was 95.7%, as compared to the state's average of 94.4%. Average faculty attendance rate was 96.7%, compared to the state average of 96.5%. During the last school year, 4.8% of students were suspended, as compared to 4.6% in the state. No students were expelled. Student/administrator ratio was 562/1, compared to the state average of 313.1. The student/faculty ratio was 10.4/1, compared to the state average of 12.0/1. Faculty turnover rate was 0%. 0.8% of teachers held either an emergency or conditional license. No teachers have received national board certification, but 36.4% of staff had earned a master's degree and 1.8% of staff had earned a doctoral degree.

Median administrative salary in this district was $94,444 and median years of experience was 11. Median faculty salary was $43,876 and median years of experience was seven. The district spent a total of 61% of total comparative
expenditures on teacher salaries and benefits and 10% on administrator salaries and benefits. Total cost per pupil was $10,599.

At the time of this study, the school principal was a retired administrator serving as an interim replacement. The former principal, having been principal when the Best Practices in Technology award was won, was serving as principal of a high school in another district. He had agreed to be interviewed for this study.

The researcher made two trips to the school, and one trip to the former principal’s school, spending approximately five hours interviewing and observing. Additionally, through e-mail, the researcher was able to ask clarifying questions of the Director of Curriculum and of another teacher at the school. The first interview took place as a focus group interview. On this first visit, the researcher arrived at the school site mid-day and was greeted by the secretary in the main office. A teacher was summoned to escort the researcher to a classroom, where the interview would take place. Although students were changing classes, they were relatively quiet and calm. No students spoke to the researcher, although a few waved to the teacher. As the teacher and researcher walked through the media center, several students were busy working at computers or in study corrals. Many worked in groups at a tall table.

**Focus Group Interview One B**

The focus group interview was conducted in a computer lab, where all three teachers appeared very comfortable. The three teachers had been involved somehow
with the integration and instruction of technology within their own programs and had volunteered to participate in the focus group. Two of the three teachers (Participants Two and Three) had been teaching over ten years, while the third teacher (Participant One) had been teaching eight years. Throughout the interview, the participants often hesitated, seemingly to collect their thoughts and/or to retrieve a diplomatic answer before answering; they also frequently laughed, individually as well as collectively.

School culture one B

When asked to discuss the school community’s values, one participant quickly responded that sports were valued by the community. She hesitated after responding and her colleagues agreed. One colleague went on to say that parents are very involved in the education process here and that they’re very vocal in their efforts to acquire better programs. The community is interested in programs that prepare their children for college. Additionally, the teachers felt that the school community emphasizes mathematics and language arts especially, and parents pressure their children to be in top-level classes. This pressure often carries over to the teachers, since grades are regularly challenged.

All three teachers described the school climate as positive. Participant One felt that the environment was “supportive,” that there were “teams” and opportunities for grade level collaboration. They all spoke of what would happen under their former principal when problems arose between staff. The principal had wanted them to resolve these problems on their own, and only after attempts at resolution had been made would he intervene.
Participant Three talked about the many changes that had taken place in the district in regard to administration. She reported that teachers were either very flexible or very resistant in dealing with this change. She felt that the majority of the staff had been very flexible and had adjusted well to the change.

Technology one B

Participant Two talked of the instructional changes that had taken place through technology. Many of the staff members who had initially been reluctant to espouse technology use had come to her for advice and, at this time, the majority of the staff were using technology appropriately in their classrooms. She felt that “every teacher has been willing to branch out and learn something new in technology.” She commented that she could easily name three teachers who had been totally against technology but were now using it in the classroom.

Participant Three stressed that, in addition to a district-wide focus on technology, students were using it at home and bringing their ideas into the classrooms, so that teachers, too, became excited to learn. The staff had also received inservice sessions that had included some “fun and exciting things that some of the teachers had been exposed to and they see that it would be fun for them.”

The teachers’ definitions of educational technology stressed critical thinking, real-life experiences, improving what we know, and experimenting or branching out to what we need. The Board of Education has set as a goal this year to implement technology across the content areas. The teachers felt that this focus had more strongly impacted staff and instruction than the winning of the Best Practices award.
The Best Practices award, though, had been an "affirmation" or a "pat on the back."
The district's recent focus on technology had served all teachers well because more
technical problems were resolved, greater access to technology was provided, new
staff was hired, a restructuring had taken place, and comprehensive training was
offered. Additionally, the technology curriculum was in the process of being
modified.

Leadership one B

When asked to describe the leadership during the Best Practices era, all three
teachers were quick to report that, although the principal did not have a great deal of
knowledge about technology, he did not "have the fear to go and ask or encourage"
teachers. He had not been the "guru of technology," but he had encouraged teachers
to use it when at all possible.

Participant Three spoke of how the principal would battle the central office
administration to get staff the resources and support that they needed. She
commented, "If we needed anything, he would fight for us to get it, against the upper
echelon." According to her, the principal had given his full support. Additionally, he
had used technology at meetings and presentations. He would not have known how
to set it up, but would have asked for their help and model the use of technology.

Teachers talked about the principal's expectations for staff and students. In
general, the principal wanted to create a positive climate for the school community.
He had wanted all community members to respect each other and to enjoy the school
day. When discussing his "vision," Participant Two joked, "Hug to get along." She
said that the principal had tried to establish a relaxed atmosphere for the students. He had done this by involving the students in some of the day’s happenings such as morning music, music and dancing after standardized testing, and dressing up for Halloween. She felt that the principal had sent a message to staff that he trusted and supported them and did not need to look over their shoulder. She commented, “He had confidence in us.”

When responding to a question about the principal’s interaction with parents in the community, the participants glanced nervously at each other and laughed. Appearing to make a deliberate effort to be serious, Participant Two commented that the principal had respected parents and had let them be heard. She hesitated and looked to the others for support. Participant Three commented on the few vocal parents that are loud and cause problems. The researcher inferred from this exchange that the teachers did not quite believe what they were saying, but were making a deliberate effort to speak professionally about their former principal.

In regard to the change in administration, participants felt strongly that the staff had remained relatively unaffected. With the exception of opening-school “goofs,” the interim principal had provided enough structure, and the staff was adequately self-motivated, to have made the transition very smooth. All teachers felt that the upper administration had supported this year’s technology goal and were happy with the direction in which the school and district were headed.
Interview Two B

The second interview involved the teacher whose program had actually been
awarded the Best Practices honor. The interview took place a day after the focus
group interview had taken place. The researcher was greeted by the participant in the
main office; the participant guided the researcher on a tour of the building. For the
second day, students were changing classes in an orderly, calm and quiet way. In
most classrooms, desks and tables were arranged to allow small groups of students to
work together. Clusters of computers were arranged in most classrooms and in
common areas; students worked in groups at these computers.

School culture two B

In discussing the culture of the school, the interview participant stressed that the
school was “progressive.” She pointed out examples of teachers taking chances with
the curriculum and bringing in new ideas. She felt that more “traditional” teachers
would be intimidated by the norm of inquiry-based learning and she noted that
“traditional” teaching was observed with smaller and smaller frequency.

The interviewee described the school as “very civilized.” She noted that children
knew what was expected of them. As an example, she described her first day in the
building, coming to the school after teaching in an Abbott district. She had been
surprised on her first day that students knew when to change classes, even though
there were no bells or signals. Students knew how to push their chairs in, how to wait
outside the door until teachers let them in, and how to wait to be excused from each
class.
According to the teacher, parents in this district are generally very supportive as they "believe in the school system and they do so by paying their taxes and by supporting the school budget." She also described the grant program that is coordinated by the parents and cited an example of a grant she had received.

Although the participant described the community as supportive and "nice," she also felt that this was a demanding place to work. Teachers feel pressure from the students, who are exposed to the latest trends and from the parents, who have college in mind. Parents call and question the instructional program, often comparing one teacher's program to another. The teacher also spoke about the contradiction between parents' and the principal's expectations. She also spoke about the message of non-compliance in regard to e-mail that is being disseminated by the teachers' union president. The union president discourages teachers from using e-mail to answer parents' inquiries and discourages teachers from checking e-mails after the close of school regardless of their source. The staff tends to follow the model set by the union president, according to this participant.

*Technology two B*

The teacher listed autonomy as one of the reasons why she had excelled in this school. She described her early interactions with administrators and with parents, when she had first introduced them to some of the ways she was using technology in the classroom. Additionally, she spoke of those teachers who were competitive with her in this area. In her opinion, the element of competition helped to bring about widespread technology changes in the building.
With regard to the winning of the Best Practices award, the teacher felt that the award had not directly influenced instruction or technology practices. The award was received during a time of transition between principals, curriculum directors, and superintendents. This had been the district’s first Best Practices award, and the teacher felt that it had not been promoted as widely as it could have been. Without the leadership necessary to promote the award and use it to improve practice, teachers in general lacked an understanding of the award’s significance. Although teachers congratulated the interview participant, she felt that little had been done to promote future Best Practices attempts or to promote instructional practices related to the award.

When asked to define educational technology, she responded, “Educational technology is used to advance education or to advance your knowledge in a certain area, or again to express yourself as a different learning style.” She also added, “Educational technology is the norm now. I honestly think there are going to be no more computer classes...I really see those labs shutting down because we’ll all have those skills and the kids will come in knowing how to use a calculator; they’ll know how to use a computer.”

Leadership two B

Moving on to the area of leadership, the teacher described her former principal as “not so great.” She felt that beyond what the staff told him, he “had no idea what went on in the school.” She shared that the former principal had enlisted her help in writing his resume, so she had been privy to his background and knew that he had no
teaching experience beyond his student teaching. Therefore, the principal had not had empathy for classroom teachers and had only a limited understanding of what should go on in classrooms. The teachers also felt that the principal had a limited understanding of middle school students. When asked about post-test celebrations that had been described by the focus group participants, the teacher responded, "It was a show." She said that parents often complained about him and that teacher morale had been low during his tenure. She said, "Those dances were a smokescreen to get everybody feeling good and not really addressing the problems." She described the principal as "basically like an actor." She said that he would read what she had written for him on many occasions.

In responding to a question about the principal's vision, the teacher commented, "He had a vision if we told him what that vision was. There was so much complaining going on, so I think his vision was to get this to be a no-more-complaining and just a harmonious atmosphere." She felt that the principal had let too many things go unattended including academic and discipline issues. She also mentioned that he would often tell jokes at faculty meetings, and the union president would have to step in and remind him that these may have been off-color or inappropriate.

Responding to a question about leadership transition, the teacher stressed that the staff in this school was very strong. They had been relatively unaffected by any changes in administration over the years. Despite difference in leadership style, the teachers continued to "run the school."
When asked to contrast the leadership of her former principal with the kind of leadership she felt would be important in promoting Best Practices awards, the teacher felt that the principal should expose people to the Best Practices program, and should share information about what other people in other districts were doing.

*Interview Three B*

The third interview in Case II involved the principal of the school that had been awarded the Best Practices honor. The principal had moved to another school outside of the district. The principal offered a warm and friendly greeting to the researcher and escorted her into his office, where he moved a chair from behind the desk and sat facing her. His actions confirmed previous participants' comments regarding his desire to build relationships with people and establish a sense of community.

*School culture three B*

When asked about the school, the principal felt that the staff and the community valued the educational process. The staff, according to the participant, was very self-motivated. This comment confirmed several comments made by other participants. The principal felt that staff members in the school had always done their best for the students and that the only thing that had become an obstacle was when one program conflicted with another. He also described the school as a "second home." He commented, "At the time that we were doing all this work in technology, what we did was valued." He was quick to point out that the parent community had provided "ups and downs." but that 95% of them were wonderful.
When the researcher asked about teachers' self-reliance, the principal felt that the building had "many times run itself—which is what you want." He lamented that the same culture had not taken root at the school where he currently served as principal.

When asked to describe his staff in terms of their involvement with professional activities outside the classroom, the principal described 25% of the teachers as extensively involved; 65% as involved, but somewhat less than the others; 5% as being involved just enough to get by; and 5% as strictly classroom-focused.

The principal had hired only a "handful" of staff members at his former school and described how the opposite was already true at this school. Most of the staff at School B did not reside in the community in which they taught because of the high cost of housing in this district, according to the principal. When asked whether this fact would have impacted the school in any way, the principal remarked, "Yes, and I'll tell you not a very good one because you get 'groupthink' and a fear of change." This comment was in complete contrast to comments made at School A, where teachers felt that the high number of staff members who reside in the community has a positive impact on the school.

The conversation shifted to the topic of change and to the question, "How did the school community deal with change?" With confidence, the principal reported that the school never had to deal with change because it doesn't change." He felt that the school never had to change because the culture was "good" and people who came to the school learned to adapt to the culture there.
Despite the positive school culture, the principal described times when internal conflicts existed. He mentioned the tension between the union president and vice-president. He also mentioned the tension between the current Board of Education and the union leadership. He spoke of the number of times when the Board of Education members made inappropriate comments about staff members at board meetings. In describing his response to rumors and negativity surrounding board members and community members, he said, "When I was there, I used to say that when we close the doors, I know we do things right. We know it because the kids are happy, we're happy, and the test scores are outstanding. What we're doing is right. I always had this thing, this concept of trust that I wanted to get across. They can't get it across here."

Technology three B

When asked how he had motivated teachers to apply for awards like the Best Practices award, the principal said, "Well, the door was always open for any new initiative." He admitted that if it weren't for the teacher involved, the school would not have gotten the award. He also shared that the teacher in question had been observed to have less than exemplary classroom management. He joked, "I mean, I would hire her. Not for an E.D. class, but..." Based on the principal's comments about this teacher, combined with other interview comments about the Best Practice award-winning teacher, the researcher drew conclusions about the value that the principal had placed on order and tradition, as compared to the value that the teachers
had placed on inquiry-based instruction. It appeared as if the difference in expectations and goals lay in the differences in values and assumptions.

The principal’s definition of educational technology stressed the “enhancement of the educational process.” He felt that the award had not impacted instruction and/or technology practices in the building. He commented, “The staff would have been using it anyway.” For the principal, the award had offered an addition to his resume, a “feather in his cap.” However, the principal acknowledged that winning the award was good for the Board of Education to see. He thought, too, that the actions of the teacher involved with the award had affected the entire building. He cited, as an example, the use of technology for scheduling and commented that technology should make teachers’ jobs easier, make them more efficient, and make classroom presentations come alive for kids.

*Leadership three B*

When asked about the decision-making process in the building, the principal felt that he had made most of the decisions, but had solicited input from a committee. He had not initiated the idea of the committee, but had revamped it. He said, “It was a way of me speaking to the staff and getting their feedback.” He felt that he did not “have all the answers,” but liked when “people gave them to him.” He also said that he had identified key people in the building and would go to them according to the topic. His relationship with staff, he believed, was very good. He commented, “It’s the camaraderie that you get from 90% of them, that’s very good. There were a couple of people who were just nay-sayers.” He gave an example of what had happened to
change the opinion of one particularly negative staff member. He said that his first year as principal was awful; however, the second year was great. Eventually, the nay-sayers had been silenced by their teammates.

The principal compared his former school to the current school. He described the difference in discipline, scheduling, attendance, community relationships, and support. His first order of business at his new school was to change the attendance reporting system, to make it more difficult for students to be late.

When asked about his vision, he wasn’t sure if teachers had known his vision, but described it as being about a school where “kids come in and leave smiling; the staff does the same.” He remarked that he had never been concerned about test scores, because “that took care of itself.” He commented, “To do any more than that, I don’t know.”

Documents B

Since the principal of this school had moved to another district, the researcher requested copies of intra-school correspondence that he had initiated at his original assignment. This allowed the researcher to compare comments about the school culture, technology, and leadership to items in these documents. Four documents were forwarded. A staff newsletter contained a list of staff birthdays, a thought for the week, weekly news, and a cartoon. The thought concluded with “Never give up on a kid.” Six news items were listed. Two of the items contained solicitations for PTA and School Sunshine membership. One item listed the time of an upcoming meeting where the “administration” would share the school’s goals and values with
students. This reference to "the administration," written in the third person, may indicate a lack of "buy-in" on the part of the principal. Three items in the newsletter contained positive comments about staff, which seems to be in line with comments made by interview participants.

Summary of Case II: School B

School Culture Summary B

In analyzing comments and documents, the researcher was able to identify three major themes: collaborative environment, a shared value of high expectations for performance, and group efficacy. Throughout the interviews, seven comments regarding collaboration were made. Words and phrases included "team," "good climate," "interdisciplinary," and "grade level partnerships" were included in these comments. With the exception of two comments about cliques and tension between the staff, all of the interview participants and the online respondents mentioned the collaborative nature of the staff. Teachers and their principal spoke about continuous learning. This description of the school culture matches Hargreaves' (as cited in Cavanaugh & Dellar, 1997) "mosaic" cultural form, characterized also by collaboration, opportunism, partnerships, and alliances (see Chapter II).

High expectations for staff and students seem to be a shared value espoused by this school culture. Teachers expect each other to bring new ideas, to present high-quality instruction, and to work hard for the children. Throughout the interviews, eleven comments related to high expectations were made, including the words and/or
phrases "academic oriented," "test scores," "worried about college already," and "top classes."

Mells' (1994) model of school culture rests on the belief that a set of core values influences all behavior in the community (See Chapter 2).

All interview respondents also described the culture as being self-sustaining and self-motivated. Including phrases such as "autonomous," "We just run the school," and "well-run school," participants made six comments that confirm the collective focus and results orientation of the staff and the ability to espouse a shared vision. Attributes of a professional learning community were described. Aligned with Dufour and Eaker's (1998) model, this culture is also one of continual improvement, as evidenced by many references to the emphasis on "progressive school," "inquiry-based learning," and "new ideas."

Technology Summary B

None of the interview respondents felt that the winning of a Best Practices award in this area had altered the technology practices in the building. They were, however, proud of the progress that had been made, and attributed their success to the influence of the teacher whose program had received the award and to the recent district initiative in this area. Interview respondents described the actions of the teachers and the evolution of innovative practices. One participant remarked, "Every teacher has been willing to branch out and learn something new in technology." At this point, all participants felt that educational technology is a tool of some sort. They felt that a reason for the expectation of technology use in every curriculum was the fact that the
children in this district come to school with that same expectation. The self-motivated culture of the staff facilitated regular discussions about a more constructivist approach to classroom instruction. Inquiry-based instruction and projects were mentioned as examples of this pedagogy. The professional and collaborative nature of this school culture seems to have allowed for acceptance of an innovative practice, in this case technology (Becker & Reil, 1999).

Leadership Summary B

Comments regarding the principal’s leadership style and actions fall into two main categories. For one, the principal was not known for his knowledge of instruction or content; nor was he respected for his strong leadership. According to the teachers, many areas suffered under the principal’s leadership. Eleven comments reflected a negative opinion toward the principal’s ability to lead. The principal himself commented, “There were rumblings about me.” According to the staff, the principal was a nice man, but had lacked the understanding of instruction necessary to gain the respect of the staff and parent community. According to teacher interviews, the principal had frequently been challenged for making inappropriate comments at meetings. Additionally, interview participants had criticized the principal’s lack of educational knowledge and his poor writing and speaking abilities. In analyzing the documents, the researcher found errors in spelling, grammar, and word choice. In contrast to the negative perceptions of the principal’s academic skills, six comments were made regarding the principal’s ability to support staff, including the comment “He would fight for us to get anything we needed.”
The second theme that connected many interview comments had to do with the attention and care the principal had paid to the staff and students. The principal himself commented that he had concentrated on “community.” Thirteen comments and seven document items included references to attempts made by the principal to highlight staff or students and to create a sense of community in the building.

Care and attention paid by leaders to their workers is essential to the creation of a collaborative culture (Lewin & Regine, 2000, Fullan, 2001). Although this leader strongly emphasized a sense of community, he seems to have accepted the school as it is in every other way. Waters et al. (2003) found a positive relationship between the leader’s ability to foster shared beliefs and a sense of community and student achievement. However, Waters et al. point to a long list of other responsibilities that seem to have been ignored by this principal. The principal seems to have a clear understanding of Bolman and Deal’s (2003) Human Resources frame, but because he uses it almost singularly, he has not been able to establish the perception of strong leadership in many other important areas.

Case III: School C

Case III involved a high school in northern New Jersey. The school was well-known among school administrators for its high test scores and its high expectations for student and staff performance. At the time of the interviews, the school population totaled 1280 students. Average class size was 20.3, compared to 19.4 in the state. All computers were internet-wired, as compared to the state’s average of 96.1%. 71.5% of students spoke English as a first language, 18.6% spoke Korean as a
first language, and 9.5% spoke a language other than Korean or English. The most recent HSPA scores in Language Arts Literacy show that 3.6% of students scored in the "Partially Proficient" range, 63.2% of students scored in the "Proficient" range, and 33.2% scored in the "Advanced Proficient" range. In Mathematics, 10.1% of students scored in the "Partial Proficient" range, 44.8% of the students scored in the "Proficient" range, and 45.1% of the students scored in the "Advanced Proficient" range.

The school has an average daily attendance rate of 96.5%, compared to the state average of 94.4%. The student to administrator rate is 299.9/1, as compared to the state average of 185.1/1. On staff, 23.3% of staff have bachelor's degrees, 72.8% have a master's degree, and 3.9% have doctoral level degrees. The median administrator salary is $126,202, or 9% of total school expenditures. The median faculty salary is $68,484, 53% of school expenditures. Faculty turnover at this school was 2.0% last year, as compared to the state average of 7.2%.

The principal of School C had been the school's vice principal when the Best Practices award was given, but had been appointed principal shortly thereafter. He had worked closely with the former principal and had been a teacher in this building prior to his appointment. He had a long history in the district and in the building; he had an excellent grasp of the building's culture.

The researcher arrived at the high school at 10:00 a.m. and left at 2:30. During her visit, the researcher was able to interview the principal and four other staff members. Although teachers were given the option of focus group interviews, the principal had
arranged coverage so that each volunteer could meet individually with the researcher. Upon entering the high school, the researcher was greeted by an adult who seemed to be enforcing school security. The adult sent the researcher to the main office, where she was greeted by the secretary and the principal. The researcher waiting for approximately twenty minutes for the principal. During that time, she spoke with two secretaries (out of four) in the main office suite and observed traffic in and out of the office. Both secretaries spoke highly of the students and of the school. The researcher took note of the extremely well-maintained hallways, floors, classrooms, and windows. As the researcher toured, a female custodian busily washed hallway windows. The researcher commented on the clean windows, and the custodian offered profuse thanks.

*Interview One C*

Upon entering the principal’s office, the researcher noted the many plaques and awards commemorating golf team and coaching awards. On the shelves were family pictures, as well as more golf mementos.

*School culture one C*

When asked about the school culture, the principal responded, “Well, the school culture is pretty simple. It’s a district.” He referred to the fact that much of what happened in the school was due to district curriculum and district expectations. He went on to describe the demographics as well the positive relationship that the school and parents share. He added, “The parents are not overly involved but generally
good.” He spoke about the makeup of the staff and said that more than half of the staff at this school currently has less than five years of experience.

The principal attributed the appropriate level of parent involvement to the consistency of the messages that parents received. He felt that there were fewer and fewer negative comments from parents because of the increased accessibility to information. The school had developed parent and student handbooks, newsletters were sent out a few times a year, and the district had invested in an automated message system whereby parents received quick and timely news. Parents have online access also to assignments, grades, and information in each class. Since the principal had been a vice principal as well as a teacher and a parent in this district, he felt that he could empathize with parents and ran his school accordingly.

When discussing the teachers, the principal felt that the staff had been far more social in the 1970s than they were now. He attributed this to the fact that teachers were very busy either with coursework or coaching. He also felt that there were cliques around the building. However, he felt that teachers generally support each other professionally even if they are not always “on the same page.” While many of the “traditional” teachers have left or are leaving, the principal still felt that there was some traditional teaching going on.

With regard to parents’ expectations for students, the principal felt that regardless of level placement, parents had high standards. He commented, “They want the most out of each placement.” The principal felt that there was concern about SATs and college acceptance from parents at all levels. The school does receive many calls
from parents requesting honors placements and feel that there is pressure on everyone related to honors placement. He spoke about the problems associated with the recently implemented practice of waiving criteria for admission into the honors program.

The principal discussed an "advisory committee" that meets every other month to talk about faculty or building issues. Although he had not initiated this committee, he had "revitalized it." The purpose of the committee is to explore building issues and discuss ways to address them. The advisory committee members then share these discussions with department members.

Technology one C

Technology is used "everywhere," according to the principal. There were in excess of 500 computers in the building. The principal's definition of educational technology included the phrases "as a resource" and "continue the work at home and use that as a resource." He commented that having new teachers helped in this area. He described them as "very honest" and able to do "three things at one time." The principal did not feel that winning the Best Practices award had impacted the technology practices in the building other than the notoriety that had stemmed from being a "Best Practices district." He said that the award really affirmed what they had been doing for a while. He also said that other schools in the area "are basically following" this school. He described some of the more specific ways that technology is being used in the building.
The principal described the school's status as being in the "top ten in the state all the time," mentioning high test scores and the need to move the scores to an even higher level. He was pleased that the Board of Education was allowing him to offer an in-house SAT preparation program and felt that students would benefit.

**Leadership one C**

When asked the question, "Who makes the decisions here," the principal was quick in responding. He said, "This is still a district. The superintendent, the two principals...they're the guides." He went on to say that he does get input from various key people in the building, depending on the issue. He gave examples of when he would defer to the decisions of the superintendent, and when he would call in his assistant principals or other personnel. He felt that one of his strongest skills was the ability to anticipate problems, changes, or events, and talked about how this skill has served him well.

The principal felt that the staff got along well with him because of his long history as a teacher and as a parent in the district. He admitted that, as a vice principal, he had experienced difficulty sometimes seeing any side other than the parents' point of view. He also commented, "I think right now we're still there." The principal explained his went on to explain that he continued to empathize with parents and was able to see "their side of things."

When asked about his vision, he again responded that the vision was a "district thing." He did hope to increase SAT scores, because the average scores of the other high school were 100 points higher than in this school. He also spoke about the
study environment and his role in controlling interruptions, walking through the building, and seeing that teachers and students had adequate resources.

The researcher asked the principal if he thought that teachers would know what he, as the leader of the school, represents. He felt strongly that they would, because he presents his goals to them annually and regularly communicates with them.

The principal reiterated that he can change nothing having to do with curriculum in the building because the curricula are district-driven. He also spoke briefly of some of the discipline challenges in the building. He said that kids are “a politically savvy group and everybody’s an attorney and they all know when they can push the rules and when they can’t.” The principal felt that, other than dissatisfaction with the cafeteria food, students and teachers were generally happy in this school.

Interview Two C

The second interview involved a guidance counselor at the school. She had been in the district for fifteen years and currently divided her time between two buildings.

School culture two C

In discussing the school’s culture, the interviewee described the staff as “motivated, energetic, and dedicated.” She referred specifically to her colleagues, using the phrases “well-oiled” and “incredibly good team.” She commented that in this faculty, by and large, “you don’t hear I don’t have enough time to do that, you just do it.” She also said, “I don’t think it is unheard of to see teachers leaving the building at 5:00 or 5:30.”
When asked how the faculty relates to one another, she described the school as "very cohesive." She added that, because it's a regional district, there was normal competition, but that overall, articulation helped to facilitate a cohesive unit.

Departments gave the same tests, and had common meetings and similar goals. The researcher asked her to be more specific in stating those goals. She commented, "I think it is to turn out mature, capable, well-educated citizens who have their eyes open, who have gotten the best academic presentation that this district can possibly provide them in a comprehensive way, because we individualize what the students' needs are." She spoke of the non-academic successes in the building, referring to the general education students' accepting the inclusion of the self-contained students in the building. She also felt that the school was looking closely at how to manage the ethnic diversity in the building as well as the "lesbian/gay/straight alliance" in the building. She pointed out that the school is "really looking at our students as kids of the 21st century and are accommodating for all of their needs."

The respondent spoke of the many informational sessions that the school offers parents, describing this approach as "tremendous outreach." As a result, in her opinion, parents were very supportive. When asked about a "common theme" to the parent complaints here, she responded, "A lot of it is academic issues. I don't think that it's any different than any other school." She added that there was a push by parents in this district to have kids take honors and AP courses.

The interview participant also spoke about the I & RS Committee, active in this building. Teachers meet weekly to discuss student concerns. She felt that there had
been a positive change from the time of the committee’s inception, when teachers did not want to make recommendations. Currently, the committee “really works hard,” she commented.

New teachers have “brought life” to the building, according to this interview participant. She described the opening of this school when the group of teachers hired together had become a closed group, a clique that was difficult to penetrate. Now, a large group of new teachers has become more social and has added a “new slant to what was getting tired.” She spoke of the change that had occurred in the school, as a result of new teachers coming in and bringing a new feeling of “energy.”

**Technology Two C**

The respondent discussed the technology here, describing the pedagogy as “project-based.” She said, “It’s project-based using technology.” She expressed the opinion that technology is “going on in every classroom.” She did not think the winning of a Best Practices award had impacted the technology practices in the building. Rather, she attributed the highly technological nature of the building to the “foresight of the superintendent.” She felt that the trend toward magnet schools and charter schools placed pressure on the public schools in the county, and the superintendent felt the need to move into technology. She also added, “I have to say we’ve lost a little bit of the personal touch because instead of going to talk to people, there’s e-mail. For my part, as a counselor, because I like to interact with people, I miss that. But it gives us complete access.”
When asked about training, the participant spoke of the strong professional development programs at the school. She listed courses in Power Point, Photo Shop, Hyper Media, and Hyperlinking as some of the training options. She also mentioned the technology rooms set up at the Board Office, where teachers worked with staff.

The interview participant discussed the recognition gained from national and state awards. She described the school as highly competitive and felt that winning these awards helped students get into good colleges. She added, “I think it showcases the beauty of a comprehensive high school. It also says that we’re in the 21st century. It says we’re state of the art.”

Leadership wto C

When discussing the principal, the counselor considered him “strong and supportive.” She also described him as “open,” someone who would not automatically say no. She did not feel that the principal was an instructional leader, but did not necessarily think that had been an obstacle to the success of the school. She said that he had empowered many people on staff and this newly empowered feeling encouraged people to work harder.

When asked if the principal has a vision, she said, “I think he sees the school and his staff meeting the needs of kids. I think he sees the school rising to improve scores, to improve the performance of the kids. Because he’s not totally an instructional leader, I don’t know that he sees all of that but again, that’s where I say there’s a beauty in that because he can defer to his academic teachers, his supervisors,
which I think makes people work harder. So I think his vision is to get people involved.”

Interview Three C

School culture three C

The third interview participant was an English teacher in her tenth year of teaching. She was currently in her third year at this particular school. When asked about the culture of the school, she said, “Intense, very intense here. There are certainly a lot of demands; people expect a lot. They expect it, they expect it quickly. I would say almost immediately.” She felt that education was valued in this school as well as “appearances” and “things of material value, things of status.” She felt that a message of high expectations came from everyone involved with the school community.

The interview participant felt that teachers get along professionally in this school. She had “never seen a committee go unstaffed.” In terms of the staff’s collective opinion of parents, she did not feel comfortable offering an opinion about all staff but said that most people on staff would probably say that parents are fairly intense, fairly demanding. She also mentioned that there were “tons of parent committees” and high participation in the Parent Teacher Student Organization.

Technology three C

The respondent used the phrase “enhances the educational experience both in and out of the classroom” when defining educational technology. She described the many ways that technology was used throughout the building, describing “banks of
computers,” multi-media production capabilities, big screens, and laptops. She said, “I think that is expected of us. I don’t know of anyone who doesn’t.” She spoke of the mandate that each teacher develop and maintain a web site, but also felt that she herself had been an avid technology user prior to the school’s mandates.

When asked about the Best Practices award, the teacher felt that she personally had not been impacted. She wasn’t sure if the award “spurred some of the requests that have come from above” or the push for technology had been inspired by other factors.

Leadership three C

When asked to describe the current principal, the respondent talked about the differences between him and the former principal, saying that people were much more comfortable with the current principal. In elaborating, she explained that people had been intimidated by the former principal, but she had never seen the current principal yell or “zero in on someone or pull someone out in such a way as to embarrass or make the person feel as if he or she was on the spot.” She commented that people respect the principal’s fairness and his ability to ask important questions. She felt that people appreciated a chance to offer input into decisions. When asked if the current principal is a strong “instructional” leader, she described a former administrator who had come to the position with a strong academic background, but who had not been effective as a leader. She contrasted the leadership of her former administrator with that of her current principal and said that, although he didn’t have an academic background, it had not been “any kind of deficit so far.” The teacher
lamented that the principal may not be able to fully appreciate the "what" of what she was saying, but felt that he completely understood the "how" of what she was teaching. She added, "He has a strong sense of how lessons should be taught regardless of subject matter."

When asked if the principal has a vision, the teacher replied, "Early on it definitely was to inspire trust and comfort amid not just faculty but probably the students as well." She mentioned the principal's desire to have people collaborate in teams and to make the school a better place. She commented, "I guess that's what he wants is to look at what we've done in the past that makes sense, hold onto those things, and change the things that don't make sense anymore. Things that are, bring in, that's that are new, that make sense now."

The teacher felt that the principal has high expectations for student performance and conveys them clearly to his staff. She said that he was "pretty demanding in terms of what he expects us to be giving to the students and he expects them to achieve in return, also." When asked to describe what routine principal actions she had observed, she said that she had seen him walking around the school quite a bit. Even if he was not conducting a formal observation, he was always observing.

The researcher asked the teacher to describe the leadership style that would contribute to her implementing exemplary practices and/or applying for an award that recognizes exemplary practice. The interview participant said, "One who sets parameters and sets expectations but who doesn't dictate how you need to get there."

She also said that she feels that it's important that people hold others responsible.
Interview Four C

This interview involved a teacher who had been given the title “Dean of Students” and was responsible for a great deal of the discipline and management at the school. He had been the technology teacher in the building and was in the process of obtaining his administrator’s certificate. While he had been a teacher, he had applied for and received a Best Practices in Technology award. The interview participant appeared to be very busy while the researcher interviewed other participants and toured the school. During the interview, the participant was interrupted at least twice by a signal on his hand-held radio. At one point, he excused himself to attend to a problematic student issue.

School culture four C

When asked about the school culture, the respondent gave a lengthy answer. He spoke about the pride in the school as evidenced by the well-maintained campus. He spoke proudly of the forty-year old school and the devoted staff who maintain its clean areas. He also commented, “The parents who come to this area move to this area expect great things. They’re very supportive of our taxes, our referendum, because eventually, the value for the dollar is very, very important. They move here because of the school district.” The participant also described how these expectations carry into the classrooms. He said, “You can expect bell to bell instruction. There’s not much dead time.” He mentioned that a visitor would see student-oriented projects and presentations, rather than lectures. Staff development is a priority here, according to this interview participant. He informed the researcher that there are no
longer study halls in this school. No students roam the halls. All students are held accountable for unassigned time by visiting the library or the commons area, but no study halls are offered. The participant described study halls as "unproductive." The researcher asked if students are often late. He responded that he rarely has to address problems with habitual lateness, but if necessary everyone gets involved.

In discussing expectations, the participant spoke about the "implied" expectations of all groups. He emphasized the scrutiny under which the district places non-tenured teachers, observing them close to ten times. He mentioned the word "accountability" several times. Teachers are expected to refine questioning techniques, classroom management, and classroom procedures that contribute to students arriving late. The participant mentioned the phrase "shared commitment" to describe the way teachers expect students to behave and perform. He added, "It's wonderful to know we value each other's classes." He also used the word "passion" to describe "what we do."

The teacher felt strongly that students in this school gave positive feedback to their parents, and that feedback offered parents a good way of knowing about what happens in the school. He praised the guidance department and staff as having "great communication" with parents and also added, "We're technologically rich in the sense that we have a great communications-based e-mail." He mentioned the "Swift Reach" automated parent contact system. He also gave the example of communication among staff when procedures such as 504 discussions occur.

The interview participant had left a tenured position in another district to come to this school because he felt that the school district would offer him a unique
opportunity to teach technology in a way that "it should be taught." Of his current school, he said, "There were plenty of resources to really expand and broaden your horizons. Teachers come to this school, some because financially it's rewarding if you're going to make this a true lifelong commitment as a career. The structure's in place so the disciplinary issues are minimal at best. Eventually, when a future teacher considers coming here word of mouth is very, very important. I'm sure they'll have colleagues at one point or another who know teachers here and they realize that the administration here is very supportive of education and has zero tolerance for students trying to disrupt the level of learning that's going to take place."

Technology four C

The respondent did not feel that the winning of a Best Practices award had changed the technology practices in the building. The award had affirmed, for him personally, the level of his performance, and also offered publicity for his students and the school. He mentioned several other extra-curricular competitions that he had entered and won. He felt that the Best Practices award had recognized the curriculum and had recognized the learning that was taking place in a relatively low-funded area within the school budget. He spoke of the pride he had witnessed in his students when they had received the award.

Technology had evolved over the last thirteen years, according to the participant. He believed that his department had been the first to use internet, to use multi-media programs, and currently, these once-innovative processes are now part of the norm. He spoke of his hope to always have that "technological edge."
Leadership Four C

When asked to discuss the principal’s leadership, the teacher felt that part of this principal’s success was his ability to delegate responsibility. Although their leadership styles were not similar, according to the participant, the teacher said that he had the "utmost respect for the principal's skills in delegating responsibility." The participant described the principal as a “team player,” someone whose “door is always open for the staff.” He described the principal as “very collegial,” “never undermining,” and as realizing that “being a leader is a two-way…”

The interviewee believed that the principal knows his staff well, including all of the support staff. He described the principal’s vision as one “to make the school the best academically inclined school that can exist for the community.” When asked how the principal lets his staff know his vision, the interviewee talked of the first day when the principal had taken over and had said, “I work for you” to the staff. The participant concluded, “He works, it’s all about him working for us, it’s not about the staff working for him. It is a shared commitment. Everyone knows that.”

Interview Five

The fifth interview involved a technology teacher in the building who had won a Best Practices in Technology Education award when he taught in another school district. The teacher was a bit nervous to talk with the researcher and, although he had volunteered, he seemed reluctant to answer some questions.
School culture five C

When asked to describe the school culture, the respondent used the word “supportive” in referring to the administration, colleagues, and parents. He said, “It’s like an open collegial atmosphere.” He mentioned that this collegiality was evident at department meetings, at Back-to-School Nights, and in the attitudes of people in general. He also believed that this collegiality and level of support was uncommon in high schools.

According to this teacher, the staff gets along very well at this school. Since he had taught at other schools, he asserted that he was able to tell right away if a school’s climate was good. He said, “It’s more of what you don’t see. When people aren’t getting along you hear little bickering over silly things at faculty meetings, and bickering is burned out groups during an inservice session.” He commented that he doesn’t see those things at this school.

When asked if the staff was “on the same page, professionally,” the teacher described the message that was clear throughout the school: “things are going to be taken seriously, academics are the high priority.” He added that even though he teaches an elective, he is expected to hold high expectations for his students. Although parents make fewer demands on him because of the nature of his elective programs, he was aware of the demands on his colleagues.

Technology five C

The teacher felt that technology integration was the norm in this school. Although parents did not seem to place demands on teachers in this area, the use of technology
was a clear expectation in the school and in the community. Major staff training had been done in the area of technology. Support staff, including technology coaches, had long ago been hired. There was no director of technology in this district, but there were network technology resource people. Written observations frequently included comments about the use of technology in classrooms.

Leadership five C

The teacher described the principal as "very good." He appreciated the fact that the principal did not hold meetings just for the sake of holding meetings and that he leads by example. He felt that the principal was not uncomfortable using people as resources or asking people in the building for their expert advice in certain areas unfamiliar to him, such as technology. He gave a specific example of how the principal had asked him to demonstrate to the staff the "remote desktop" device he had recently used to teach in his classroom.

When asked to describe the principal's vision, the teacher responded that he thought "a large part of it was to maintain this as obviously one of the top districts in the state and one of the top high schools in the state." When asked what actions the teacher could always count on the principal demonstrating, he spoke of the principal's ability to offer praise when praise was due. He gave a specific example of when the principal had read a list of names of people who had maintained perfect attendance. He concluded, "Where there is an opportunity to commend people, he will."
Documents C

The principal offered the researcher eight documents for analysis. These include the following: faculty meeting agenda, summary of feedback from “Emergency Response” training, memo to all staff regarding dates and topics of the next two meetings, faculty advisory committee meeting agenda, faculty advisory committee meeting minutes, a copy of the principal’s newsletter, acceptable use policy, and the Best Practices award application.

Included in the documents are 12 references to safety as well as 21 references to academic concerns or strategies. Attention to “order” is present. Dates of meetings, along with discussion topics, are posted well in advance. Teachers are expected to “arrive promptly” and “sit up front.” Attendance is monitored. “Chain of command” is mentioned.

An academic focus is evident in the documents. “Academic Integrity” has become a research committee. The committee questions how this “Learning Community” can function more effectively.

A third category or theme of collaboration is present in the document items. Nine phrases such as “faculty advisory committee,” “your thoughts,” and “when we can make changes we will if it helps even a few of us” are included. In addition to three sports-related items, several athletic events are posted throughout the documents. The documents contain references to a variety of clubs and departments as well as to opportunities for parent outreach.
Summary of Case III: School C

School Culture Summary C

Three themes emerged from the analysis of interview comments regarding school culture: High expectations, a collaborative staff environment, and involved parents. Throughout the interviews and documents analysis, the researcher noted 17 comments about the high expectations in the school community. Comments included, “The scores have to be high,” and “Everybody is going to Harvard on scholarship.”

In addition to high expectations for student performance, a norm of high expectations for teachers exists. The words “competition” and “demanding” were mentioned, and one volunteer described the intense scrutiny under which all teachers, especially non-tenured teachers, work. According to the participants, this scrutiny from district supervisors is a response to a norm of high expectations. Teachers are expected to participate whole-heartedly in district initiatives, in professional development, in problem-solving, and in school-based decisions. Two references to the “Learning Community” were made. Based on the comments of interview respondents, education and the learning process are highly valued in this culture.

Technology Summary C

Technology use is expected at this school. None of the interviewees believed that the Best Practices award had affected the technology practices in the building, but felt strongly that the district's high expectations and reputation of being a “model” for
curricula. Seven references to the expectation of technology use were made throughout the interviews. Comments included “Everybody is using it,” and “It’s a trity to find paper in your mailbox.”

To support the notion that the use of technology is the norm, seven examples of how technology is regularly used as “a tool” were given. Through observation, the researcher noted the large number of students in classrooms who were working at computers at a variety of tasks. Examples from observations and from interview participants included the creation of multi-media presentations, Hypermedia studios, architecture planning software, a grade input system, laptop use, communication with parent, and website maintenance. References were also made to technology as the reason that teachers and parents communicated so well, although one interviewee felt that she missed the “personal touch” of talking to parents in person.

All interview participants referred to the support that the administration had offered in this area. Although there was no technology director, a number of technology “coaches” were available to support staff. Extensive training had been provided and was ongoing.

Leadership Summary C

Based on interviews and document contents, it appears as if the principal of this school has high expectations for staff and students as part of a strong goal orientation. Additionally, he seems to place a great deal of emphasis on human resource development.
Safety is a major concern of this principal. Within the documents are nine references to safety. The principal has high expectations for performance. Seventeen document comments reflected these high expectations, including the phrases, "academic integrity," "chain of command," "interim reports," and "no exemptions."

Throughout the interviews and contained in the documents were 25 items that reflect the principal's goal orientation. Describing his vision, all participants mentioned his desire for high test scores as well as for creating the best school environment. According to participants, this leader communicates his goals clearly, mentioning them in e-mails, memos, at committee meetings, and at faculty meetings.

Although several comments reflected staff members' perception that the principal was not an "instructional" leader, the researcher found contradictions in interview transcripts, in observations, and in document analyses. These contradictions lead the researcher to believe that differing interpretations of the phrase "instructional leader" may have influenced comments regarding the principal's instructional leadership ability.

A clear profile of the leader as someone who emphasizes capacity-building in staff emerged in this case study. Twenty-seven items found in the documents and interview comments reflect the principal's efforts to empower staff and foster a collaborative environment. Comments included "makes decisions with staff," "defers to supervisors," "fair," "asks questions," and "This makes people work harder."

According to one staff member, the principal "looks at what we have done in the past
that makes sense and holds onto those things, but wants to change the things that
don’t make sense anymore.”

Cross-Case Summary

School culture cross-case summary

In a cross-case analysis of the three schools that had been identified as having
exemplary technology practices, a common theme of “high expectations” was
identified. Teachers, parents, and administrators referred to the environment as being
“academic,” “intense,” “demanding,” and even “competitive.” In varying degrees,
interview respondents spoke of the high expectations for high performance of the
students and teachers held by parents, staff, and community members. These
expectations seemed to grow in intensity with each increase in grade level
configuration. Reference to grades and test scores was common among participants.
Elements of several models of school culture are evident (Schien, 1992; Fullan &
Hargreaves, 1992, as cited in Cavanaugh & Dellar, 1997; Becker & Riel, 1999;

In addition to the high expectations held by members of the school community,
participants spoke of a high level of parent involvement. Although participants
seemed to appreciate this involvement as contributing to the high test scores and
success of students, there was evidence of a certain level of resentment among staff
members toward parent involvement, less so at School C than at Schools A and B.

Collaboration of varying degrees existed in all schools. In school A, the
collaboration seemed to be superficial, based on the comments made by interview
respondents, the body language expressed by the interview respondents, the disparity between the principal’s perspective and the perspectives of the other interviewees, and the casual comments made to the researcher. Although present at all schools, internal conflicts were tolerated less at the middle school level and high school level than at the elementary school. It is interesting to note that the staff at the elementary level believed that the principal often compounded internal conflicts by getting involved in them, whereas the staff members at the middle and high school level felt that the principal would expect the staff to work out these conflicts on their own.

All schools demonstrated evidence of "professional learning community" components (Dufour & Eaker, 1998) to some degree. However, School C (high school level) contained many more examples than the other two schools. Interestingly, the difference among the three schools' median level of teachers' years of experience indicates that there are more veteran teachers at School A than at Schools B and C. This may explain why there are philosophical differences among the teachers regarding the value of technology.

Technology cross-case summary

In regard to the Best Practices Award, none of the interviewees believed that the Best Practices award had impacted technology practices in their respective buildings. Based on observations and interviews, it can be said that in these three schools building-wide technology use increases in direct proportion to the increase in grade level configuration. The elementary school contained less evidence of sustained, integrated technology use than was shown at the middle school level. The high
school in this study contained far more evidence of sustained technology integration. School A, the elementary school, contained some individual examples of integrated technology use, but with limited institutional success. School B, at the middle school level, had begun to respond to a district-wide initiative in technology and gave several examples of technology projects that had begun in the building. Many of these projects had been led by the teacher who had originally won the Best Practices award. Technology use was expected by the parents and students, and most teachers were beginning to respond. However, the technology curriculum had not yet been fully updated. Many new technology staff had only recently been hired. Many training opportunities were currently available. In comparison, School C, the high school, had long ago hired technology coaches, had provided training, and had made clear the expectation for integrated use. Integrated technology use was the norm.

In each school, a comment referring to the school’s need to be “first” or a “model for other schools” was made, which may be the result of the schools’ response to parent and community pressure in the area of technology. This interactive model is aligned with the model described by Maxwell and Thomas (as cited in Cavanaugh & Dellar, 1997) and will be further discussed in Chapter V.

Leadership cross-case summary

In all school sites, interview respondents spoke of their principal’s awareness or lack of awareness of the culture of the school community, specifically speaking of the high expectations held by community members. In two cases, Schools A and C, the principal’s assumptions about student and staff performance as well as assumptions
about the community culture influenced his/her high expectations. The expectations held by the community were congruent with those held by the school principal. On the other hand, the principal of School B assumed that the “academics would take care of themselves” and, instead, focused on creating a relaxed and happy environment for staff and students. Despite very negative comments regarding School B’s leadership, teachers had demonstrated self-efficacy as well as collective efficacy.

In varying degrees, professional learning community concepts (Dufour & Eaker, 1998) were evident in all three schools. School leaders differed, however, in their ability to create a common culture of expectations in the area of technology.

Additionally, in all three school sites, the leader was able to create in the building a sense of community. In school A, this sense of community existed at a superficial level, in the number of social occasions that were organized and attended. In School B, the principal had created opportunities for staff and students to celebrate events such as completion of state tests. He also created opportunities for including school community members in the daily routine of the building. School C principal had come to the position after having been a teacher and a parent in the district and was received positively as someone who had “walked in my shoes” by the teachers. In light of the fact that more than half of the teachers there had less than six years teaching experience, the principal’s strategy of “empowering” staff had helped to create a strong sense of community in the building.
Noteworthy of the three leaders in this study is their ability to overcome bureaucratic obstacles that stood in the way of progress for individual teachers and for the school. All interviewees reported that their principals had ensured a smoother path for them in their efforts to implement technology components in their programs.
CHAPTER V
Data Analysis and Interpretation

Introduction

In Chapter I of this document, the researcher presented the problem statement and purpose of this study. Despite huge investments in technology, disparities exist among schools and among school districts in their levels of successful adoption and subsequent sustainability of innovative technology practices. The initiation and adoption of innovative programs is a complex and challenging process that involves a number of important considerations. Technology program implementation offers an even more formidable challenge. Technology planning and implementation efforts vary from district to district and from school to school. The existing broad disparities in the sustained use of exemplary and/or innovative technology practices in schools would lead one to believe that specific contextual factors are critical to the successful adoption and sustainability of exemplary technology practices. To identify those cultural and leadership factors that are common among schools that have been identified as having exemplary or innovative technology practices, the researcher has examined three New Jersey school sites.

Research Questions

The research questions in this study are as follows:

A. What contextual attributes of school culture and school leadership are critical for adoption and subsequent sustainability of exemplary and/or innovative practices in education technology?
1. What commonalities in school culture exist among schools that have been recognized as having introduced and sustained exemplary and/or innovative practices in technology?

2. What commonalities in leadership styles and leaders' actions exist among schools that have been recognized as having introduced and sustained, exemplary and/or innovative practices in technology?

B. How has the winning of a state Best Practices award influenced technology practices in schools?

C. How does the configuration of the school (K-8 vs. K-12, etc.) impact technology practices in schools?

Chapter II begins with an overview of the research involving innovations and implementation of innovations. Theories associated with diffusion and adoption concepts are briefly described. School culture research and school leadership research are explored in Chapter II. Various models of school culture and school leadership are described and key principles of each model are summarized at the end of each section. In Chapter III, the researcher has discussed the research questions, population and sampling information, data collection, and data analysis. In Chapter IV, the researcher presents information obtained from interviews, document analyses, and site observations. In Chapter V, the researcher provides an analysis of collected data as presented in the previous chapter. The analysis will be organized into three categories: school culture, leadership, and technology practices. A "conclusions" section as well as a "recommendations" section will also be presented.
It was clear from the research as well as from the data collected that school culture and school leadership are not separate components of a school. School culture is influenced by leadership and, in turn, leadership practices are influenced by school culture. For the purpose of analysis, culture and leadership were considered separately. Because technology was a focus in this study, technology practices, too, were isolated from other equally important educational innovations and innovative practices.

School Culture

All three school case records contain items that refer to the high expectations of the school community, especially the expectations held by the parents for student and for staff performance. Teachers and principals made assumptions about their students based on the socio-economic status of the parents as well as the observed involvement of the parents in the educational process. As a result, each school culture had learned to adapt to the pressure placed on the members of their organization, and staff members had adjusted their teaching styles, the content of their programs, the attention to test scores, and their responsiveness to the school community. This pattern of shared basic assumptions and actions in response to those assumptions is aligned with Schien’s (1992) definition of culture, “a pattern of shared basic assumptions that a group learned as it solved its problems of external adaptation and integration, and that has worked well enough to be considered valid and therefore to be taught to new members as the correct way to perceive, think, and feel in relation to those problems” (p. 56). Comments made by interviewees contain reference to
how staff members perceive the parent community, how teachers handle the pressure, and how the pressure of high expectations has affected instruction and content in each school.

The link between staff, parents, and community members supports the contentions of Sergiovanni (1996) and Bolman and Deal (2003), who describe schools as "communities" with distinctive beliefs and patterns, as well as shared values and norms. For example, each of the three case records makes reference to examples of social events that were well attended by staff, parents, and community members.

Each school had also responded to community concerns about curriculum.

Fullan and Hargreaves (as cited in Cavanaugh & Dellar, 1997, p. 5) describe school culture in terms of separation, connection, and integration. They note a "separated" culture where teachers work mainly in isolation, independent from each other, which leads to disjointed improvement efforts. On the other hand, a "connected" culture may include balkanization, a level of comfortable collaboration accompanied by contrived congeniality. School A exhibited some aspects of a culture of separation as well as some aspect of a connected culture. As mentioned above, there were individual examples of exemplary technology use, but little evidence of an expectation of such. Teachers spoke of the internal conflicts and cliques that existed, even though the principal believed that there were few. Despite the principal's reference to the inclusive environment, teachers cited several example of problematic relationships within the school community. All participants described committees that were well-received and well-serviced by staff members, but none of these
committees involved controversial topics. Committee topics included character education, charity work, and celebrations.

Schools B and C, in varying degrees, align with Fullan and Hargreave's (as cited in Cavenagh & Dellar, 1997) "integrated" model of school culture. The community categorized as fully integrated values both the needs of individuals and those of the groups within the community. School B interview respondents spoke often of support offered to staff as they worked toward a more collaborative culture. School C participants offered several examples of professional collaboration as well as examples of shared decision-making. School C was characterized by collaboration, opportunism, partnerships, and alliances. The members of this culture seemed to be motivated by continuous learning and growth. This cultural profile is in line with Hargreaves's (1994, as cited in Cavenagh & Dellar, 1997) "mosaic" cultural form.

The difference between School B and School C seems to lie in the level of staff participation in decision-making. Becker and Riel (1999) point to two types of cultures—bureaucratic or professional—that teachers encounter when trying to integrate technology. Bureaucratic cultures tend to allow for autonomy in the classroom, but limited participation in curriculum and organizational decisions. This aspect of bureaucratic culture applies to School B. Although bureaucratic cultures tend to inhibit innovative practices and collaboration, School B demonstrated an ability to overcome this limitation. It may be true that a transition in leadership has prevented staff input in the decision-making process. In contrast, School C educators
were heavily involved in the decision-making process. The professional culture of
School C seems to support innovation and collaboration.

School A participants often spoke of the external obstacles placed in their way by
"the district" or "the powers that be." Even the principal spoke negatively of central
office personnel. Many times staff members believed that they would have been able
to make changes had it not been for the limitations placed on them by the district.
This thinking is aligned with Mells's (1994) concept of "being orientation," marked
by a belief that nature, or the environment, controls all human behavior. In contrast,
Schools B and C participants remarked positively on their ability to make decisions
about their own practices in the classroom and believed that they had a great deal of
collective efficacy. This thinking is aligned closely with Mells's concept of "being-
in-becoming orientation," characterized by a belief in self-actualization and the
fulfilling of one's potential. In both schools (B and C), teachers commented that they
had come to the school specifically for the opportunity to grow professionally and to
avoid being "held back."

All three schools contained varying configurations of Cavenaugh and Dellar's
(1997) six-element school culture model. As described in Chapter II, the elements are
teacher efficacy, emphasis on learning, collegiality, collaboration, shared planning,
and transformational leadership. At the center of the model, individual values and
norms interact with the other six elements in ever-changing ways. Well-developed
cultural elements, like the axles of the wheel, produce a working environment with
features that are conducive to the development of a positive and effective school
culture. In School C, teachers are bound together by common needs and expectations, the community places emphasis on student learning, and collegiality is standard and gives rise to confidence and active participation. An atmosphere of trust seems to exist, problems and successes are shared, and the professional growth of teachers builds on the experiences of others. Control of the school is vested from the administration to the community as leaders focus on the growth of the participants.

The six elements of the Cavenagh and Dellar (1997) model are inter-dependent and interactive. The balance between the six elements is important and can be strengthened when all elements are strengthened. School culture declines when there is a weakening of elements that is not mitigated by the strengthening of other elements. The fact that weak elements can be mitigated by the strengthening of the other elements may explain why the culture of School B has remained strong and productive even under the teacher-described negative leadership practices of the previous principal. Changes in both internal conditions, such as leadership, and external conditions, such as a change in population, of school culture have the potential to stimulate changes in the overall culture. This is the case because the beliefs and attitudes of teachers that are collectively expressed through the school culture are not static. Despite such drastic changes in leadership, both at the building level and at the district level, the culture of School B has remained essentially collaborative and open.
Leadership

In School A and School C, the principals had articulated clear goals that were based on maintaining a reputation of high performance. When asked to articulate their visions, both principals spoke of the need to be “at the top” or “in the top” in terms of test scores and reputation. Staff, too, commented on their principals’ visions and goals in these two schools. Staff members at each school were well aware of their principals’ visions and goals. The goal orientation of principals from Schools A and C would be described by Tye (1994) as focused.

In contrast, the principal of School B, when pressed, described his vision as a desire to build a sense of community. His staff joked about the principal’s vision, describing it as “whatever we told him” and “everybody should hug each other.” Comments regarding the lack of discipline, the lack of instructional growth in the school, and the lack of knowledge on the part of the principal, create a profile of a “coping” goal orientation (Tye, 1994). This orientation is characterized by a management-oriented approach where a leader simply responds to directives and initiates no changes of his/her own.

According to Rancière (1996), instructional leaders have greater influence over their school culture than leaders who are not instructional leaders. Interestingly, the principals of School B and C were not regarded as “instructional leaders.” Neither had come from an academic background. However, the staff at School B demonstrated a general lack of respect for their principal, while the staff at School C demonstrated a high level of respect for their principal. It may be that, despite the
principal's lack of classroom experience, he had developed instructional expertise and/or was able to recognize strengths and weaknesses in instruction. Since this was a high school setting, it may be true also that teachers who are strong in specific content areas mistake lack of content expertise with lack of instructional expertise. Additionally, as noted in Chapter 4, the researcher did not define terms or phrases contained in interview questions. Respondents were free to ask, but no questions arose regarding the meaning of "instructional leader." Differences in the interpretation of this phrase may have influenced participants' comments regarding their principal. Several references were made to "learning communities" and the principal's ability to anticipate problems and/or changes and to provide direction. Again, this aligns with Rancifer.

Observation and evaluation documents that were written by the principals, regardless of positive or negative content, were perceived as credible and helpful in School A and School C, while not at all in School B. School A principal was known to have a strong academic background and was respected for her knowledge in this area. School A principal was perceived as someone who encouraged risk-taking, School C principal was said to have an ability to ask questions that empowered staff and facilitated hard work, and School B principal was reported to have "known nothing" and to have often been challenged by staff, parents, and community members.

The three principals involved in this study had three very distinct styles, according to Goleman's (pp. 82-83, as cited in Fullan, 2001) description. Principal A could be
described at times as coercive, but most often was seen as authoritative. When she spotted problematic performance, she was known to demand compliance. In general, as she worked toward the attainment of her vision, she made frequent attempts to mobilize people toward that vision.

Principal B could be described as somewhat affiliative; his desire for harmony and community far outweighed any other goal. Principal B seemed to have a clear understanding, despite the staff's lack of respect for his leadership, of symbiotic leadership (Bolman & Deal, 2003) when he established opportunities for celebrations and social events. His attempts at employing Bolman and Deal's "human resource frame" seemed to prove inadequate, based on the researcher's analysis of interview comments. His lack of strong instructional leadership and inability to acknowledge and work with the culture of high academic expectations created a sense of complacency and dissatisfaction in staff, a mistake when implementing change as identified by Kotter (1996).

The coaching style (Goleman, 2000, as cited in Fullan, 2001) adopted by Principal C seems to have had a positive impact on school culture. Clearly, this principal is making attempts to move his staff toward a culture of collaboration, a professional learning community. Approaches to leadership that support the development of learning organizations emphasize the need to move away from technological, hierarchical, rational planning models, toward cultural, collaborative approaches in which staff members participate (Sheppard & Brown, 1999). If necessary changes
are to occur in schools, schools need to become learning organizations (Darling-Hammond, 1996).

Principal C appeared to be both proactive and reflective. Interviewees described
their principal as "thoughtful," and "proactive." The principal himself said that he
works hard to anticipate problems and necessary changes, a sign of his ability to be
proactive. Principals who demonstrate both proactive and reflective leadership are
more likely to transform schools into learning communities than those who do not.
Proactive leaders are not content to leave well enough alone; they constantly strive to
implement improvements. In order to know where there are potential weaknesses,
leaders must practice analysis and reflective thinking (Rancifer, 1996).

Staff members feel supported by their principal in School C. The researcher
observed several positive interactions between the principal and staff members,
including interactions between the principal and custodian and between the principal
and a secretary. Lewin and Regine (2000) stress the importance of developing
relationships in the organizational environment. The care and attention paid by
leaders to their workers is essential to the creation of a collaborative culture.

The principal in School C believed in his staff and in their ability to make
necessary changes to maximize student learning in the school environment. He spoke
of his image of the ideal school. He also gave several examples of teacher groups,
clubs, and projects that he had suggested, offering all credit to his teachers. The
principal exhibited behaviors stressed by Marzano et al. (2005) as essential for 2nd
order change. He seemed to possess knowledge of curriculum, instruction, and
assessment, notwithstanding comments about his lack of instructional background. Everyone in the school knew of his ability to monitor and evaluate progress. Additionally, he was an optimizer as well as a change agent. He instilled intellectual challenge in his teachers by creating opportunities for them to "lead." Finally, he held clearly defined ideals and beliefs about his students, staff, and school. One interview participant commented about the principal's desire to continuously examine current practices and evaluate their effectiveness in an attempt to retain what makes sense, discard what does not make sense, and adopt new practices that make more sense. This comment is aligned with Waters et al. (2003) concept of balanced leadership.

Principal A and Principal C also demonstrated many of the 21 leadership behaviors described in the Waters et al. (2003) balanced leadership model. Both principals were highly visible, understood the culture of the community, maintained order and discipline, provided resources, communicated well, and monitored progress. Most importantly, both principals had developed a "situational awareness" that had benefitted them and their schools in challenging circumstances. Principal B, although very visible, was not known to have demonstrated many of these behaviors.

Both Principal A and Principal C believed it was important to hold individuals accountable. Teachers, too, in both schools valued a leader's willingness to hold people accountable and described their respective principals as willing to hold people accountable. Principal C was competent at enhancing the skill and knowledge of people on his staff and at creating a common culture of expectations around the use of
those skills (Elmore, 2000). His behaviors are also aligned with Kouzes and Posner’s (1995) interpretation of transformational leadership. Principal C continuously challenged processes, inspired a shared vision, enabled others to act, modeled the way to act, and encouraged the heart in school-home relationships.

All three principals were aware of the concept of schools as communities (Sergiovanni, 1996) and worked hard to create a collegial environment. This desire for community was influenced by the culture of the school in the case of Principal B and was not necessarily successful.

**Technology Practices**

Despite the fact that each of the three schools in this study had received a Best Practices award in technology, none of the research participants believed that the award had provided motivation for institutional change. Apparently, neither the school nor the district had been able to leverage the award to support the sustainability of exemplary practices. However, all interviewees agreed that the winning of awards such as Best Practices awards provided the school and the district with positive publicity, improved parent credibility, and improved status. At the high school level, this improved status was seen as beneficial for students who were in the process of completing college entrance applications.

In each school, a comment referring to the school’s need to be “first” or a “model for other schools” was made in connection with the desire to win awards and to establish a reputation for using exemplary practices. This may have been a response to parent and community pressure in the area of technology. This interactive model,
aligned with the model described by Maxwell and Thomas (as cited in Cavanaugh & Dellar, 1997), will be further discussed in Chapter 5.

Implementing innovative technology programs requires change. Each teacher who originally introduced an innovative technology program made a change that involved risk-taking. Fullan contends that change cannot occur organizationally unless change takes place in individuals. Busick et al. (1992) describe the change process in three phases: The Overview and Initiation Phase, the Implementation Phase, and the Institutionalization and Renewal Phase.

The overview and initiation phase is characterized by a period of anxiety, a change in relationships, a redistribution of power, and messiness. Glickman (as cited in Busick et al.) describes three ways that people relate to each other during this stage of change:

1. People work in isolation, with changes made in isolation
2. People work in a congenial, friendly atmosphere, and may discuss their work, school events, and activities.
3. People work together collaboratively and are fully engaged in shared decision-making.

At School A, some staff members continued to work in isolation and may have implemented individual changes (in the area of technology) that had not yet been sustained. Others worked together, were congenial to each other, and talked about work and personal matters. Staff members at Schools B and C tended to work
collaboratively, although School B staff did not necessarily participate fully in
decision-making.

During the implementation phase of change, concerns of individuals can be
divided into three stages: concern for self, concern for the task, and concern for the
impact of the task. This stage is filled with uncertainty. People must abandon what
they know and attempt to master new skills in often unfamiliar territory. They must
ultimately make a paradigm shift. Fullan (1993) acknowledges the various phases of
implementation and contends that successful change occurs naturally and willingly
when the members of organizations develop necessary skills and share a deep
understanding of the program. Fullan also notes that both pressure and support are
needed at this stage to ensure forward movement. In School B, staff members
regretted that the principal had not shared the high expectations of other members of
the school community, and had therefore not placed adequate pressure on the staff.
Progress stagnated under this leadership and the school was not able to move out of
the implementation stage. Recently, a district-wide initiative in technology in School
B as well as newly focused leadership has provided the necessary balance of support
and pressure to ensure the progress of technology in the school and in the district.

Institutionalization occurs when a change becomes part of people's everyday
behavior and beliefs (Busick et al., 1992). Sustainability is achieved at varying levels
over time. These levels relate to the structure, procedures, and culture of the school
(Curry, 1992, as cited in Busick et al., 1992). In School C, technology is a daily
expectation, a norm. This expectation is implied through the actions of the principal,
the supervisors, the observation reports, and through professional dialogue. The high standards for performance as a component of the school culture include exemplary teaching and the implementation of best practices and the adoption of current research.

Three different goals have provided the impetus for national reform efforts in regard to technology: Make schools more efficient and productive, change teaching and learning into engaging and active processes, and prepare the current generation for the future workplace (Cuban, 1999, pp. 13-15). Based on the research in this study, Schools B and C, at the middle and high school levels, have accomplished these goals. Despite the winning of a Best Practices award in Educational Technology, School A, at the elementary level, has not yet attained the three goals mentioned above. Although there are certainly School A individuals who have demonstrated exemplary technology use (Pisapia, 1994), the collective teaching and learning process has not been changed by the integration of technology. This is not to say that inferior teaching takes place at School A.

Several factors outside the realm of this study may have prevented technology from “taking hold” in School A. The individuals within the school, the experience level of the staff in regard to technology, and district policies may have affected the technology program at this school. Integration of technology in classrooms is not easy for teachers. Planning for the logistics of a lesson requires an understanding of hardware, software, and resources. Additionally, the skill demands of ever-changing technology make it difficult for teachers to stay current in this field. School A
students were not yet at an age where preparing them for work skills is a priority for teachers. Teachers adopted innovations in light of their own goals, accustomed practices, the culture of their school community, and their own interpretations of the innovations. According to Pisapia (1994), teachers are more likely to begin using technology at the suggestion of their school or district computer coordinator than they are at the urging of their administrators or colleagues. Repeatedly, School A interviewees referred to the obstacles presented by their district’s technology director.

Median teaching experience in School A was 13 years. This factor, combined with others, may be important to note. Pierson (2000) examined the technology and teaching practices of teachers with various levels of technology and teaching expertise. The findings suggest that teachers at the lower end of the continuum of teaching expertise, regardless of their high level of competency in technology, lacked the ability to link technology to teaching or to other learning opportunities in a pedagogically sound manner. Expert teachers who lacked expertise in technology use continued to separate technology practices from existing instructional practices. Teaching practices, in this case, remained static. In contrast, teachers who were on the upper end of the continuum in regard to teaching expertise and technology expertise were prolific in their ability to make decisions about the appropriateness, planning, and timing of integrated technology, based on the needs of the students. Their teaching practices continually evolved. These findings suggest that school leaders interested in changing instructional practices associated with technology need to remediate for the differences in not only technology knowledge and skills but also for
differences in pedagogical skills. More important than teachers who know how to use computers are teachers who know how to effectively use all of the tools at their disposal for the learning benefit of students.

During the interviews at School A, comments were made about the age-appropriateness of technology integration. Some staff members had made the assumption that "plugging a kid into a computer" was inherently wrong at the elementary level, when students are at an age where they need to learn "the basics." Finnan (2000) contends that successful implementation of reform programs or innovations depend on the compatibility of the underlying assumptions of the program and the underlying assumptions of the culture. Schools are looking for results and tend to pay less attention to the "fit" between the assumptions of the culture and the assumptions of the new culture (program). When school A is able to identify compatibility and incompatibility issues, school leaders will be better equipped to make decisions about cultural gaps and cultural changes. In contrast to the general feeling at school A, comments from interviewees at School B and School C referred to the demands of incoming students, who were always seeking newer technology knowledge. Teachers assumed that part of their role was to meet the students' needs.

Additionally, performance expectations placed on non-tenured teachers seem to grow with each increase in grade level configuration. These expectations included the exemplary use of technology. At School C, non-tenured teachers were evaluated ten times in each of their first three years of teaching in the district. The bar for
performance was raised each year. Teachers were expected to know their content, facilitate inquiry-based or project-based learning, and integrate technology throughout the curriculum. The district’s reputation for intense scrutiny of non-tenured teacher performance had the effect of narrowing the pool of teacher candidates to those who seem to be confident and competent. Over half of the staff members are relatively new to the building and were characterized by the principal and other interviewees as always wanting to try new ideas and as having a great deal of energy. One respondent said that the new staff members had “breathed life into something that was getting tired.” New teachers were hired at Schools B and C, according to the interviewees, just as much for their personal characteristics as for their knowledge and skills. Innovation decisions are framed by personal characteristics (Orr, 2003). People will generally adopt an innovation if they believe that it is useful and enhances their utility. They consider existing values and habits, the ease of implementation, and the resulting opinion of their peers when making the decision to adopt or reject an innovation. School A was plagued by a culture that diverges over the role of technology in their elementary program.
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<tr>
<th>Culture</th>
<th>School A</th>
<th>School B</th>
<th>School C</th>
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<td>Principal sometime compounded</td>
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<td>Integration</td>
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<td>Connection/collaboration</td>
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<td>Being-in-becoming orientation</td>
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<td>6-element school culture model, despite weak</td>
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<td>at times encouraged</td>
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<td>Authoritative over staff</td>
<td>Allowed complacency</td>
<td>Overcome bureaucratic obstacles</td>
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<td>Articulated and</td>
<td>Goals vague and, when</td>
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<td>Communication</td>
<td>Clear, incongruent with cultural expectations</td>
<td>Clear, congruent with cultural expectations</td>
<td>Communicated clear goals</td>
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<td>Focused</td>
<td>Coping</td>
<td>Focused</td>
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<td>Instructional leader</td>
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<td>Not perceived as instructionally knowledgeable</td>
<td>Not perceived as coming from a traditional “instructional” background but respected for understanding of instructional expectations</td>
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<td>Encouraged risk-taking</td>
<td>Not competitive</td>
<td>Competitive</td>
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<td>Observations/evaluations written by principal are perceived as credible</td>
<td>Observations/evaluations written by principal are perceived as credible</td>
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<td>Coercive at times, authoritative most often</td>
<td>Affiliative</td>
<td>Affiliative</td>
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<td>Knowledge of curriculum, instruction, and assessment</td>
<td>visible</td>
<td>visible</td>
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<td>Maintained discipline and order</td>
<td>Maintained discipline and order</td>
<td>Maintained discipline and order</td>
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<td>Provided resources</td>
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<td>Monitored progress</td>
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<td>Held people accountable</td>
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<td>Individual examples</td>
<td>-Response to district initiative</td>
<td>-Sustained -Ongoing training</td>
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<td>Non-supportive technology coordinator</td>
<td>Technology staff, including coaches</td>
<td>Technology staff, including coaches</td>
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<td>13 years median teaching experience</td>
<td>7 years median teaching experience</td>
<td>8 years median teaching experience</td>
<td></td>
</tr>
<tr>
<td>Assumption: plugging a kid into a computer is wrong at this age</td>
<td>Assumption: Teacher's role is to respond to students' continuing search for new knowledge in technology</td>
<td>Assumption: Teacher's role is to respond to students' continuing search for new knowledge in technology</td>
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<tr>
<td>High expectations for staff, but limited expectations in technology</td>
<td>High expectations for staff include expectations for integrated technology use</td>
<td>High expectations for staff include expectations for integrated technology use</td>
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Conclusions

Research question A ("What contextual attributes of school culture and school leadership are critical for adoption and subsequent sustainability of exemplary and/or innovative practices in education technology) will be addressed below, under two subsidiary questions.

A1. What commonalities in school culture exist among schools that have been recognized as having introduced and sustained exemplary and/or innovative practices in technology?

In the three affluent school districts under study, extremely high expectations for staff and student performance could be found within the culture of the school. One could describe each school setting as competitive. All school staff members spoke of the need to maintain high test scores and an outstanding reputation throughout the educational community. One participant spoke of the increasingly felt pressure from private schools and public charter schools and concluded that public school superintendents needed to reform their schools in order to compete against these schools. School B participants spoke of competition within the teaching staff.

Parents were heavily involved in the schools and pressure for performance was felt by the teaching staff and administrators in all districts. Teachers at the elementary level often resented the involvement of parents in the instructional process. Although evident, this resentment lessened at the middle and high school levels.
Many cultural models that describe teachers' interactions with each other refer to the benefits of collaboration. In all three schools, some form of collaboration existed. At the elementary level, the collaboration was real when it involved less controversial and/or non-instructional topics. At times, evidence of isolated teaching and even balkanization existed. Some teachers had developed skills in technology, but no sustainability of these skills was evident. As a result, an uneven level of technology use was noted. Collaboration at the middle and high school levels was strong. The integrated culture at the high school also involved teacher participation in school-based decisions about students, instruction, and procedures.

All three schools experienced internal conflicts. These conflicts were frequent at the elementary level and at times were compounded by the principal's involvement. They were tolerated less at the middle and high schools, however.

With the sole exception of School B principal, staff members at the three schools researched in this study acted in response to shared basic assumptions about parents and students. A sense of community existed at all schools and was valued by the school culture. Staff members in all schools attempted to work with members of the parent and extended communities and, at the middle and high school levels, included students as contributing members.

Many interview comments recorded at School A, the elementary school, indicated a belief that external factors contributed to lack of progress in that particular school. Specifically, reference to the curriculum director and other central office personnel as well as to the influx of a large special education population reflected a "being"
orientation, a belief that the outside environment, of which staff members have little control, determines the actions within the culture. In contrast, staff members at Schools B and C, the middle and high school levels respectively, reflected a belief in self-actualization (being-in-becoming).

A variety of combinations of the six elements of Cavenagh and Dellar’s (1997) model of school culture are present in all schools. The elements include: teacher efficacy, emphasis on learning, collegiality, collaboration, shared planning, and transformational leadership. Interestingly, the potential for decline in school culture did exist in School B, based on a decline in transformational leadership. Teachers actually reported a lowering of their morale. However, the decline in leadership may have been mitigated by the strengthening of other elements, such as teacher efficacy, in that the culture remained strong and effective.

In summary, commonalities in the school culture of the three schools in this study include the following: high performance expectations for staff and students, a competitive environment, a high level of parent involvement, and a desire for a sense of community and collaboration. Based on the observed technology practices in the building, the cultural factors that support the adoption and subsequent sustainability of exemplary/innovative technology practices also include various combinations of the six elements of Cavenagh and Dellar’s (1997) model of school culture. These elements are: teacher efficacy, emphasis on learning, collegiality, collaboration, shared planning, and transformational leadership. Schools that have sustained exemplary technology practices also demonstrated a culture where members sought
self-actualization, input into school-based decisions, and a desire for professional interactions with colleagues.

A2. What commonalities in leadership styles and leaders' actions exist among schools that have been recognized as having adopted and sustained, exemplary and/or innovative practices in technology?

In each school, the leader's actions were influenced by his/her awareness and understanding of the culture within the school. In the case of School B, as described by interviewees, a potential for weakening of culture existed because the principal demonstrated a lack of awareness or understanding of the cultural expectations in the community. His actions, in turn, did little to maintain what was valued in the culture. It appears as if leaders' understanding, acknowledgement, and valuing of school culture are important considerations in initiating and sustaining exemplary technology practices.

Some elements of professional learning concepts were present in all schools, although they were more consistently applied at the high school level. The principals' styles, however, were very different. The elementary school principal demonstrated authority over staff and at times was even coercive, whereas the middle school principal tolerated a higher level of complacency among staff. The principal of the high school was perceived to consistently empower staff and to successfully employ a coaching style. His leadership style was valued by the school community. Staff members reported that they had gained confidence and had actually worked harder because their principal had empowered them.
Communication of goals seems to be important in terms of leadership. Although the principal of School B did not appear to articulate his goals well, the school staff responded positively to the clearly-articulated goals of the district’s current technology initiatives. This reflects why clear communication of vision and goals is critical.

Surprisingly, in School C, which contained the most compelling evidence of sustained exemplary technology use, the leader was not perceived to be an “instructional” leader. Of the three principals, the principal of School A was the only leader described as “well-respected for her instructional and curriculum knowledge.” However, staff members did refer to Principal C’s clear understanding of “What instruction should look like.” Whether a principal needs to be considered an “instructional leader” in the process of adopting technology is not clear from this study. However, many interview respondents spoke of the credibility and trust placed by staff in the evaluations written by both Principal A and Principal C, thus leading the researcher to believe that principals need to be valued for their understanding of the instructional process.

Staff members who work in schools that have won Best Practice in Technology awards see to value their leaders’ ability to provide resources, monitor progress, hold people accountable, and lead through situational awareness. Teachers want their principals to encourage risk-taking and to help them overcome bureaucratic obstacles when they decide to take risks. They want leaders who demonstrate an appreciation for current school culture and who communicate clear and focused goals. In School
C, where technology practices seem to be a part of staff members' daily routines, there was considerable evidence of transformational leadership. The researcher concludes that in schools that hope to adopt and sustain exemplary technology practices, leaders need to challenge processes, inspire a shared vision, enable others to act, model the way people should act, and encourage attention to school home relationships.

Research question B: How has the winning of a state Best Practices Award influenced technology practices in schools?

None of the interview participants thought that the Best Practices award in the area of educational technology had influenced technology practices in their respective schools. However, all interviewees believed that the award had in some way been beneficial. At the elementary level, the principal saw that the award had both affirmed her contention that technology is appropriate at the elementary level and helped facilitate the "migration" of hardware from the district's middle school to her elementary school. The principals of the secondary schools felt that the receipt of the award not only offered assurance to the local school boards, but in the case of the high school, offered students a college-entrance advantage.

School leaders need to consider the desired impact of winning an award in this area, along with the previously discussed cultural and leadership factors in their schools, as balanced against the amount of time and effort that goes into the Best Practice award applications. If the goal of applying for a Best Practices Award in Technology is to improve technology practices in a school, school leaders may be
disappointed. This research clearly demonstrates that the receipt of the award may have benefits to the school community, but does not affect the technology practices within the school.

Research question C: How does the configuration of the school (K-8 vs. K-12, etc.) impact technology practices in schools?

It was clear from the research that technology integration at the secondary level among the schools in this study had become the norm rather than the exception. In contrast, there were individual examples of technology use at the elementary level, but not a collective expectation for technology use. At the middle schools, many collaborative projects involved technology. A technology support team was available for help with projects and planning as well as for training. At the high school, integrated technology use had further evolved, so that “coaches” had been hired long ago. In addition, ongoing training opportunities continued to evolve, and exemplary technology use had become sustained. As discussed above, School A was just beginning the Overview Phase of implementation, School B was in the midst of the Implementation Phase, and School C had fully evolved into an Sustainability and Renewal Phase.

The disparity between elementary level use and secondary level use may have to do with several factors observed throughout the research. For one, staff members at the elementary level, including the central office technology director, did not universally believe that technology use was appropriate for students at this level and, therefore, did not see it as a priority in teaching. Preparing students for the workplace
in the area of technology was not the concern of elementary teachers. Teaching
practices were generally traditional. In contrast, teachers at School B and C believed
that their role as instructors was to respond to the increasing technology demands of
students as they acquired more and newer information outside of school. Teachers'
instructional practices were described as "progressive," "project-based," and
"inquiry-based." At both the middle and high school levels, interviewees felt that it
was their responsibility to prepare students for the next level, whether that level was
high school, college, or the workplace.

Training opportunities differed not in number but in content between the
elementary level and the secondary level. As mentioned in chapter 2, leaders need to
consider not only the varying levels of technology expertise, but also the varying
levels of pedagogical expertise. Median years of teaching experience at the
elementary level was 13 years and 7 and 8 years at the middle and high schools,
respectively. Veteran teachers may not have been exposed to the same kinds of
professional development in constructivist teaching, important to exemplary
technology users that their lesser experienced colleagues have.

Finally, although all schools had high expectations for student and staff
performance, the expectations at the middle and high school also included norms for
technology integration. This expectation was not evident at the elementary level.
Recommendations

School leaders who wish to institutionalize exemplary technology practices in their schools or buildings should consider the following recommendations, based on the specific setting and context of this study:

1. School leaders should model high expectations for student and staff performance, including expectations for integrated technology use. Creating a sense of “competition” may help to foster the adoption and sustainability of innovative technology practices.

2. Leaders need to challenge staff to find ways of involving parents in the learning process and balance. They should model and encourage attention to school-home relationships.

3. School leaders need to provide many opportunities for collaboration and teacher input in building decisions. These opportunities should be authentic and should be connected directly to student learning.

4. School leaders should establish mechanisms that facilitate positive interpersonal relationships among staff rather than becoming involved with internal conflicts.

5. School leaders should work to understand the existing community or to create a sense of community. They should acknowledge the culture of the community and consider that culture when planning change.
6. School leaders should consider the experience level of their staff members and remediate for differences not only in technology expertise but also in pedagogical expertise.

7. School leaders should model an orientation of "being-in-becoming," as described above. They should also "empower" staff to contribute positively to the school and to their own self-actualization. They should encourage risk-taking and support teachers who take risks, even removing bureaucratic obstacles that hinder progress.

8. School leaders should concern themselves with the six elements of Cavendish and Dellar's (1997) cultural model, as described above. They need to recognize and remediate potential weaknesses in the cultural components while strengthening other components.

9. School leaders should communicate a clear vision, along with clearly articulated goals, and expectations for classroom instruction.

10. When hiring, school leaders should consider candidates' history of participation or plan for participation in school activities. According to Becker and Riel (1999), teachers who are extensively involved in professional activities are 3.5 times more likely to implement constructivist teaching practices. Technology integration requires a paradigm shift from traditional teaching practices to a more constructivist approach.

11. School leaders should write clear and candid observations and evaluations that contain suggestions that hold teachers accountable for growth.
12. School leaders should challenge processes, inspire teachers, and practice cultural and situational awareness.

Recommendations for Future Research

1. The element of "competition" may have an impact on a school’s willingness to adopt technology innovations. Future research in this area could offer insights into the specific cultural and leadership context(s) within which competition may have more or less of an impact.

2. A link between constructivist teaching practices and exemplary technology practices is made in relevant literature (Becker & Riel, 1999). Future researchers could explore this link across content, grade level, and setting.

3. This study was conducted in three affluent schools. Conclusions and recommendations were based on the specific contexts described. Future research could focus on the cultural and leadership factors that contribute to exemplary technology use in different contexts.

4. The disparity between the elementary school’s technology use and use at the secondary level is noteworthy. Future research could focus on specific reasons for this disparity.

5. This study was conducted with technology as the educational innovation under study. Future research could compare the cultural and leadership factors that contribute to the successful adoption of technology innovations with the cultural and leadership factors that contribute to other types of educational innovations.
References


Cuban, L. (1999, August 4). The technology puzzle: Why is greater access not translating into better classroom use? Education Week, 68, 47.


Quebec.


Waters, T., & Grubb, S. (2004). The leadership we need. Aurora, CO: McREL.


Appendices
Appendices
Appendix A

Letters of Solicitation
October 29, 2005

Dear Principal:

As part of the requirements for obtaining a doctoral degree from Seton Hall University in Educational Administration, Management, and Policy, a New Jersey Principal is conducting a multi-case study of the school culture and school leadership attributes that contribute to the successful implementation and sustenance of exemplary technology practices. Your school has been identified as a school that has adopted and sustained an exemplary technology program(s).

Researcher Affiliation

The researcher is a New Jersey Principal, with several years of experience in the field of education. Additionally, the researcher is currently a doctoral student at Seton Hall University.

Purpose of Research

Through this project, the researcher hopes to gain a deeper understanding of the critical factors influencing technology integration in schools.

Subjects’ Participation

The researcher plans to study school sites in New Jersey throughout the early part of the 2005-2006 school year. Participation in this study will involve approximately one hour of your time.

Procedures

It is the researcher’s intention to interview principals at each school site. The questions asked of each principal will focus on the cultural and leadership attributes of your school, as well as the technology programs in your school. All questions will be open-ended. A sample question is as follows. How would you describe this school?

Voluntary Nature of Participation

All participation in this study is voluntary in nature. Participants may choose to withdraw from the study at any time; no negative consequences, penalties, or loss of benefits will be delivered.

Anonymity

Anonymity will not be preserved throughout the study. This means that the researcher and the members of the researcher’s research committee are aware of the sources of data. However, the reporting of results will be by group analysis only. All responses, notes, audiorecords, and documents will be coded, using a random-number coding system, which will link data to a master list.
Confidentiality

All information obtained from the study will remain confidential. All notes, tapes, and documents that could be linked to specific schools will be stored in a locked safe at the researcher's home.

If you are interested in participating in this study, please complete the attached questionnaire; return it in the enclosed self-addressed, stamped envelope.

This study is conducted under the direction of Dr. Daniel Gutmore, Professor, Seton Hall University. Any questions concerning this study may be addressed to the researcher at her office (732-972-2080), to Dr. Gutmore's office (973-275-2853), or to Dr. Ruzicka, Director of Seton Hall's Institutional Review Board at (973-313-6314).

Sincerely,

[Signature]

Tami R. Czader
Principal, Asher Holmes Elementary School
Mariboro Township Schools
October 29, 2005

Dear Teacher:

As part of the requirements for obtaining a doctoral degree from Seton Hall University in Educational Administration, Management, and Policy, a New Jersey Principal is conducting a multi-case study of the school culture and school leadership attributes that contribute to the successful implementation and sustenance of exemplary technology practices. Your school has been identified as a school that has adopted and sustained an exemplary technology program(s).

**Researcher Affiliation**
The researcher is a New Jersey Principal, with several years of experience in the field of education. Additionally, the researcher is currently a doctoral student at Seton Hall University.

**Purpose of Research**
Through this project, the researcher hopes to gain a deeper understanding of the critical factors influencing technology integration in schools.

**Subjects' Participation**
The researcher plans to study school sites in New Jersey throughout the early part of the 2005-2006 school year. Participation in this study will involve approximately one hour of your time.

**Procedures**
It is the researcher's intention to interview teachers at each school site. The questions asked of each teacher will focus on the cultural and leadership attributes of your school, as well as the technology programs in your school. All questions will be open-ended. A sample question is as follows: How would you describe this school?

**Voluntary Nature of Participation**
All participation in this study is voluntary in nature. Participants may choose to withdraw from the study at any time; no negative consequences, penalties, or loss of benefits will be delivered.

**Anonymity**
Anonymity will not be preserved throughout the study. This means that the researcher and the members of the researcher’s research committee are aware of the sources of data. However, the reporting of results will be by group analysis only. All responses, notes, audiotapes, and documents will be coded, using a random-number coding system, which will link data to a master list.
Confidentiality

All information obtained from the study will remain confidential. All notes, tapes, and documents that could be linked to specific schools will be stored in a locked safe at the researcher’s home.

If you are interested in participating in this study, please complete the attached questionnaire; return it to terader@marlboro.k12.nj.us.

This study is conducted under the direction of Dr. Daniel Gutmore, Professor, Seton Hall University. Any questions concerning this study may be addressed to the researcher at her office (732-972-2080), to Dr. Gutmore’s office (973-275-2653), or to Dr. Ruzicka, Director of Seton Hall’s Institutional Review Board at (973-313-4314).

Sincerely,

[Signature]
Tami R. Covid
Principal, Asber Holmes Elementary School
Marlboro Township Schools
Appendix B

Informed Consent Forms
Informed Consent Form
(Principal)

Researcher Affiliation
The researcher is a New Jersey Principal, with several years of experience in the field of education. Additionally, the researcher is currently a doctoral student at Seton Hall University.

Purpose of Research and Duration of Participation
Through this project, the researcher hopes to gain a deeper understanding of the critical factors influencing technology integration in schools. The researcher plans to study school sites in New Jersey throughout the early part of the 2005-2006 school year. Participation in the research would consume approximately one hour of your time.

Procedures
It is the researcher’s intention to interview principals at each school site.

Interviews
The interview guide that will be used in this study is researcher-generated, based on an extensive literature review. Interview questions will be open-ended and are designed to solicit information about technology, school culture, and leadership at your particular school. An example of a question the researcher might ask you is as follows: How would you describe this school?

Voluntary Nature of Participation
All participation in this study is voluntary in nature. Participants may choose to withdraw from the study at any time, no negative consequences, penalties, or loss of benefits will be delivered.

Anonymity
Anonymity will not be preserved throughout the study. However, the reporting of results will be by group analysis only. All responses, notes, audio tapes, and documents will be coded, using a random-number coding system, which will link data to a master list.

Confidentiality
All information obtained from the study will remain confidential. All notes, tapes, and documents that could be linked to specific schools will be stored in a locked safe at the researcher’s home. No other person has access to the safe.

Seton Hall University Institutional Review Board

College of Education and Human Services
Executive Ed.D. Program
400 South Orange Avenue • South Orange, New Jersey 07079-2645

Approval Date: OCT 26 2005
Expiry Date: OCT 26 2006
Access to Research Records

The researcher and the researcher’s four-person research committee will have access to the information contained in research notes and tapes. The research committee includes two members of Seton Hall faculty, as well as two colleagues in the education field.

Risks

There are no inherent risks involved in this study. The study is not experimental in nature.

Benefits

Conversely, to the statement articulated in the previous paragraph, there are no benefits to research participants. Participants will not receive monetary reimbursement.

Contact Information

This study is conducted under the direction of Dr. Daniel Gutmore, Professor, Seton Hall University. Any questions concerning this study may be addressed to the researcher at her office (732-972-2010), to Dr. Gutmore’s office (973-275-2652), or to Dr. Ruzicka, Director of Seton Hall’s Institutional Review Board at (973-313-6314).

Audio-taping

Participation in this study will include audio-taped interviews. The researcher requests your permission to audio-tape at this time. As a participant, you have the right to review all or any portion of the tape and request that it be destroyed. All tapes will be stored for a period of three years and subsequently destroyed.

Copy to Participants

All participants will receive a copy of this signed and dated Informed Consent Form.

(Signature) (Date)

Seton Hall University Institutional Review Board

OCT 26 2005 Expiration Date

College of Education and Human Services
Executive LL.D. Program
Tel: 732-275-2828
400 South Orange Avenue • South Orange, New Jersey 07079-2863

ENRICHING THE MIND, THE HEART AND THE SPIRIT
Informed Consent Form
(Teacher)

Researcher Affiliation
The researcher is a New Jersey Principal, with several years of experience in the field of education. Additionally, the researcher is currently a doctoral student at Seton Hall University.

Purpose of Research and Duration of Participation
Through this project, the researcher hopes to gain a deeper understanding of the critical factors influencing technology integration in schools. The researcher plans to study school sites in New Jersey throughout the early part of the 2003-2004 school year. Participation in the research would consume approximately one hour of your time.

Procedures
It is the researcher's intention to interview teachers at each school site.

Interviews
The interview guide that will be used in this study is researcher-generated, based on an extensive literature review. Interview questions will be open-ended and are designed to solicit information about technology, school culture, and leadership at your particular school. An example of a question the researcher might ask you is as follows: How would you describe this school?

Voluntary Nature of Participation
All participation in this study is voluntary in nature. Participants may choose to withdraw from the study at any time; no negative consequences, penalties, or loss of benefits will be delivered.

Anonymity
Anonymity will not be preserved throughout the study. However, the reporting of results will be by group analysis only. All responses, notes, audio tapes, and documents will be coded, using a random-number coding system, which will link data to a master list.

Confidentiality
All information obtained from the study will remain confidential. All notes, tapes, and documents that could be linked to specific schools will be stored in a locked safe at the researcher's home. No other person has access to the safe.

Seton Hall University
Institutional Review Board

College of Education and Human Services
Executive Ed. D. Program
Tel: 973.767.2728
400 South Orange Avenue • South Orange, New Jersey 07079-2685

OCT 26 2005

ENRICHING THE MIND, THE HEART AND THE SPIRIT

Expiration Date
OCT 26 2006
Access to Research Records

The researcher and the researcher’s four-person research committee will have access to the information contained in research notes and tapes. The research committee includes two members of Seton Hall faculty, as well as two colleagues in the education field.

Risks

There are no inherent risks involved in this study. The study is not experimental in nature.

Benefits

Conversely, to the statement articulated in the previous paragraph, there are no benefits to research participants. Participants will not receive monetary reimbursement.

Contact Information

This study is conducted under the direction of Dr. Daniel Gutmore, Professor, Seton Hall University. Any questions concerning this study may be addressed to the researcher at her office (713-775-2000); to Dr. Gutmore’s office (973-775-2233), or to Dr. Ruzicka, Director of Seton Hall’s Institutional Review Board at (973-313-6314).

Audio-taping

Participation in this study will include audio-taped interviews. The researcher requests your permission to audio-tape at this time. As a participant, you have the right to review all or any portion of the tape and request that it be destroyed. All tapes will be stored for a period of three years, and subsequently destroyed.

Copy to Participants

All participants will receive a copy of this signed and dated Informed Consent Form.

(Signature)                                     (Date)

Seton Hall University
Institutional Review Board
OCT 26 2005

Approval Date

College of Education and Human Service
Executive Ed.D. Program
Tel: 973-775-2235
400 South Orange Avenue - South Orange, New Jersey 07079-2685

Expiration Date

OCT 26 2006
Appendix C

Interview Guide
What affect has the winning of the BP award had on your instruction? On the school?
What next steps will you take in this area?

How much training was allowed?
Who was responsible for decisions along the way?

LEADERSHIP
Please describe your Principal's ability to build teams.
How does your Principal make instructional or building decisions? Make changes?
Who does he regularly involve?
If I was a teacher in your building, what specific principal actions would I routinely observe throughout the school year?
How does your Principal accomplish goals?
How would you describe your Principal's relationship with staff? Is it the same for all?
How would you describe your Principal's vision?
How well does the Principal know the staff? The students? The community?
Instruction? Curriculum?
What are your Principal's expectations for students? For staff?
How does your Principal motivate children? Staff?
Interview Guide

Introduction: Statement about purpose of study, confidentiality, voluntary nature of interview, tape recorder

Demographics: Please state your name, the grade level and subject that you teach, and the number of years you have been teaching.

CULTURE
How would you describe this school?
How do things get done?
Professional development?
Relationships? Professional? Personal?
Who does the work?
Norms?
School initiatives?

How would you describe the decision-making process?

How do you feel about the school community? Parent community?

What do people in this school community and parent community value? How do you know?

How would you describe the school climate?

How does the staff deal with internal conflicts? External pressure? How do you know this?

How does the staff deal with change? How do you know this?

How would you describe the school’s (teachers’, parents’, administrators’) expectations for students?

How would you describe the teachers’ ability to affect student learning?

TECHNOLOGY IMPLEMENTATION
How do you define educational technology?

How is technology used here? Your opinion of the programs? Obstacles?

What does technology integration mean to you?

Based on your experience, how does technology impact student learning?

Who and/or what influenced you to implement technology?
Appendix D

IRB Approval
October 25, 2005

Tami R. Crader
1812 Bradley Terrace
Lake Como, NJ 07719

Dear Ms Crader,

The Seton Hall University Institutional Review Board has reviewed and approved as submitted under expected review your research proposal entitled "A Multi-Case Study of the Contextual Attributes of the School that are Critical for Initiation and Sustainability of Exemplary Technology Practices". The IRB reserves the right to recall the proposal at any time for full review.

Enclosed for your records are the signed Request for Approval form and the stamped original Consent Form. Make copies only of this stamped Consent Form.

The Institutional Review Board approval of your research is valid for a one-year period from the date of this letter. During this time, any changes to the research protocol must be reviewed and approved by the IRB prior to their implementation.

According to federal regulations, continuing review of already approved research is mandated to take place at least 12 months after this initial approval. You will receive communication from the IRB Office for this several months before the anniversary date of your initial approval.

Thank you for your cooperation.

Sincerely,

Mary J. Zajac, Ph.D.
Professor
Director, Institutional Review Board

cc: Dr. Daniel Gutmore

Office of Institutional Review Board
President Hall
Tel: 973.596.6014 • Fax: 973.275.2578
400 South Orange Avenue • South Orange, New Jersey 07079-2641