A case study of the Information Environment for School Leadership Preparation project

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UMI
A CASE STUDY OF THE INFORMATION ENVIRONMENT FOR SCHOOL LEADERSHIP PREPARATION PROJECT

by

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ABSTRACT

A Case Study of the Information Environment for School Leadership Preparation Project

by

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The Interstate School Leaders Licensure Consortium (1996) noted that the social fabric of schools is changing. School administrators are faced with new challenges, provided new opportunities to implement reform, and required to learn new technology skills (Means, Olsen, & Singh, 1995; Streifer, 1999). Potentially universities play an invaluable role in preparing educators to use technology effectively. However, studies suggest that universities are far from realizing that potential (O'Flahavan, 1988; Lemke, 1999; Roblyer & Erlanger, 1999). A nation-wide survey found that the integration of instructional technology across disciplines and the use of technology to solve real-world problems were the most important aspects in preparation programs (McKenzie, 1993; Means, Olsen, & Singh, 1995). Most preparation programs offered discrete technology courses emphasizing literacy (Haymore Sandholtz, Ringstaff, & Dwyer, 1997; Stevens & Lonberger, 1998).
Although, models for effective preparation programs exist (Witters-Churchill & Erlandson, 1994) the issue of technology assimilation into school administration has not been thoroughly reviewed (Barta, Telem, & Gev, 1995; Crane & Spoon, 1998). Innovations that incorporate the integrated use of technology within an instructional program deserve the attention of both practitioners and researchers (Daresh & Playko, 1992; Clark, 1994; Riedl, Smith, Ware, Wark, & Yount, 1998). A need exists to study and disseminate innovative programs to determine whether or not the results of these approaches justify the changes made (Gagne, 1990; Witters-Churchill, & Erlandson, 1990).

Utilizing semi-structured interviews and document analysis, a case study was conducted in order to examine the issues, incentives, and challenges surrounding the Information Environment For School Leadership Preparation (IESLP) project (Fetterman, 1984; Simon, 1986). A study of the development and implementation of the technology-based information environment for administrator preparation program indicated that despite participants’ common conceptual framework barriers existed that hindered the implementation process. Inhibitors to implementing the innovative program were scarce resources, training issues, existing disconnect between educators and software developers, rapid pace of technology, and a lack of consistent direction. These findings have implications for leaders overseeing the use of technology in administrator preparation programs as well as the implementation of innovative technology applications.
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CHAPTER 1

OVERVIEW

Introduction

"The ultimate goal, better principals and better schools, remains the primary purpose of this report" (Witters-Churchill, L. J. & Erlandson, D. A., 1990).

In recent years educational critics and researchers have begun to question the necessity, the efficacy, and the impact of university preparation programs in educational administration (Sergiovanni, 1994; Haller, Brent, & McNamara, 1997; Achilles, 1998). Haller, Brent and McNamara (1997) asserted that "graduate training in educational administration may have no positive effects on the performance of administrators or schools" (p. 223). Other critics have gone so far as to recommend the "deprofessionalization" of administrator preparation and elimination of the university programs (Sergiovanni, 1994, p. 243).

Many educators who enter administration have low expectations of preparation programs. If they bond with a few professors or fellow students who have some insights to share about school leadership, they are pleased (Schneider, 1998, p. 7). In a 1988 survey by Heller, Conway, and Jacobson, principals were asked to identify the most significant element in their preparation to be administrators. Ten percent reported their graduate program
while more than 60% identified on-the-job training (Milstein, 1993). The survey spotlighted the rift between what educators want and what they are receiving from graduate administrator preparation programs. Findings from studies in Texas, Michigan, and New York suggested that this is a national problem (Voit & Witters-Churchill, 1990).

**Background of Study**

Lippitt (1961) proffered “perhaps more has been written and less agreed upon regarding leadership that an other subject being studied in the social sciences” (p.1). In first half of the twentieth century, if the topic of supervising schools was discussed, it was among practicing school administrators who shared strategies and success stories. During the 1950s, the social scientists sought to provide theoretical formulations as guides to effective administrative action. Studies undertaken during the theoretical movement represented a dramatic increase in the knowledge base about school administration. Due to a search for effective field experiences, instructional methods, and program content, educational administration preparation programs underwent considerable change during the 1960s (Wynn, 1972). Theory and research findings were incorporated fully into preparation programs by 1970. A major trend was the movement from traditional textbook-lecture instruction to the use of case studies, simulations, and multi-media materials. However, the changes achieved did not alter the continued need to improve and adapt administrator preparation programs (UCEA, 1973).
A Nation at Risk, published in 1983, was the first in a series of reports criticizing the status and future direction of American education (Miller, 1987). The report's subtitle, The Imperative for Educational Reform emphasized the urgency for far-reaching reform (Fullan, 1990). Uneasiness and dissatisfaction with schools in general was reflected in the surplus of reform proposals (Daresh & Playko, 1992, p.17). States and districts introduced initiatives addressing finance reform, school governance structures, workplace conditions, and measurements of performance for both students and teachers (Chester & Pecheone, 1992; Berliner & Biddle, 1995). After appraising educational reform initiatives, Firestone, Frunham, and Kirst (1989a) reported that every state had joined the movement to address the concerns raised in A Nation at Risk (1983).

Although the call for educational change began in the early 1980s, reform efforts did not address school principals until the second half of the decade (Chester & Pecheone, 1992). Murphy (1992) observed that "prior to the mid-1980s, the reform movement that swept across the educational landscape left educational administration largely untouched" (p. 1). In the early reform literature, little was written about the role of leadership in the schools. Likewise, the titles of superintendent and principal were rarely in reform recommendations (Gresso, 1993).

The first wave of reforms focused on problems with student achievement, assessments of teacher performance, and calls for state action; the second wave stressed the local schools and their administrators (Miller,
National reforms to improve local schools brought administrators and their performance under closer scrutiny. A clear consensus emerged for the need to rethink the structure of schooling and with that the need to rethink the administrative role (Cambron-McCabe & Foster, 1994, p. 50). In the late 1980s, the focus on observable job-related behavior for teachers' appraisals was redirected toward administrators (Bolton, 1980; Bernardin, 1986).

This re-focus prompted a course of research revealing the impact of administrators on the effectiveness of their schools (Murphy, 1992). The importance of principals to the success of schools has been widely acclaimed in recent years (Cornett, 1983; Gregg, 1969; Liphman, 1981; Sergiovanni, 1987; Witters-Churchill & Erlandson, 1990). With the assertion that administrators influenced schooling, followed the argument that "as education is failing, the educational administrator is subject to indictment" (March 1974, p. 17).

Gregg (1969) posited that the greater the significance of education the greater the need for an effective administrator. Murphy (1992) argued that school administrators were a contributing factor to the problems in education. If the failures of schools were due in part to inadequate leadership, administrator preparation programs should have been held "accountable for the anemic state of leadership found in school systems throughout the nation" (Murphy, 1992, p.6)." When the administration of schools became a critical issue, administrator preparation programs became the theme of substantial research (Gagne, 1990).
Murphy (1992) contended that administrators were inadequately prepared for their roles. In a review of research, Brent and Haller (1998) suggested that graduate preparation programs do not positively effect administrator performance. A 1988 review of principals' perceptions about the quality of administrator training reported that although administrators frequently participated in university courses, these learning experiences were not rated as particularly effective (Daresh & Playko, 1992, p. 143). Brent and Haller (1998) promulgated "the fact that an advanced degree is required to administer schools, however, tells little if anything about whether the credential is truly needed to produce a given set of outcomes" (p. 2). In research studies throughout the late 1980s, a common theme was the need to revamp administrator preparation programs if schools were to grow toward excellence (Rodriguez, 1989).

In a series of recommendations, the National Association of Secondary School Principals (NASSP) challenged administrator preservice programs to blend academic and performance-based components (NASSP, 1992). The Performance-Based Preparation of Principals (NASSP, 1985) focused on curriculum design, instructional delivery, and program assessment. Subtitled A Framework For Improvement, the report suggested strategies for linking traditional classroom instruction with clinical and field-based experiences (Witters-Churchill, 1990, p. 15). In an interview, Forsyth remarked that the balance between scholarship and practice had been debated throughout the history of administrator preparation programs (Mountjoy, 1998, p. 7).
Concerned for the need to reform administrator preparation programs, thirty-four leading universities with programs in school administration formed the University Council of Educational Administration (UCEA) in 1956. Under the leadership of Jack Culbertson, the UCEA began to exert influence and shape administration preparation programs during the 1960s and 1970s (Murphy, 1992). In 1985, the UCEA established the National Commission on Excellence in Educational Administration (Forsyth, 1987). A study conducted by the National Commission on Excellence in Educational Administration (NCEEA) stimulated interest in examining the preparation of school leaders (Murphy, 1992). Based on the findings of this study, the NCEEA published Leaders for America's Schools (1988), a benchmark report. When interviewed, Forsyth suggested that the report had "some significant and enduring positive effects on the educational administration profession" (Mountjoy, 1998, p. 6).


The Danforth Foundation served as a catalyst for reform initiatives in administrator preparation (Murphy, 1992). With the concentration of substantial
resources, the Danforth Program for the Preparation of School Principals began with four universities in 1987 and expanded to 22 universities by 1992. The Danforth Foundation challenged universities to restructure administrator preparation programs and to be more responsive to school districts’ leadership needs (Milstein, 1993). To this end, the Foundation encouraged the inclusion of field-based experiences and collaborative arrangements between universities and school districts (Cordeiro, Krueger, Parks, Restine, & Wilson, 1993). Correspondingly, the Danforth Programs focused universities’ attentions on educating a “new breed of principal and school administrator” (Gresso, 1993, p. 3). With support from the Danforth Foundation, a number of institutions restructured their training programs to reflect the recommendations of the NCEEA and NPBEA reports (Murphy, 1992).

Forsyth (1987) suggested “administrator preparation programs should be like those in professional schools which emphasize theoretical and clinical knowledge, applied research, and supervised practice” (p. 20). The NASSP noted that university preparation programs emphasized the creation, transmission, and interpretation of knowledge. However, since education was an applied discipline, preparation programs should concentrate on the issues, concerns, and challenges faced by administrators in the field (NASSP, 1992). Based on a survey of Texas principals and assistant principals, NASSP’s university consortium (1985) proposed that principal preservice programs attempt to close the theory-practice chasm by increasing field-based and performance-based experiences (Witters-Churchill, 1990). Short (1998)
identified practice-preparation linkages as a key ingredient for the effective preparation of principals.

Sergiovanni (1994) made an argument "for preparation programs to place greater emphasis on the problems of practice than on the social science disciplines; on reflection than on training; and perhaps most importantly, on cultivating a critical stance than on skilled implementation of management scripts" (p. 243). Bridges (1992) contended that problem-based learning (PBL) narrows the gap between the work of a student and the work of an administrator with respect to the rhythm of the work, the hierarchical nature of the work, the character of work-related communications, and the role of emotions in work. Also, students who acquire information through PBL were more apt to use the information to solve new problems (Bridges, 1992). Murphy (1992) asserted that a PBL curriculum fosters a student's capacity to learn by establishing a foundation from which to acquire information and develop understanding.

Conceptualizing the role of administration as a leader within a complex web of interdependent relationships was a crucial step toward the restructuring of preparation programs (Schmuck, 1992). According to Sergiovanni (1994) the critical points for the transformation of preparation programs included designing courses around student cohort groups, restructuring the curriculum to reflect adult learning theory, providing mentorship and internship experiences, and enhancing problem-solving skills. Murphy (1992) acknowledged that a redesigned curriculum would develop a capacity to learn,
feature multiple-source content, focus on authentic problems of practice, emphasize depth of experiences, and use original information sources (p. 147). In order to provide meaningful experiences, Engle (1990) recommended that resources be allocated to develop course work utilizing simulations, computer-based instruction, and performance-based elements. A central issue for preparation programs has been the implementation of an effective instructional model to transfer the knowledge and skills necessary for leadership for the 21st century (Short, 1998).

Withrow (1999) asserted that schools must address the challenges of the 21st century by taking a lead in the development and effective use of instructional technology (p. 17). During the 1990s, the increased use of technology altered daily routines in the workplace and in public schools. "The number of computers per student went from 125 to less than 10" (Haymore-Sandhotz, Ringstaff, & Dwyer, 1997). Given the increase of technology in school settings, the lack of emphasis on technological applications for management and instruction has been a serious weakness of preparation programs (Milstein, 1993). Rather than focusing on technical skills, Roblyer & Erlanger (1999) maintained that the preservice training programs must focus on how to use the technology resources (p. 59). To accomplish this task effectively, researchers recommended that instructors in preparation programs model the use of technology, provide hands-on activities, and emphasize real-world applications (Wetzel, 1993; Roblyer & Erlanger, 1999). "We must bear in mind that we are not teaching technology for its own sake. The goal is the
effective employment of technologies in order to solve problems and make meaning" (McKenzie, 1993, p. 83).

For many years, university preparation programs have addressed traditional values, content, and instructional methods. However as the 21st century begins, school leaders face a radically different reality. Universities must change not only how, but also why, leaders are prepared (Wilson, 1993, p. 235). When restructuring preparation programs to educate tomorrow's leaders, universities must examine past endeavors in order implement necessary changes (Milstein, 1993). Achilles (1998) noted that preparation programs must present future administrators with techniques and strategies, grounded in theory and research, to influence school outcomes. Specifically, consideration should be given to the connection between preparation programs and improved student achievement. “There perhaps has never been a time of greater opportunity than the present for strengthening the preparation and professional development of principals. Politicians and educators alike agree that something needs to be done” (Witters-Churchill & Erlandson, 1990, p. 78).

Concurring that 'something needed to be done,' several institutions have addressed the need for rethinking and redesigning preparation programs since the NCEEA and NPBEA reports (NASSP, 1992). In the late 1980s, the UCEA proposed an innovative technology-based learning environment that balanced the need for theory and practice in the teaching of school administration. The Information Environment for School Leader Preparation

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(IESLP) used information resources from school districts in conjunction with research libraries of universities as the backdrop for problem-based learning (Forsyth, 1999). The IESLP resources enabled researchers, teachers, and practitioners of school administration to explore "real situations to develop reflective expertise" (Short, Forsyth, McIsaac, & Grabowski, 1994, p. 2). Several teams of UCEA faculty members constructed problem exercises aligned with school district databases that included student, staff, and community information (Hart & Pounder, 1999; Forsyth, 1999). IESLP provided a platform for future administrators to learn to collaborate, problem solve, and utilize technology for the ultimate purpose of improved schooling (Short, Forsyth, McIsaac, & Grabowski, 1994). IESLP was designed to:

1. encourage the delivery of interfaced, sequenced learning experience in school leadership emphasizing authentic problems of practice,
2. put the tools of modern technology in the hands of preservice administrators, and
3. create a demand for the capacity to make information based individual and group decisions (Mayer, Crawford, & Forsyth, 1998, p. 3).

Computer-based technology was an integral part of IESLP. The IESLP exercises were to be completed by students in face-to-face groupings using computers for "real world" applications (UCEA, 1998). IESLP required students use technology to research, communicate, interpret, and present information. Through the Internet-based environment, students used problem solving,
collaboration, and group decision making to study the complexities of modern schools while developing the skills and practices related to successful school leadership. The goal of this sophisticated problem-based instructional system was to stimulate a revolutionary departure from existing patterns of administrator preparation (Short, Forsyth, Mclsaac, & Grabowski, 1994; Forsyth, 1999).

**Problem Statement**

Using a descriptive case-study model, this study examined the IESLP program as a learning environment, instructional tool, and communication medium for preparing future school administrators by describing the genesis, design, content development, and implementation of the program.

**Purpose of the Study**

Haller, Brent, and McNamara (1997) suggested that interests in revamping graduate administrator training were well founded. However, the nature of the changes needed was far from apparent. This study was designed to chronicle the development and implementation of the IESLP program as a learning environment, an instructional tool, and a communication medium within administrator preparation programs. It is important to determine the existence of incentives and barriers to the teaching/learning process due to the use of IESLP, an innovative and unique program. Benefits, challenges or issues associated with the use of this Internet environment within a face-to-face course were identified. Finally, this study examined the cultural transmission with regard to the participants' attitudes toward and use

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of the IESLP program for data collection, research, and communication to solve "real world" problems encountered by school administrators. This case study describing the IESLP program has expanded the current literature base regarding the development and implementation of innovative, effective, and meaningful preparation programs for school leaders.

Research Questions

The focus of this study was on answering the following research questions:

1. Does the IESLP program implement the recommendations presented in Leaders for America's Schools (Griffiths, Stout, Forsyth, 1988)?

2. What benefits, issues, and challenges does the use of the IESLP program in administrator preparation courses present to developers, designers, instructors, and students?

3. What barriers or incentives exist in using IESLP as an instructional tool?

4. Does IESLP incorporate the best practices of applying technological tools, as defined in this study, to administrative practice?

5. How does the use of IESLP, as an instructional tool, effect participants' attitudes about technology?
6. Does the use of IESLP produce the conditions under which the attitudes and skills necessary to integrate technology into administrator practice are transmitted and acquired?

Research Design

A descriptive case study employing ethnographic techniques was selected as the appropriate research design for this study. Merriam (1988) defined a case study as an intensive, holistic description of a social system or phenomenon emphasizing how people make sense of their experiences and their interpretations of the experiences. A descriptive case study approach provided a rich descriptive analysis of the contexts, activities, and beliefs of participants in the IESLP program (Guba & Lincoln 1981; Guba & Lincoln, 1989). Conducted in a holistic manner, this case study characterized the intended and unintended consequences and the socio-cultural contexts encountered during the development and implementation of the IESLP program (Goetz & LeCompte, 1984; Fetterman, 1986).

Singleton (1974) depicted "education as a cultural transmission viewed as a social process occurring within a social situation" (p 26). Using the lens of cultural transmission, Wilcox (1982) perceived schools as cultural agents imparting a complex set of attitudes (p. 463). One of the strengths of qualitative research is the ability to directly investigate causal processes that are unavailable to experimental designs (Maxwell, Bashook & Sandlow, 1986). No a priori hypothesis existed; therefore the problem for this descriptive case study was general in scope. Since a qualitative researcher attempts to understand a
system in its own terms, the significance of specific data could not be predicted (Wilcox, 1982).

The use of specific data sources was investigated: stakeholder interviews and document analysis. In an effort to understand and evaluate cultural transmission, Wilcox (1982) suggested that a variety of data be collected including school documents, student products, curriculum materials, and "almost any other conceivable bit of material which might prove relevant to the topic under study" (p. 461). As a result, memos, correspondence, on-line chat transcripts, manuals, proposals, presentations, student work, and other related communications between and among stakeholders were examined during this study. Additionally, data was gathered through individual semi-structured interviews conducted with stakeholders who were involved in the IESLP program from inception to the beta-testing year 1999. Semi-structured interviews encouraged free discussion, allowed for question clarification, and permitted elaboration of concepts by the respondents (Borg & Gall, 1989).

Several groups were involved in the genesis, design, content development, and implementation of the IESLP program. From the inception of IESLP, a management team oversaw the coordination and organization of these groups during the various implementation phases. Exercise, software, and rural environment developers contributed to the design and construction of the IESLP environment. The implementation phase involved instructors, staff, and students from four UCEA affiliated universities. Stakeholders from each
group were interviewed regarding their perceptions of their roles, expectations, successes, concerns, and issues regarding the IESLP program.

The generalizability of the study may be limited to the population studied for three reasons. First, the data collected through stakeholder interviews about their expectations, concerns, and suggestions were dependent upon self-reflection and self-analysis by the respondents. Therefore, the reported data were limited by the honesty and accuracy of the interviewees (Borg & Gall, 1989). Secondly, a critical variable in student learning "is the instructor - particularly the differences among instructors." These differences may be due to normal variations in teaching techniques. However, these differences could indicate that instructors did not have a shared understanding of their program's purposes (Engel, 1990, p 39). Participants within a preparation program bring with them core beliefs that may have limited the impact of the training (Sergiovanni, 1994). Data collection included semi-structured interviews with the designers, developers, instructors, and students. After the interviews, the data was summarized, coded, and analyzed by the researcher. Therefore, the researcher's individual ideologies and experiences may have biased the study (Bodgan & Biklen, 1992). These variables were addressed in order to strengthen the external validity of the study.

The reliability and the validity of the study were enhanced by repeatedly reviewing the data with ample time between analyses (Bodgan & Biklen, 1992). Goetz and LeCompte (1984) stressed that the collection of data in diverse methods over a period of time, continuous data analysis and comparison, and
refinement of constructs strengthens the reliability and validity of a study. Additionally, triangulating each data source collected or using numerous types of data from different lines of investigation to mutually support findings increased trustworthiness (Wilcox, 1982; Maxwell, 1986). Although reliability poses a threat, validity may be a major strength of ethnographic studies. Diversified data compared over time strengthens the likelihood that the researcher is actually measuring what was intended to be measured (Goetz & LeCompte, 1984, p. 221).

Significance

During a time when critics have suggested breaking formal ties between universities and school leaders' preparation programs, departments of educational administration must question program structures and content (Anderson, 1994). There has been an insufficient understanding of the influence of graduate training on principal performance. In fact, there is a real possibility that preparation programs have no effect. "The burden of proof now rests with those who claim that existing preservice training programs have the effects they are presumed to have. No doubt, this will prove to be a daunting task" (Haller, Brent, & McNamara, 1997, p. 6). By developing the IESLP program, the UCEA attempted to provide an effective, meaningful preparation program for school leaders. Innovations like the IESLP program deserve the attention of both practitioners and researchers (Daresh & Playko, 1992; Clark, 1994).
Program reform recommendations have included "a balance of academic and practical experience, but the exact balance of academics and practical experience has yet to be determined and may not be universal" (Achilles & Ramey, 1990, p. 21). In an attempt to reduce the gap between theory and practice, IESLP used problem-based learning, real-world data, and collaborative teams to discover, address, and solve problems from the field. Furthermore, IESLP required that students employ technology, as it would be by administrators in the field for productivity, research, decision-making, communication, and publishing. A need exists to study innovative programs to determine whether or not the results of these approaches justify the changes made (Gagne, 1990; Clark, 1994). Upon evaluation, the next step would be to disseminate effective existing university preparation programs (Witters-Churchill & Erlandson, 1990).

Achilles and Ramey (1990) suggested that due to the limited research about university educational administrator preparation, programs have been built upon tradition with minimal evaluation and data-driven decision-making for program enhancement. In an interview, Forsyth noted that while there have been a number of efforts devoted to improving educational administration preparation; "we have largely ignored our responsibility to evaluate our innovations" (Mountjoy, 1998, p. 6). An evaluation of the IESLP program will assist universities in establishing preservice training based "upon our best understanding of the future - for society, for education, and for school leadership" (Murphy, 1992, p. 111).
Definitions

Best Practices - At the invention level, technology is used as instructional tool for learner-centered activities that enhance creativity and promote collaborative efforts. Students are encouraged to collaborate, solve problems, and construct knowledge from information gathered through a variety of sources (Haymore Sandholtz, Ringstaff, and Dwyer, 1997).

Problem Based Learning (PBL) – PBL is an instructional strategy that uses a problem as a starting point for learning. The knowledge that students are expected to acquire is organized around a problem. The problem is one that students are apt to face as future professionals. Students work in project teams and assume a major responsibility for their own instruction and learning (Bridges, 1992, p. 17).

World Wide Web - The World Wide Web (WWW) is an Internet facility that uses hypertext to link documents stored on the same computer or on computers around the world. WWW provides a simple interface to the largest collection of online, multimedia information in the world (www.techweb.com).

Internet - A computer network, originally designed for scientists, that consists of computers linked by high-speed lines that allow signals to travel at the speed of light. Information from hundreds or thousands of users at a time can share the same transmission line. An international network of networks that links hundreds of smaller computer networks throughout the world (Harasim, Hilts, Teles, & Turoff, 1995).
Interactive learning environment - An Internet learning environment provides a shared environment that shapes the process of interpersonal communication, and provides tools and experiences to enhance collective learning (Dede, 1989).

Communication medium - Communication mediums include computer-mediated communication (CMC) technologies such as electronic email, bulletin board service, computer conferencing systems, and the WWW. These interactive text or audio based technologies are synchronous or asynchronous forms of communication that allow participants to work at their own pace to read, reflect, write, and revise before sharing insights or information with others (Harasim, Hilts, Teles, & Turoff, 1995).

Information Environment for School Leadership Preparation - The Information Environment for School Leadership Preparation (IESLP) utilizes Internet and WWW technologies to deliver the content of problem-based exercises, supporting resource materials, environment information, and CMC (Mayer, Crawford, & Forsyth, 1998).

Descriptive case study - Research that provides an intensive, holistic description of a social system or phenomenon emphasizing how people make sense of their experiences and their interpretations of the experiences (Merriam, 1988; Wiersma, 1995; McMillian, & Schumacher, 1997)

Ethnography - A branch of anthropology that deals with the analytical description of systems, processes, and/or phenomena within their specific contexts for the purpose of understanding human social behavior. These
descriptions recreate shared feelings, beliefs, practices, artifacts, folk knowledge, and actions of the individual culture being studied (Wolcott, 1973; Wiersma, 1995; McMillian, & Schumacher, 1997).

Qualitative Research - Research that presents facts and collects data using words rather than numbers. The research design is flexible, semi-structured, and conducted in a holistic manner. As much as possible, the researcher operates in a natural setting maintaining openness about observations or information collection (Wiersma, 1995; McMillian, & Schumacher, 1997).

Cultural Transmission – This is the transmission of tradition and the transmission of new knowledge from someone who knows to someone who does not (Nash, 1974; Singleton, 1974; Warren, 1987).

Summary

The instructional models and course content used by many universities preparation programs are inadequate (Murphy, 1992). Daresh and Playko (1992) observed that the emphasis on the development of practical skills or “real world” application of research-based knowledge was rare. Additionally, most preparation programs do not take advantage of the advances in modern technology (Wilson, 1993). Despite extensive recommendations, universities have made little progress restructuring preparation programs. Often rather than restructuring assumptions and practices, curricular augmentations have been used to address program weaknesses (Sarason, 1993). When creating IESLP, the UCEA fundamentally changed the content and delivery of the preparation program (Mayer, Crawford, & Forsyth, 1998) in order to help school
leaders "shape the future" and improve student learning (Downey, 1998, p. 15). This study described and examined the barriers, incentives, and challenges encountered during the development and implementation of IESLP as well as the use of IESLP as a learning environment, instructional tool, and a communication medium for the preparation of administrators.
Throughout the 20th century, policy makers have implied that economic and social problems could be solved through educational reform (Mulkeen, Cambron-McCabe, & Anderson, 1994). Reports announcing school decline and recommending educational reforms were prevalent during the 1970s and 1980s (Stedman, 1993). The 1983 landmark report, A Nation At Risk, scrutinized the status and direction of education in the United States (Miller, 1987). In response to this report, many states and districts increased high school graduation requirements, introduced finance reform initiatives, and reexamined performance assessment methods for students as well as teachers (Adelman & Pringle, 1995; Daresh & Playko, 1992).

Since 1983, the findings of numerous educational reform reports have identified flaws in the existing educational system and most have included a call for change (Berliner & Biddle, 1995; Meter, 1999). Responding to these recommendations in 1990, the Congress assigned the Office of Educational Research and Improvement (OERI), under the U. S. Department of Education (DOE), the responsibility for evaluating educational reform. As a result, the OERI initiated research in twelve areas including professionalism of educators,
curriculum reform, technology infusion, (Anson & Fox, 1995) and the transformation of an outmoded educational system (Stevens, & Lonberger, 1998).

However, little is different after years of purported reform; literature continues to advocate change in public education (McAdams, 1997; McKenzie, 1993; MacNeil, & Harmon, 1998). Far-reaching, coordinated, and system-wide school reform is required to address current and future needs of our struggling schools (Stedman, 1993). Narrowly focused reform efforts failed because they neglected to rethink educational systems designed for a smokestack society and address the ‘Age of Information’ (McAdams, 1997; McKenzie, 1993).

Simmons and Resnick (1993) lamented, “schools are not doing what we will need them to be able to do in the future. We have a curriculum – and indeed a conception of learning and knowing – that is more in touch with the 1920s than our modern day society” (p. 11). Murphy (1992) professed that to establish post-industrial education, changes must occur in three areas: a) the relationship between schools and their larger environments, b) the management and organization of schools; and c) the nature of teaching and learning (p. 114).

**Focus on Educational Reform**

During the early efforts to revamp education, reforms focused on teacher education, curriculum and school organization (Griffiths, 1999). Recommendation E, Leadership and Federal Support, of the seminal report *A Nation At Risk* (NCEE, 1983) noted, “principals and superintendents must play
a critical role" in supporting the proposed reforms (p. 32). With the exception of this brief reference, the National Commission on Excellence in Education (1983) report was otherwise silent on the topic of leadership in affecting change within the reform movement. "Interestingly, mention of leadership was nonexistent or scant in the numerous national and state reports that followed" (Anderson, 1994, p. xiv). Focused on school performance and the professional practice of teachers, the nation paid limited attention to the preparation and qualification of educational administrators (Peterson & Finn, 1985).

Although early efforts ignored administrators, later reforms began to examine the leadership of schools (Miller, 1987; Murphy, 1992). Having addressed achievement indicators, student assessment, and teacher standards, state and district reform efforts refocused on observable job-related behaviors for administrators (Chester & Pecheone, 1992; Richardson, 1990). Reform leaders' concerns expanded to include "principals who, according to the school effectiveness literature, play a key role in children's learning" (Ubben & Fowler, 1992).

Several reports declared that leadership was crucial to the educational success of schools (Liphman, 1981; Cornett, 1983; Peterson & Finn, 1985; Sergiovanni, 1987; Miller, 1987; Witters, Churchill & Erlandson, 1990). Research into the characteristics of effective schools confirmed: "The caliber of institutional leadership powerfully influences the quality of education" (Peterson & Finn, 1985, p. 89). Reform documents affirmed that as "gatekeepers of change" administrator support was essential to the success or failure of a
lasting reform effort (Chance, 1992; Murphy, 1992, p. 2). Pohland (1992) proclaimed, "a spirit of heady optimism pervades the field of educational administration - a spirit conceived in the reaffirmation of administrator efficacy" (p. 29).

Implementation of proposed educational reforms required "competent, skilled, and visionary leadership" (Griffiths, 1988, p. xiii). School administrators were accountable for the productivity and effectiveness of their schools (Daresh, & Playko, 1992). However, an opinion existed that school administrators not performing their duties effectively and efficiently was one of the problems impairing education (Daresh, & Playko, 1992; Murphy, 1992). Criticism of school administrators originated from the general dissatisfaction with the educational system. If the quality of a school was not sufficient, the public concluded that the administration was culpable (Griffiths, Stout, & Forsyth, 1988, p. 285).

A consensus emerged that both the structure of schooling and the administrative role should be reconceptualized (Cambron-McCabe & Foster, 1994). The challenge was to align administration with leadership rather than solely with managerial skills (Murphy, 1992). As an agent of change, the administrative role demanded skills in team building, decision making, and technological competency (MacNeil, & Harmon, 1998). Miller (1987) described educational leadership as a "unique and specialized form of administration tempered by the uniqueness of schools"(p. 9). Acknowledging administrators
were pivotal to the educational process, Richardson (1990) questioned efforts to produce more successful and effective leaders.

Focus on Administrator Preparation

When school leadership became a central issue of educational reform, "principal preparation programs [became] the target of major research" (Gagne, 1990, p. 41). Subsequently, reform leaders demanding K-12 school reform looked toward restructuring graduate preparation programs (Clinchy, 1996). Several researchers viewed preparation programs for school administrators as inadequate (Miller, 1987; Griffiths, Stout, & Forsyth, 1988; Maher, 1988; Murphy, 1992; Sarason, 1993; Sarason, 1995; Witters-Churchill & Erlandson, 1990). Interested in revising administrator preparation programs, critics raised concerns about several program facets (Mulkeen, Cambron-McCabe, & Anderson, 1994).

Evidence indicated that university school administration training programs were not effective (Dembowski, 1998). A special report of the NASSP (1992) revealed "deep discomfort exists about the relevance and adequacy of principal preservice preparation programs" (p. 1). An analysis by Brent, Haller and McNamara (1997) implied that university administrator preparation programs had no positive influence on school effectiveness. If preservice training made no difference in school productivity, critics challenged the need for university administrator preparation programs (Downey, 1998).

Preparation programs have not prepared administrators to lead effectively within schools and school systems - "a point long apparent to
educators" (Sarason, 1993, p. xii). Expecting to learn leadership skills on the job rather than in their graduate programs, educational administrators select preparation programs based on convenience, cost, and comfort (Schneider, 1998). This disregard is understandable since practicing school administrators evaluated training programs as easy, tedious, and rarely helpful in their daily responsibilities (Witters-Churchill & Erlandson, 1990). In fact, the more experience the administrator had, the greater the dissatisfaction with their training programs (Brent & Haller, 1998). The disdain of practicing administrators for preparation programs may be the most crucial commentary. "Recall that the single most damaging criticism leveled ... against traditional educational administration was the objection that it does not serve administrative practice" (Lakomski, 1998, p. 1).

**Historical Overview of Administrator Preparation**

A historical perspective is beneficial to clarify the path that preparation programs took to reach their current state and to provide insight into the impact of professional development on leadership (Chance, 1992; Daresh & Playko, 1992). Preparation programs evolved from a search to develop an administrative craft to a preoccupation with efficiency and expediency (Cambron-McCabe & Foster, 1994). Murphy (1992) observed that the history of preparation programs consisted of several phases. The transition between each phase was "fueled by a formidable body of literature deploring the status quo and holding up loftier ideals to which the profession should aspire - as well as one or two eloquent defenses of current arrangements by authors who
were committed to the values of the existing order" (Murphy, 1992, p. 24).

Phases in administrative history have been marked by forks in the road, blind alleys, misguided aspirations, and competing paradigms (Cambron-McCabe & Foster, 1994, p. 49). In reality, multiple ideologies co-existed simultaneously within school systems and administrator preparation programs (Daresh & Playko, 1992).

From approximately 1870 to 1920, tremendous growth occurred in the education system. However, most educational administrators did not receive formal preparation (Daresh & Playko, 1992). In 1879, William Payne taught the first college-level course in school administration at the University of Michigan (Cooper & Boyd, 1988). Between 1900 and 1910, only a few courses in the areas of curriculum and instruction were available. The limited formal administrator training was comparable to that of teachers and did not provide insight into the role of leadership or administration (Cooper, & Boyd, 1988; Murphy, 1992).

By 1913, public displeasure over the operation of schools and the lack of administrator training led to the development of formal educational administration programs (Murphy, 1992). During this time, the scientific management system became 'social gospel' (Cooper & Boyd, 1988). The classical or scientific management period, 1900 to 1930, was associated with the work of Taylor, Fayol, Gulick, and Urwick (Crawford, 1994). Efficiency, control of the worker, and task specialization remained dogmas of the field and prescriptions for research (Cambron-McCabe, & Foster, 1994).
Using the business model of corporate management and organizational efficiency, scientific management principles became a practical philosophy for school administration (Daresh, & Playko, 1992; Cambron-McCabe, & Foster, 1994). This view of administration suggested the existence of a 'right way' of managing education (Daresh, & Playko, 1992). Scientific management believed in control flowing downward, evaluation and testing to measure task completion, acceptance of rules and regulations, and pursuit of the best way to accomplish tasks (Chance, 1992). School surveys, efficiency analyses, and time-motion studies dominated research and shaped administrator preparation (Cambron-McCabe, & Foster, 1994). Universities established administration programs that stressed economy and efficiency (Cooper & Boyd, 1988).

Educational administrator preparation programs included an infusion of business and accounting techniques as well as ideas rooted in the principles of scientific management (Mulkeen. Cambron-McCabe, & Anderson, 1994; Murphy, 1992). Viewed as a technical-rational process training was practical, applied, and direct (Cooper, & Boyd, 1988; Mulkeen, Cambron-McCabe, & Anderson, 1994). Books contained directions for managing school finances, conducting staff evaluations, and designing curriculum. The predominant approach to learning school administration was lecture delivered by practitioner-scholars who often relied upon personal experience rather than science (Greenfield, 1988; Daresh, & Playko, 1992).
The era from 1930 to 1950, the human relations era, shifted interest from the scientific management principles to the qualities of human interactions (Crawford, 1994). An administrative philosophy emerged which considered schools in the broader context of both social and economic issues (Daresh & Playko, 1992). Consequently, administration training programs prepared school managers during the first quarter of the century and to social agents during the second (Murphy, 1992). In the late 1940s, the human relations approach became an accepted academic field of study (Chance, 1992). Highly practical, training blended plant management, scheduling, and budget classes with 'schools and social order' courses (Cooper & Boyd, 1988, p. 259). Less time was devoted to learning the facts and data of the scientific management as preparation programs emphasized the development of interpersonal skills, group processes, and communication skills (Daresh & Playko, 1992).

The publication of Herbert Simon's (1945) work, Administrator Behavior, brought the methods of science to administrative studies. Simon built a theory of administration based on the validity, objectivity, and utility of science (Greenfield, 1988). While the human relations movement emphasized social issues, the behavioral science era focused on organization, decision making, and administrative theory (Cambron-McCabe, & Foster, 1994). The field sought to establish a knowledge base grounded in scientifically proven theories while essentially ignoring other modes of knowledge production or perspectives (Cambron-McCabe, & Foster, 1994). "In the search for greater efficiency,
considerable effort was devoted to the 'scientific' analysis of nearly every facet of schools" (Murphy, 1992, p. 33).

The objective of the behavioral science movement was to find a theory that would explain professional practice and predict the result of engaging in certain administrative behaviors (Cambron-McCabe, & Foster, 1994). The theoretical movement represented a dramatic increase in the knowledge base regarding school administration. The study of administration incorporated ideas from the social sciences, centered on theoretical research, and utilized the analyses of empirical data to explain the business of schooling (Chance, 1992: Crawford, 1994). The social scientists sought to provide theoretical formulations as guides to effective administrative action. Philosophy, values, as well as field experiences were consciously removed from training programs or relegated to positions of minor importance. Disregard for practice-based knowledge and increased specialization diminished the need for faculty with administrative experience (Murphy, 1992). By the late 1950s and 1960s, administrators were trained as applied social scientists (Cooper, & Boyd, 1988).

Due to a search for effective field experiences, instructional methods, and program content, educational administration preparation programs underwent considerable change during the 1960s (Wynn, 1972). During the 1960s and 1970s, the short-lived competency based movement defined administration as a series of indistinct skills (Griffiths, Stout, & Forsyth, 1988). Theory and research findings were incorporated fully into preparation programs
by 1970. A major trend was the movement from traditional textbook-lecture instruction to the use of case studies, simulations and multi-media materials (UCEA, 1973). Since the behavioral science era, educational administration has been "driven by fads and marked by attentions to splinters, not wholes" (Griffiths, Stout, & Forsyth, 1988, p. 286). Social research did not answer the question of what to teach practitioners; hence the anxiety about preparation programs in the 1970s and the 1980s (Cooper & Boyd, 1988). Furthermore, the changes implemented did not alter the continued need to improve administrator preparation programs (UCEA, 1973). As a result, administrator preparation has been in the midst of upheaval while moving from a scientific to a post-scientific view of school administration (Murphy & Forsyth, 1999).

A predominant force in the 1980s, the human resource development movement suggested the role of an administrator was to capitalize on the most valuable resource- the people. Developing personalized administrative visions of organizational effectiveness was a hallmark of human resources development preservice preparation (Daresh, & Playko, 1992). At times, the human resources development era was criticized for sacrificing school productivity for a contented staff. (Cooper, & Boyd, 1988). Although universities experimented with instructional strategies, particularly simulations and case studies, the lecture method was still well entrenched (Murphy, 1992).

Throughout its short history, educational administration has been a nebulous and uncertain field shaped by social trends and political forces outside educational administration (Achilles, & Ramey, 1990; Wiggins, 1992;
Murphy, 1993). However, no one could predict "that the landscape over which this new era of training would travel would be so tortuous nor that [after] a scant 30 years the wheels would come off the behavioral science engine that was driving the new movement" (Murphy, 1992, p. 37). Without adequate evaluation data to guide decisions, preparation programs were built on the traditions of various universities (Achilles, & Ramey, 1990). A conceptual agreement has not existed regarding (a) the content of preparation programs, (b) the definition and delivery a legitimate knowledge base, (c) professional practice providing practical experiences, and (d) standards for licensure, assessment, certification and accreditation of school leaders (Murphy, 1992; Hart & Pounder, 1999). Murphy and Forsyth (1999) argued that shifting from the behavioral science era has "been the most intense period of reform activity ... in school administration" (p. 5).

The NCPEA and the UCEA

During the behavioral science era, the formation of the National Conference of Professors of Educational Administration (NCPEA) had a profound effect (Murphy, 1992). In 1947, Walter D. Cocking, editor of the School Executive, gathered a group of educational administration professors at the home of Thomas Watson, president of IBM, for a week long conference to review the changing nature of administrative practice, graduate programs, and educational research (West, Piper, Achilles, & Manley, 1988; Griffiths, 1999). The group evolved into the NCPEA, followed by the Cooperative Project in Educational Administration and ten years later by the University Council of...
Educational Administration (Forsyth & Murphy, 1999). Believing that the need to improve the quality of school leadership was dependent on improving the professional preparation, the American Association of School Administrators (AASA) and the Kellogg Foundation supported the NCPEA (Forsyth, 1999).

At the 1951 NCPEA conference in Greely, Colorado, the planning committee decided to work on shared issues such as improving administrator preparation programs (West, Piper, Achilles & Manley, 1988). The August 1964 Denver meeting added "considerable energy to the critical reviews of existing preparation programs" (Murphy, 1992, p. 40). Resolving to strengthen educational administration, NCPEA members centered efforts on the improvement of preparation programs, educational administration professors, and professional scholarship. This resolution clearly focused the planning committee's attention on the preparation of effective school leaders (West, Piper, Achilles, & Manley, 1988).

The NCPEA was influential in the creation of the Cooperative Project in Educational Administration (CPEA) a consortium of eight university centers (Murphy, 1992). Each center differed in their area of concentration, methodology, and involvement in activities (Griffiths, 1999). Within the first five years, the CPEA conducted numerous pilot programs, research projects, and experimental designs resulting in 303 publications. For three decades, the NCPEA coordinated research, promoted leadership development for school administration professors and disseminated the results of the CPEA studies to
educational administration professors (West, Piper, Achilles & Manley, 1988; Griffiths, 1999).

In 1954, members of the CPEA proposed an organization devoted to improving the professional preparation of education administrators (http://www.ucea.org). By 1956 financed by a five-year grant from the Kellogg Foundation, school administration programs at 34 leading universities formed the University Council of Educational Administration (Murphy, 1992). With the formation of University Council of Educational Administration (UCEA), West, Piper, Achilles and Manley (1988) reported that the NCPEA lost much of its significance for the professorship. NCPEA members reflected the aging of the educational administration profession. Resigning in 1984 after 25 years of service, Dale Hayes believed, "that our mission has become cloudy, and our energy to resist counterproductive movements and attack has declined... we do not challenge; we only acquiesce" (West, Piper, Achilles, & Manley, 1988, p. 33). By 1992, the NCPEA leadership decided to modify the organizational goals (Murphy, 1992).

Under the direction of Forsyth, the UCEA dominated discussions and activities designed to improve school administration (Murphy, 1992). During an interview UCEA executive director, Forsyth declared that "today we have a set of program activities that occur each year, such as the convention, David L. Clark graduate student research seminar, several recognition programs, Internet services, and better relationships with other national associations" (Mountjoy, 1998, p. 6). Three UCEA initiatives recognized the importance of school
administrator preparation: the formation of The National Commission on Excellence in Educational Administration (NCEEA), the publication of a series of reform documents, and the establishment of UCEA's annual convention (Forsyth, 1999, p. 72). The UCEA reacted to administrator preparation program problems and a lack of respect for educational administration by forming the National Commission of Excellence in Educational Administration (NCEEA) (Forsyth, 1987; Achilles, & Ramey, 1990). In April 1986, the UCEA Plenary Session approved the creation of a commission under the leadership of Daniel Griffiths to study and recommend changes in administrator preparation (Forsyth, 1999; Griffiths, 1999). A centralized operation, the NCEEA and the UCEA directed efforts toward administrator preparation reform and provided leadership within a complacent professorate (Murphy, 1992; Forsyth, 1999; Murphy & Forsyth, 1999).

The NCEEA produced three documents (a) the report Leaders for America's Schools (1987), (b) Griffith's seminal address at the American Educational Research Association (AERA), and (c) the Leader for America's Schools: The report and papers of the National Commission on Excellence in Educational Administration (1988). Reaction to the Leaders for America's Schools (1987, 1988) was mixed. Judith Lanier and Al Shanker, members of the original commission, refused to sign the final report because it failed to revolutionize current practices. Other critics claimed that the recommendation to reduce the number of preparation programs was a plot by certain universities to monopolize preparation programs (Forsyth, 1999). The NCEEA

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report included recommendations for public schools, professional organizations, universities, policy makers and private businesses (Griffiths, Stout, Forsyth, 1988).

Three themes characterized the reform efforts of the UCEA from 1987 to 1997 (a) reform leader preparation, (b) define a knowledge base, and (c) link preparation with practice (UCEA, 1997; Forsyth, 1999, p. 71). A year after the NCEEA reports, the UCEA authorized six writing teams under the direction of Wayne K. Hoy. These teams wrote a series of volumes that focused on the problems of the field, provided alternatives for preparation programs, and shaped reform efforts (Murphy & Forsyth, 1999). A UCEA-sponsored investigation by McCarthy and her colleagues (1987) reconsidered the role of the professorate in educational administration training programs (Murphy, 1992). The Handbook of Research on Education Administration (1988), an AERA sponsored volume edited by Norman Boyan, was very influential to the study of administration (Murphy, 1999). Published under the auspices of the UCEA, Where Will They Find It (NASSP, 1972), Continuing the Search (NASSP, 1975), and Performance-Based Preparation of Principals: A framework for Improvement (NASSP, 1985) were sequential volumes reexamining the educational administration professor and practitioner (Witters-Churchill & Erlandson, 1990).

Griffiths (1999) implied that perhaps the most important accomplishment of the NCEEA was the creation of a National Policy Board or Educational Administration (NPBEA) to oversee the implementation of NCEEA
recommendations. Formed in 1987 by several national education organizations including the NASSP, the NPBEA developed standards for the preparation and certification of school administrators. NPBEA identified 21 performance domains that blended content, leadership competence and process skills (NASSP, 1992). The board was integral in developing a knowledge base and enacting standards for school administration (Forsyth, 1999). Conducted in cooperation with the NPBEA and the Council of Chief State School Officers, the Interstate School Leaders Licensure Consortium (ISLLC) produced the first national set of standards for school leaders in late 1996 (Murphy & Forsyth. 1999). Regrettably, outside of the UCEA and NCATE-accredited institutions, the evaluation and standardization of preparation programs was limited (Murphy, 1992).

Danforth Programs

By supporting the work of NCEEA and NBPEA, the Danforth Foundation has been a force for reform (Murphy, 1992). Initiatives focused on education administration faculty, programs, and students (Mulkeen. Cambron-McCabe, & Anderson, 1994). The Danforth Foundation underwrote four significant programs (a) the Principals’ Program to improve preparation programs, (b) a Professors’ Program to transform program purpose and content, (c) research and development efforts, such as the Problem-Based Learning Project at Vanderbilt, d) a series of conferences and workshops (Murphy, 1993; Gresso, 1993; Murphy & Forsyth, 1999). The Danforth Foundation challenged
universities to redesign preparation programs to respond to school districts' needs (Milstein, 1993).

Between 1985 and 1986, the foundation initiated planning activities that emphasized the need for capable school leaders and preparation program reform (Gresso, 1993). Funding was provided to twenty-two universities selected in five cycles between 1987 and 1992. The selected universities represented departments that had begun to initiate alternative approaches as well as those that were preparing to begin reform efforts (Cordeiro, Krueger, Parks, Restine, & Wilson, 1993). The Danforth Programs for the Preparation of School Principals (DPPSP) and the Professors of School Administration (DPPSA) advanced the NCEEA's recommendations for designing alternative approaches to administrator preparation (Murphy, 1992; Cordeiro, Krueger, Parks, Restine, & Wilson, 1993).

The foundation stipulated that each program include four elements: (a) universities and school districts shared the responsibility, (b) curriculum was developed jointly, (c) participating students completed a full-time internship, and (d) districts were to make a commitment to place project graduates in administrative positions (Ubben & Fowler, 1992). Despite various disagreements regarding the program content, school districts and universities agreed that preparation programs needed to be restructured (Gresso, 1993). Placing program decisions at the level closest to the student, the Danforth Foundation permitted universities to individualize and alter the original program stipulations. Considering the scarcity of large-scale administrator preparation
reform, the development of unique programs tended to develop isolated, erratic approaches to preparation and impeded widespread implementation of any innovation (Meter, 1999).

In 1991, a study was conducted examining the impact of the Danforth-sponsored programs as well as the differences and similarities among the preparation programs (Cordeiro, Krueger, Parks, Restine & Wilson, 1993). The purpose of the study was to provide descriptive data for the Danforth Programs and identify the barriers and circumstances that impact the success of alternative programs (Ubben & Fowler, 1992). The first study surveyed all participating universities regarding program implementation efforts. The second study consisted of five case-study analyses: (a) University of Alabama, (b) University of Central Florida, (c) University of Connecticut, (d) California State University at Fresno, (e) University of Washington (Milstein, 1993). In addition to site visitations, document reviews, and interviews conducted by regional coordinators, university professors submitted periodic progress reports and made presentations to colleagues in the other universities involved in the project (Cambron-McCabe, 1993; Milstein, 1993).

Most of the participating universities emphasized clinical experiences, field mentors, cohorts, and collaborative arrangements with school districts (Daresh & Playko, 1992; Cordeiro, Krueger, Parks, Restine, & Wilson, 1993; McCarthy, 1999). Additionally, the inclusion of experiential learning, individualization, modules, and relevant practice represented significant departures from standard programs (Ubben & Fowler, 1992). Milstein (1993)
maintained that the Danforth studies have "implications for the approximately 500 higher-education institutions that prepare educational administrators, many of which are struggling to increase the relevance of their preparation programs" (p. ix).

Recommendations

Since 1987, a concerted effort has been made to reform administration preparation programs (Murphy & Forsyth, 1999). The initiatives of the UCEA, NASSP, and the Danforth Foundation centered on reform components such as integration of clinical experiences with course work, emphasis on leadership versus technical management, instructional delivery based on adult learning theory, realistic problem solving through actual cases and simulations, reorientation of research to practical problems encountered in the field, development of optimum uses of technology, and strategies for cohort interaction (Forsyth, 1987; Sergiovanni, 1987; Griffiths, Stout, & Forsyth, 1988; Drury, 1989; Murphy, 1993; NASSP, 1992, Sergiovanni, 1994). In a review of research about preparation programs, Witters-Churchill (1990) observed that recommendations had been made and evidence existed that many were enacted. Mulkeen, Cambron-McCabe, and Anderson (1994) advocated a program that would include:

1. a core curriculum that recognizes administration as an intellectual and moral practice.

2. a pedagogy that acknowledges administration as craft wisdom linking conceptual, abstract knowledge to the context of practice; where
students learn how experts solve problems and demonstrate the ability to manage social systems.

3. instructional approaches that provide opportunities for participants to become more reflective about their actions and develop problem solving skills while providing opportunities to analyze, critique, and reflect on school organizations and the problems of practice that occur within them by using simulations, problem based seminars, peer group learning, cooperative learning, and collaborative teaching with school leaders.

4. clinical inquiry into the problems of practice.

5. students who function as members of learning community and experience working as a member of a team on problems of practice.

6. a research agenda grounded in clinical inquiry into the problems of practice (pp. 252-253).

Synthesizing these recommendations, Griffiths (1999) stated that we should expect “professors would engage in activities to expand and focus the knowledge base of educational administration and to develop new and better ways of disseminating it ... [as well as] a gradual incremental change in the quality of education administration” (p. xviii). Reform efforts have substantiated the need to prepare leaders able to reflect critically on the status of education, embrace the concept of change, and create new possibilities for schooling (Sergiovanni, 1987; Mulkeen, Cambron-McCabe, & Anderson, 1994).

As administrators are increasingly faced with complex problems and interdependent relationships that affect the quality of schooling, the view of
leadership has transformed. In light of this transformation, researchers have recommended that universities revamp program goals, content, and delivery in order to graduate leaders able to establish effective and productive schools (Schmuck, 1992; Wilson, 1993, p. 221). Driven by a technical-rational view of "what works" administrators were trained, "not to challenge the status quo, but to maintain it, not to reconceptualize schools, but to reproduce them" (Mulkeen, Cambron-McCabe, & Anderson, 1994, p. 251). Acquainting preservice administrators with predictable problems and teaching them to conform to the existing conditions in schools is not sufficient. Sarason (1993) argued that programs should provide their "students with ways of thinking about how schools should change if life in school is to be more productive"(p. 203). If administrators engage in creating positive change based on knowledge and articulation of the issues, the principalship will impact the direction of education reform and help students learn (Miller, 1987, Short, 1998).

collaboration and collegiality were crucial to the decision-making process. Additionally if emphasized by preparation programs, administrators were more likely to utilize collaborative problem-solving skills in practice.

Short (1998) identified practice-preparation linkages as a key ingredient to school leader effectiveness. If school leaders are to transform and improve education, preparation programs must advocate critical reflection on practice informed by theory (Cambron-McCabe & Foster, 1994). Preparation programs should bridge the gap between theory and practice by developing an integrated curriculum characterized by authenticity and complexity (Drury, 1989; Murphy, 1992; Reynolds, 1994; Achilles, 1998). Murphy (1992) contended that a curriculum must be provided which links theory and practice in "such a way as to render meaningless a discussion of one without the other" (p. 148).

Addressing the theory-practice dichotomy, NASSP and NCEEA recommended that preparation programs include (a) opportunities for theoretical and clinical knowledge, (b) decision-making and problem solving skills critical to administration (c) performance-based instruction anchored in an authentic activities, (d) applied research, and (e) guided practice genuinely tied to the requirements that administrators encounter on the job (Miller, 1987; Forsyth, 1987; Witters-Churchill & Erlandson, 1990; Engel, 1990; Daresh, & Playko, 1992; Reynolds, 1994; Farenga, Joyce, & Bronzell, 1996).

If school administrators are expected to utilize research to improve student outcomes, preparation programs must teach the necessary research techniques and how to use research results effectively (Achilles, 1998). Murphy
(1992) proposed an inquiry-based preparation program, a practice driven, problem-based learning model centered on real-schools and real people, to insure that the learning context is more consistent with the context that administrators face while on the job (p. 152). Sergiovanni (1994) argued that rather than teaching management scripts preparation programs should emphasize problems of practice and critical reflection in order to change, not only the way school administrators act, but also how they perceive the world. To create possibilities for significant change in our school systems, graduate programs should engage preservice administrators in generating, examining, and analyzing organizational data and information. By raising questions and engaging in a shared analysis of education, administrators learn to solve problems and marshal resources to enhance student productivity (Sergiovanni, 1987; Cambron-McCabe, & Foster, 1994; Mulkeen, Cambron-McCabe & Anderson, 1994).

Discussions surrounding preservice training of administrators have centered on the value of various instructional strategies and delivery systems (Haller, Brent, & McNamara, 1997). In the past, teaching has been viewed as an expert teacher transferring an inert body of knowledge to passive learners (Wilson, 1993). Daresh and Playko (1992) disclosed that in most universities, one-way communication from teacher to student prevailed with little or no involvement by the student. Schmuck (1992) admonished university professors for being verbose, controlling subject matter, and lecturing to convey information and skills. Many preparation programs paid no attention to adult
learning theory, school districts linkages, pragmatic experiences, desired outcomes, or rigorous evaluation (Cordeiro, Krueger, Parks, Restine, & Wilson, 1993). It must be recognized that a profound metamorphosis is required to shift from Industrial Age to Information Age thinking and teaching, “especially if the role of the teacher shifts from sage on the stage to guide on the side” (McKenzie, 1993, p. 76).

If teaching methods stressed active learning rather than passive listening, preparation programs would be more relevant to administrator needs (Engel, 1990). Daresh and Playko (1992) asserted that if educational administrators were able to participate in hands-on activities they would be better prepared for their role in real life. Teaching styles that emphasize hands-on, high involvement, collaborative learning, reflection, and site-based experiences provide a better understanding of educational organizations (Milstein, 1993). To this end, preservice programs should provide a knowledge base and skill capacity through the use of simulations, face-to-face seminars, computer mediated instruction, role playing, performance-based elements, in-basket activities, case studies, field-based experiences and other techniques (Rodriguez, 1989; Engel, 1990; Reynolds, 1994; Schneider, 1998). Murphy (1992) identified specific design principles for effective instructional programs. Learning should be (a) student centered (b) active (c) personalized (d) include a balance of instructional approaches (e) cooperative approaches (f) outcome-based, and (g) delivery structures should be based on adult learning principles (Murphy, 1992, p. 154).
Problem-Based Learning

To improve university instruction, Gijselaers (1996) advocated four strategies found in problem-based learning: (a) information delivery should occur in the context of complex and meaningful problem solving situations, (b) focus should be on the use and teaching of metacognitive skills; (c) knowledge and skills should be taught from different perspectives and applied to different situations; and (d) students interact in collaborative learning situations. Professors Bridges at Stanford University and Professor Hallinger at Vanderbilt University have made the most important achievements regarding the study and use of problem-based learning in educational leadership (Murphy, 1992). By the early 1980s, the medical schools at the University of New Mexico, the University of Hawaii, Harvard University, and the University of Sherbrooke, Canada championed problem-based learning by converting entirely to a problem-based curriculum (Barrows, 1996).

The overarching goal of problem-based learning (PBL) is to develop the capacity to learn by building a foundation from which students master the retrieval and appropriate use of knowledge and skills (Murphy, 1992; Bridges, 1992). In problem-based learning, the starting point for learning is a problem that students are apt to face as future administrators (Barrows, 1996). Exposed to relevant theory and research, students assume a major responsibility for their own learning by deciding how to use this knowledge in solving a problem. Additionally, most learning occurs within the context of small groups rather than lectures (Bridges, 1992; Bridges & Hallinger, 1991;
Bridges & Hallinger, 1996). Analysis and resolution of authentic educational problems result in the acquisition of new expertise and enhanced problem-solving skills (Gijselaers, 1996). Hence, PBL is a method for learning and mastering the necessary skills and knowledge to be an effective educational administrator (Murphy, 1992, Bridges & Hallinger, 1991). Bridges & Hallinger (1996) suggested that PBL might prevent the discord and fragmentation of traditional university preparation programs.

Bridges (1992) contended that traditional teacher-directed instruction resulted in limited student retention and inappropriate use of acquired knowledge. Likewise, Barrows (1996) implied that conventional methods of teaching inhibited clinical reasoning and students forgot information before encountering clinical situations. In PBL, problems provide the impetus, framework, relevance, and motivation for learning (Wilkerson, 1996; Barrows, 1996). Designed to build knowledge across a wider range of topics than traditional programs based on discrete courses (Woods, 1996; Bridges & Hallinger, 1991; Bridges, 1993; Bridges & Hallinger, 1996), the focus of PBL in leadership preparation is to a) develop administrative competencies, b) advance problem solving skills, and c) acquire a knowledge base that supports administrative practice (Bridges, 1992).

A distinct curricular goal of PBL is to advance the students' capacities to work intensely and effectively with and through a variety of different people (Barrows, 1996; Bridges & Hallinger, 1997). To maximize the outcomes from PBL, projects are designed around teams consisting of five to seven students...
with no more than three groups in a particular course (Bridges, 1992; Woods, 1996; Wilkerson, 1996). Students are assigned roles within the team, project leader, facilitator, recorder, and team member. Roles should change from one project to another allowing students to be familiar with the responsibilities of each role (Bridges, 1992).

Wilkerson (1996) proffered that effective PBL instructors balanced student direction with assistance, contributed knowledge and experience, created a pleasant learning environment, and stimulated critical evaluation of ideas. The instructor fosters learning by asking students questions that they should be asking themselves about the problem. “Eventually, the students assume this role and begin challenging each other” (Barrows, 1996, p. 5). Wilkerson (1996) reported that teachers with extensive expertise in the specific content area being studied tended toward teacher directed instruction allowing minimal student initiated behaviors. However, projects led by faculty who had a cross-curricular focus encouraged more student interaction and collaboration (p. 26). This is an issue since learners who acquire information in the context of problem solving are more likely to use that information to solve new problems than are individuals who acquire the same information under traditional instructional methods (Bridges, 1992).

According to Bridges (1992), each PBL project should consist of an administrative problem; a list of objectives to be mastered; a series of focus questions; and a resource list of relevant books, articles, and audio-visual materials. Less complex instructor developed problems and instructor
identified resources will assist students when transitioning to this instructional approach (Bridges, 1992). However, simple problems with only one strategy for resolving or a single solution will not motivate students to learn independently (Gijselaers, 1996). In order to replicate the rhythm of work, most projects are designed with time constraints. “Team members find themselves continually struggling with the dilemma that confronts every conscientious manager ... how to achieve reasonably high level of performance within severe time constraints” (Bridges, 1992, p. 22).

In PBL, decisions about group size, teacher skills, and problem construction impact each other as well as effect student learning (Wilkerson, 1996; Gijselaers, 1996). When reviewing projects it is useful to pay attention to (a) learning objectives, (b) relevance of the problem, (c) problem context, (d) primary role of participants in the project, (e) variety of disciplines, (f) prerequisite skills and knowledge, and (g) time constraints (Bridges, 1992; Bridges & Hallinger, 1996). Depending on the structure of the problem, studies have shown that 80% - 85% of curriculum content and objectives were addressed using PBL (Bridges & Hallinger, 1996; Wilkerson, 1996). To insure that content will be adequately covered, it is important to field-test a PBL project (Bridges, 1992). Within administrator preparation, PBL strategies were first developed at Stanford and later field-tested at both Stanford and Vanderbilt (Bridges, 1993).

The use of PBL in administrator preparation is based on cognitive, motivational, affective, and functional concepts (Bridges, 1992, Bridges &
Hallinger, 1991). PBL relies on cognitive theory to link the understanding, retention, retrieval, and appropriate use of new information through the activation of prior knowledge, similarity of contexts in which information is learned and later applied, and opportunity for self-reflection (Bridges, 1992; Bridges & Hallinger, 1996). By repeatedly discussing issues, teaching peers, sharing views, and preparing essays while seeking to solve the problem, students better understand, process, and recall information (Bridges, 1992; Woods, 1996). The PBL process is completed when students engage in self-reflection about how to generalize the information and approaches learned in order to anticipate and solve future problems (Bridges, 1992; Gijselaers, 1996). Successful problem solving is dependent upon a body of knowledge, an awareness of problem solving methods, and self-reflection (Gijselaers, 1996).

Centered on active learning, integrated concepts, and cues associated with the real-world, PBL enables students to acquire knowledge and skills in a functional context that resembles the context they will encounter as administrators (Bridges, 1992; Woods, 1996). Learners are motivated by actively resolving authentic problems (Bridges and Hallinger, 1996). By focusing on real-world issues, PBL employs discipline based knowledge in the resolution of the problems of professional practice (Murphy, 1992). Therefore, students are aware of how the knowledge and skills will be used in their professional careers (Bridges, 1992; Barrows, 1996). More so than traditional theory-based lecture courses, PBL allows students to develop a professional knowledge base that mirrors the realities of administration and to enhance
their understanding of a complex organization (Schmuck, 1992; Reynolds, 1994). Owens and Steinhoff (1992) documented the nature of administrative work as "messy and ambiguous with incessant demands for action" (p. 16). PBL attempts to acquaint preservice administrators to the "messy" world of educational administration under safe conditions. PBL narrows the gap between theory and practice by replicating educational challenges through the resolution of concrete problems, the rhythm of the work through time constraints, the hierarchical nature of the work through use of teams, the manner of communications through memos and discourse, the role of emotions through group reaction to stress (Bridges, 1992; Cambron-McCabe, & Foster, 1994).

PBL projects require students to reference relevant theory and research as well as examples of how this theory and research have been applied in the schools (Bridges, 1992; Barrows, 1996). Four major types of reference resources exist (a) reading materials, (b) consultants, (c) videotapes, and (d) audiotapes. Materials produced by state departments of education, local school districts, and individual school sites are rich sources of school policies and practices that reflect practical wisdom (Bridges, 1992). When deciding which resources to access, students should consider literature references, previously presented content, and information from lectures (Gijselaers, 1996). In PBL projects, as in the real world, people confronted with a problem consult various sources for guidance then use those that are most relevant and consistent with their own values (Bridges, 1992).
PBL projects have two objectives a learning objective and a product objective. The learning objective includes the knowledge and skills participants are expected to acquire while the product objective involves the resolution of a real-world challenge (Bridges, 1992; Bridges & Hallinger, 1996). Incorporating higher-order thinking, PBL provides opportunities for active response, peer interaction, immediate feedback and evaluation of outcomes (Bridges, 1992). To gauge students outcomes, direct observations, class discussions, integrative summary essays, formal review exercises, and assessment of final products are used (Wilkerson, 1996; Bridges & Hallinger, 1996). Bridges (1992) suggested that project outcomes or products ensure students achieve results through others, provide a focus for the group, furnish incentives for learning, and permit the evaluation of effectiveness. These products or outcomes should (a) be representative of products and performances inherent in the administrative role, (b) require students to use knowledge and skills learned in the project, (c) require students take action and grapple with issues of implementation, and (d) place students in situations where they experience the consequences of their own actions (p. 97-98).

The effectiveness of PBL in preparing administrators has not been proven (Bridges, 1992; Bridges & Hallinger, 1996) and clinical competence of PBL students is marginally better than that of their counterparts in traditional programs (Bridges, 1992; Bridges & Hallinger, 1996). However, faculty members who work with both conventional curriculum students and PBL
students observed that there is a marked difference in the motivation, ability to solve problems, and the desire to apply knowledge (Barrows, 1996). Students in PBL programs reported greater satisfaction about their preparation than students in traditional programs (Bridges, 1992; Bridges and Hallinger, 1996). Based on a study of the 1994 Milwaukee Principals institute and 1995 Ohio Urban Leadership Academy, North Central Regional Educational Laboratory (NCREL) evaluators revealed that the students' cooperation, affective capacities, time management, problem solving skills, knowledge acquisition, and self-directed learning were strengthened by the use of PBL (LaSota, Freel, & Hawkes, 1997). Bridges (1992) predicted that examining the effectiveness and investigating alternative contexts of PBL would be challenges for those exploring the preparation of future administrators.

Technology

Rarely have predictions about technology been accurate. A study commissioned by IBM shortly after World War II predicted that the total world market for electronic computers would be between 10 and 15 units since only governments and large corporations would need such a complex device (Adler, 1994, p. xi). In this dynamic world, accurate descriptions of technology remain illusive. Cuban (1986) cautioned that defining technology is like "trying to snap a photograph of a speeding bicyclist" (p. 77). The only constant has been the continued expansion of technology use by both public and private sectors (CEO Forum, 1998).
In June 1991, the Labor Secretary's Commission on Achieving Necessary Skills (SCANS) identified five minimum competencies: the ability to work with others; acquire and use information; identify, organize and allocate resources; understand complex inter-relationships, and work with a variety of technologies. The U. S. Department of Labor identified similar skills as critical to the workplace (Tierney, Kieffer, Stowell, Desai, Whalin, & Moss, 1992). The School Technology and Readiness Report (CEO Forum, 1997; CEO Forum, 1998) suggested that due to the prevalence of technology in society, it is no longer sufficient to talk about technology training as an abstract goal. Jet engines are diagnosed for problems in mid flight by on-board computers, and professional coaches review video clips of specific plays by keying in ‘pass play or punt.’ The medical profession has traded the scalpel for imaging technology to make exploratory diagnoses. “Business, medical, and professional-sports leaders know that technology gives them the edge” (Streifer, 1999, p. 53). Lucent Technologies employees reference the ‘Call Center’ database for archived case studies, white papers, research articles, training materials, presentations, demonstrations, and performance support tools (CEO Forum, 1998). Unfortunately, the information technologies transforming the private sector have yet to be applied to the business of school administration. Educational administrators could use technology to improve decision making by analyzing student achievement, course-taking trends, or budget expenditures (Milstein, 1993; Streifer, 1999).
Recently, a nationwide goal has been to increase the amount of technology available to schools (McKinsey & Company, 1995; George, 1998). Between 1987 and 1997, the number of students per computer decreased from 125 to less than 10. Some technology rich schools have one computer for every three students (Cuban, 1997, p. xi). In 1997, almost 80 percent of the nation's schools were connected to the Internet with 95 percent predicted by 2000 (Crane & Spoon, 1998; National Center for Education Statistics, 1999). Based on available data, the estimated United States K-12 schools technology budget during the 1997-98 school year was approximately $ 4.5 to $ 5 billion (CEO, 1998). Based on these funding figures, the education market for technology has the potential to be greater than that of entertainment. Craig (1994) reported that total box office revenues are approximately one percent of the total annual education budget.

The International Society for Technology in Education (1999) determined that the technology infrastructure of education increased faster than the effective incorporation of technology into curricula. Between 1997 and 1998, the number of schools effectively using technology rose from just 15 to 24 percent (Crane & Spoon, 1998). With the scarcity of resources, policy makers have begun to demand evidence of the effectiveness of technology. Consequently, it has become increasingly important that administrators understand the potential benefits technology can provide schools (Bozeman, 1998). "Information technology and its implications for education should
command the fullest attention of the field for theory development, research, practice, and administrator preparation" (Mackett, Frederick & Abrams, 1992).

The traditional educational organization, isolated and disconnected classrooms, has remained unchanged for the past hundred years (Baker, & O'Neil, 1994). However, twenty-first century schools will be very different from those in the past (Barta, Telem, & Gev, 1995). As noted by the Interstate School Leaders Licensure Consortium (1996), the social fabric of schools are changing. The pace of change in education and technology intensifies the demands on educational administrators to adapt (Mackett, Frederick & Abrams, 1992). Due to the shift to a post-industrial society and a growing reliance on technology, school administrators are faced with significant new challenges, provided new opportunities to implement reform efforts, and required to learn new leadership skills (Means, Olsen, & Singh, 1995; Streifer, 1999).

Information technology has altered work environments, the nature of work, and the overall character of organizations (Mackett, Frederick, & Abrams, 1992). Still a goal for education, business has integrated technology throughout its operations despite weak evidence that technology increases productivity. Looking beyond productivity, business recognized that technology changed the nature of tasks. For example, secretaries are no longer rated on the quantity of letters typed (Moursund, 1999, p. 5). Similarly, technology has changed the data analysis process. By providing access to new information, technology enables old questions to be reexamined and new questions to be asked. With the ability to access, interpret, and analyze previously unavailable
information for the purpose of data-driven decision-making, "schools can not only accomplish work differently; they can accomplish different work" (Mackett, Frederick & Abrams, 1992). For example, technology permits the investigation of the relationship between attendance data, truancy figures, scheduling practices, and student productivity information. In the Information Age, technology enables administrators to manage and analyze substantial amounts of information in order to make rapid, well-informed decisions (Council of Chief State School Officers, 1991). Specifically, technology has the potential to improve administrative decisions regarding student placement, teacher allocation to classes, construction of school timetables, examination schedules, disbursement of resources, follow-up on decision implementation, analysis of teacher and school achievements, etc. (Barta, Telem, & Gev, 1995).

The CEO Forum (1998) reported that when used appropriately, technology could be an effective tool to improve school productivity. Although information technologies are increasingly available in schools, studies have documented that professional development has not kept pace with rapid changes in technology (Milken Exchange on Education Technology & International Society for Technology in Education, 1999). When first introduced to schools, technology focused on the acquisition of computers and software with little thought about integrating technology into instruction (Haymore-Sandholtz, Ringstaff, & Dwyer, 1997; Riedl, Smith, Ware, Wark, & Yount, 1998). In addition to technology equipment, effective educational reform requires extensive resources, professional development addressing the integration of
technology, as well as strategies that foster collaborative, engaging, and interdisciplinary teaching (Kurshan & Lenk, 1994). Educators have begun to explore how technology enhances student productivity, enables access to resources, and extends learning beyond the school walls (Rockman & Sloan, 1993; Becker & Reil, 1999).

Dede (1983) promulgated that "all of education is predicated on images of the future ... instruction is based on a vision of the world in which today's students will be decision makers" (p. 43). Through the application of technology, educational organizations have begun to value teamwork in "networked learning" environments. By providing global communication, collaborative learning, and lifelong access to information, technology promotes new ways of working, learning, and solving problems (Harasim, Hiltz, Teles, & Turoff, 1995). The overall goal of technology has been to create different forms of learning and teaching, to promote student-centered learning, to enhance collaborative problem solving, and to foster personal growth through exploration and communication technologies (Kurshan & Lenk, 1994; Farenga, Joyce, & Bronzell, 1996; Cuban, 1997).

Means, Olsen, and Singh (1995) recommended that for technology to serve the purposes of reform, it must be tied to a coherent, school-wide instructional agenda. Only after considering educational reform as a whole, should schools begin examining the contribution that technology can make (p. 72). Technology integration should be grounded in the interests, abilities, needs, resources and constraints of a community and embedded in a larger
process of school change (Hunter, 1998). Honey, McMillan Culp, and Carrigg (1999) emphasized the need to understand the effects of design, learning, school culture, and practices on the integration of technology in education. Similarly, the CEO Forum (1998) declared that by "using the right technology at the right time to meet the right objective," technology has the power to revitalize education making "schools interactive communities of learning" (p. 6).

Often administrators do not understand the skills, attitudes, and knowledge required for an effective educational leader in a technology-rich environment. Few educational administrators regularly use technology and fewer received training in their preparation programs (Riedl, Smith, Ware, Wark, & Yount, 1998). A major obstacle to the development of technology preparation for administrators have been identifying the "administrator knowledge base" needed in technology (Await & Jolly, 1999). When designing the ISLLC standards (1996) two concepts that hold implications for emerging views of leadership were considered: (a) the research linking educational leadership and productive schools and (b) significant trends in society and education. In 1997, the Southern Regional Education Board (SREB) established an Educational Technology Cooperative comprised of the coordinating and governing boards from higher education and K-12 institutions in thirty-eight states. The publication Standards for School Administrators: A Proposed Model (SREB, 1997) outlined standards for administrators including: (a) an understanding of long range planning, (b) ability to analyze and react to technology issues, (c) vision of technology, (d) ability to use technology to
communicate, (e) ability to use technology to collect and analyze data, (f) a comprehension of how technology can be integrated, (g) grasp of legal and ethical issues, and (h) ability to appropriately fulfill the roles of coordinators and communicator of the program (Await & Jolly, 1999).

Without appropriate technology-related courses in preparation programs, administrators lack the knowledge of technological trends, issues, and skills necessary to ensure effective use of technology (CEO Forum, 1998; Await, & Jolly, 1999). Potentially universities play an invaluable role in preparing educators to use technology effectively in their professional practice. However, studies have suggested that most universities are far from realizing that potential (O'Flahavan, 1988; Report to the President, 1997; Riedl, Smith, Ware, Wark, & Yount, 1998; Milken Exchange, 1999; Lemke, 1999; Roblyer & Erlanger, 1999). The results of nation-wide survey (1999) found that instructional technology integration across disciplines and the use of technology for real-world tasks were the most important variables in technology preparation of educators (Milken Exchange, 1999). Yet, most preparation programs offered discrete technology courses emphasizing literacy; few programs actively integrate technology across the curriculum (Haymore Sandholtz, Ringstaff, & Dwyer, 1997; Stevens & Lonberger, 1998; CEO Forum, 1998; Milken Exchange, 1999). Technology should be employed as an instructional tool to support the curriculum and learning in order to solve problems and make meaning (Means, et al, 1995, McKenzie, 1993).
The National Council for the Accreditation of Teacher Education (NCATE) explained that due to a scarcity of technology training, an unfamiliarity with K-12 environment, and a lack of incentives for technology innovation, university faculty were not using technology extensively in their own profession and underestimated the need for integration into preparation programs (NCATE, 1997). Results of a survey commissioned by the Milken Exchange and conducted by ISTE reported that although university faculty and their students tended to have comparable technology skills, most faculty do not model the use of technology in their teaching (Milken Exchange, 1999). Teachers and administrators need instructors who model technology skills within their own professional practice, demonstrate technology best practices as a part of course work, and integrate technology successfully throughout the preparation program (Farenga, Joyce, & Bronzell, 1996; CEO Forum, 1997; Stevens & Lonberger, 1998; CEO Forum, 1998). Roblyer and Erlanger (1999) affirmed that instructors who model the use of technology in their own teaching are the most effective teacher trainers. The challenge is further complicated because university faculty frequently lacks the experience necessary to integrate technology (CEO Forum, 1998). The types of technology most commonly modeled at the university level were word processors and VCRs with rare uses of more advanced of interactive instructional technology (Milken Exchange, 1999). NCATE and Milken recommended that preparation programs have a vision and a plan for technology, a web presence, as well as "identify and make
available exemplary practice of technology use” (NCATE, 1997; Milken Exchange, 1999, p.9).

If faculties are to integrate technology, they must be able to use the technology proficiently, change their teaching methods, and expand their roles as teachers (Matthew, Parker, & Wilkenson, 1998). In a critique of the intellectual climate and instructional delivery of university preparation programs, Forsyth (1987) recognized the need for change and the potential for technology as an instructional tool:

Computers, and the network potential they afford, have important implications for what professors do, how they do it, and with whom they do it. Data about schools, new ideas about school, and other kinds of information can be sent and received instantaneously and manipulated, displayed, and used in simulations of decision-making by a multitude of simultaneous users. The processes and content of new knowledge about school administration and knowledge about practice and intervention can be disseminated in unprecedented ways. Practitioners, researchers, graduate students, and teachers can be effectively linked together to pose and address the complex problems of schooling. The constraints of time and restricted information have been dissolved by technological advance. (p. 13).

Advancements in the use and impact of technology necessitate that the research, the nature of practice, the relevant knowledge base, and delivery of
preparation programs in educational administration be reexamined and rethought (Mackett, Frederick, & Abrams, 1992). Technology shifts the role of teacher from a "dispenser of information" to a facilitator guiding the learner in accessing and organizing information (Teles & Duxbury, 1991; Harasim, Hiltz, Teles, & Turoff, 1995).

Traditional educational structures such as teaching relationships, learning opportunities, and schooling outcomes are being dramatically altered by new technologies (Harasim, Hiltz, Teles, & Turoff, 1995). Initially, educators used technologies to accomplish existing objectives more efficiently. With experience, users recognized that technology offers the "potential for accomplishing new objectives more effectively in innovative ways" (Dede, 1989). Based on the patterns of teaching and learning that emerged over time in the Apple's Classrooms of Tomorrow (ACOT) studies, Haymore Sandholtz, Ringstaff, and Dwyer (1997) identified a five stage conceptual framework: (a) entry, (b) adoption, (c) adaptation, (d) appropriation, and (e) invention.

At the entry level, instructors focused on simple technical matters and were unable to anticipate problems such as student misbehavior, technical issues, or changes in classroom dynamics. As the teacher moved to the adoption level, they began to augment traditional classroom practices such as direct instruction and drill practice. They were able to anticipate and develop strategies for solving technical and classroom management problems. At the adaptation level, the focus was on productivity. Methods for saving time with technology were integrated into traditional classroom practices. The
appropriation level was considered a turning point during which teachers began to regard technology as an instructional tool. At the invention level, teachers viewed learning as a creative and collaborative effort. Students were encouraged to collaborate, solve problems, and construct knowledge from information gathered through a variety of sources (Haymore Sandholtz, Ringstaff, & Dwyer, 1997).

First strengthened through the use of technology, the teacher-led instruction and text-based curriculum delivery was replaced by far more dynamic learning experiences (Haymore Sandholtz, Ringstaff, & Dwyer, 1997, p. 37; Ravitz, Wong & Becker, 1998; Becker & Riel, 1999). According to Gearhart, Herman, Baker, Novak and Whittaker (1994) the invention level of technology instruction promotes the integration of content areas, use of varied resources, execution of challenging, open-ended, problem-based projects, completion of projects in collaborative teams, facilitation of learning by the instructor and communication of ideas with people outside of the classroom.

In a presentation at the Annual Meeting of the American Educational Research Association, Dede (1983) challenged educators to conceptualize how technology transforms the traditional classroom from a textual and auditory context to a visual environment in which complex cognitive materials are conveyed through multiple media. "It will take a long time for educators to master completely how best to use [technology]; four hundred years after its development, instructional usage of the book is still being refined" (Dede, 1983, p. 18). Matthew, Parker and Wilkenson (1998) reported that faculty
concerns were marked by stages. The early stages centered on internal concerns while later stages focused on external concerns relating to how the innovation may impact associates and students. The stages of concern as well as the phases of instructional change suggest the need for customized preparation programs that emphasize individual learning in the use of technology as well as redefining classroom environments and designing learning experiences that leverage the power of technology (CEO Forum, 1998).

As with most innovations, the integration of technology into existing systems has encountered resistance from users (Baker & O'Neil, 1994). Maintaining that technology-mediated-interactive learning would become a major form of instruction, Dede (1989) observed that some people strongly resist altering their interpersonal style to work or learn with a group using technology. Examining faculty concerns about technology changes at Louisiana Tech University, Matthew, Parker, and Wilkenson (1998) proposed that innovation requires change and a natural part of the change process is resistance. The most frequently encountered problems were a lack of active support, inadequate hardware/software, faculty who do not want to take risks and make commitments, and inadequate faculty development (Matthew, Parker, and Wilkenson, 1998, p. 333-334). Summarizing the results of a nationwide survey of teachers in grades four through twelve, Sheingold and Hadley (1990) identified inadequate amounts of hardware and time to plan and implement computer-based lessons as barriers to technology integration.
Data from a formative evaluation of computer-mediated communication (CMC) employed as a tool to facilitate collaboration and knowledge building suggested five barriers: (a) lack of time, (b) lack of access to hardware, (c) problems with software, (d) need for inservice training, and (e) lack of direction on how to integrate CMC with curriculum (Teles & Duxbury, 1991).

A study of the issues surrounding the use of computer-mediated-communication technology in an administrator preparation program disclosed that inhibitors to implementing technology were a lack of financial resources for hardware, software and infrastructure, and lack of time for professional development and planning (MacNeil & Harmon, 1998). One third of the teacher education institutions report deficiencies in their facilities limit their programs and their ability to integrate technology into the curriculum (CEO Forum, 1997; CEO Forum, 1998). However, the lack of time is the most often cited impediment to adopting technology (Means, Olsen, & Singh, 1995, p. 72).

Sheingold and Hadley (1990) listed three factors that contributed to teachers successfully integrating technology into their lessons: (a) the teachers' motivation and commitment to student learning and to their own professional development; (b) the support and collegiality within the schools and districts; and (c) access to the technology (p.23). Training, access, materials, shared experiences, group support and a commitment to the integration of technology have a strong impact on the quality and nature of faculty use of technology (Stevens & Lonberger, 1998, p. 342).
Similar to problem-based learning, the inventive use of technology provides benefits to the learner at the cognitive, affective, motivational and functional levels. Results of a two-year project investigating the large-scale impact of telecommunications technology indicated that participating students wanted responsibility for their own learning, were motivated by challenging and complex problems, preferred authentic learning related to real-world issues, and discovered collaborative teams supported learning (Kurshan & Lenk, 1994). Harasim, Hiltz, Teles, and Turoff (1995) theorized that collaboration provided among the most effective motivational, social, and cognitive benefits. Learners support one another in solving problems, sharing information, building knowledge, communicating ideas and exchanging perspectives. By increasing access to information, facilitating information sharing among peers, and allowing learners to research, analyze, and solve problems in teams, technology supports collaboration and knowledge-building (Teles, & Duxbury, 1991; Baker & Herman, 1988; CEO Forum, 1998).

Use of technology has augmented the ability to secure information and knowledge in unprecedented ways (Adler, 1994). Technological advancements have removed the constraints of time, distance and limited access to information while linking practitioners, researchers, and learners to address complex educational problems (Forsyth, 1987; Chow, 1989). The asynchronous ability of technology expands access and provides control over distance, time, and the pace of learning. Harasim, Hiltz, Teles, and Turoff (1995) submitted that the quality of the “exchange is enhanced through
increased opportunities to reflect on the message received or being composed" (p. 272). Technology provides a powerful environment where learners interact with peers, resources, and experts to build knowledge, develop skills, and promote reflective thinking (Baker & Herman, 1988; Harasim, Hiltz, Teles, & Turoff, 1995; Wood, Stevens, McFarlande, Peterson, Richardson, Davis & LeJuene, 1998).

A review of recent research showed that the use of technology over an extended period of time encouraged student-centered classes, cooperative learning, higher-level tasks, expanded learning environments, and more complex instructional materials (Baker & Herman, 1988; Dede, 1989; Rockman, Sloan, 1993; Haymore Sandholtz, Ringstaff, & Dwyer, 1997; Koufman-Frederick, Lillie, Pattison-Gordon, Watt & Carter, 1999). Moursund (1999) stated that strong evidence exists that “students and educators can and do learn effectively” using technology (p. 5). In a longitudinal study of the influence of high computer access, Tierney, et al (1992) claimed that learners’ skills and abilities continually expanded through the use of technology. This study identified eight student abilities enhanced by technology: (a) dynamic exploration and representation of information; (b) experimentation and problem solving; (c) social awareness and confidence; (d) effective communication; (e) computer use; (f) independence; (g) expertness and collaboration; and (h) a positive orientation to the future.

Summarizing three decades of research, Honey, McMillan, and Carrigg (1999) remarked that as the technologies have changed so have research
questions. In the 1970s, researchers explored the general, vague issue of whether or not technology improved student learning. In the late 1990s, researchers have begun investigating under what conditions and how specific technologies support sustained, substantial inquiry and analysis for all learners (Ravitz, Wong & Becker, 1998; Becker & Reil, 1999; Baker, 1999; Heinecke, Blasi, Milman & Washington, 1999; Honey, McMillan, and Carrigg, 1999). Based on a meta-analysis of computer based instruction, Kulik (1994) regarded technology innovation as a three stage process. Initially, innovations are vaguely defined. terms are used for a variety of procedures, and there is no clear conceptual basis. During the second level, the innovation has a conceptual basis but is implemented in a variety of ways. In the final level, the precisely defined innovation includes specific instructional materials, well-developed training procedures, and detailed prescriptive manuals. The focus of future research must not be on some vague notion of technology but pointed toward examining specific programs and their effect on learning, systemic reform, and school improvement (Honey, McMillan, and Carrigg, 1999).

Preparation Programs and Technology

Very few administrator preparation programs have used technology for collaboration, information analysis, problem solving, or learning (Wilson, 1993). One such attempt was the CoLab project at the Xerox Palo Alto Research Center in 1987. CoLab was designed as a meeting room to enhance group problem solving in face-to-face interactions. Xerox wanted a computerized conference room for engineers to brainstorm ideas. CoLab
enabled multiple people to post ideas using either text or graphics on a single, large, shared, computer screen. In the future, Dede (1989) implied that many aspects of CoLab would generalize to cooperative learning in education.

Another program, the Principals' Technology Leadership Training Program (PTLT) was a collaborative venture of the Center for School Improvement and the Performance and the Indiana Principals Leadership Academy. The building technology leaders were given four days of professional development throughout the year that included hands-on literacy sessions and exploration. Participants gained confidence in their use and understanding of technology for instruction, for decision-making and to increase efficiency (Rockman & Sloan, 1993).

Paula Silver developed the Advancing Principalship Excellence (APEX) project, a database of case descriptions and intervention strategies. Ultimately unworkable, APEX attempted to enhance educational leadership by sharing information about administrative practice. Virginia Tech and the University of Connecticut regularly used teleconferencing to discuss issues with national experts (Wilson, 1993; Cordeiro, Krueger, Parks, Restine, & Wilson, 1993). The British Open University used computer conferencing to provide hands-on technology experience, to improve communication with instructors, enhance peer interaction (Harasim, Hiltz, Teles & Turoff, 1995, p.109).

A simulation from Vanderbilt University and the Interactive Video Disk Instruction from Leadership Studies, Inc. used technology to simulate complex experiences that cannot be planned during on-site internships (Wilson, 1993).
London’s City University Business School utilized technology to create an artificial business environment in which students examined case studies in order to review issues, solve problems, and experience real-world pressures. The University of Michigan, collaborating with five to ten other universities, used computer conferencing simulations for Urban Planning. The simulation covered about forty years of the development of an actual metropolitan community and ran for about eight weeks (Harasim, Hiltz, Teles & Turoff, 1995, p. 81). A Danish consortium used technology to provide training for health workers using a problem-oriented approach. Teams spent two and half months collaborating on-line in order to solve issues of professional practice (Harasim, Hiltz, Teles & Turoff, 1995, p. 113).

In 1969, the UCEA began the six-year development of a simulation and in-basket activity entitled Monroe City. The ten scenarios included several in-basket activities, a slide-presentation of the neighborhood, recorded interviews with community members, and documents such as memos, notes, or telegrams. Accompanying the simulations were videos, background booklets, maps, and tables, as well as school system facts on attendance, trends, and dropout rates. Supplemental materials provided instructors tools and models for applying concepts and theories to Monroe City’s problems. In 1975 with only half of the simulations completed, the project ended due to mixed ratings by instructors, inadequate funding, conflicting priorities within the UCEA (Culbertson, 1995).
The UCEA in cooperation with McGraw-Hill Publishers outlined the Knowledge and Research Project that served as a basis for flexible textbook technology. Called Primus, the project sought to compile information in seven content areas that would be dynamic and continue to grow. Primus included the development of a domain taxonomy, a narrative content overview, an annotated bibliography, a selective list of illustrative articles, and a case reflecting important issues. Funding for phase two of the project was never realized as the project fell apart due to marketing and reorganization concerns at McGraw-Hill, copyright issues, and lack of funding to expand the initial information base (Forsyth, 1999).

**Information Environment for School Leadership Preparation**

In the late 1980s the UCEA envisioned the Information Environment for School Leader Preparation (IESLP), an "innovative World Wide Web-based instructional software grounded in inductive or problem based learning assumptions" (Short, Forsyth, McIsaac, & Grabowski, 1994). The World Wide Web (WWW) is a powerful navigational tool that provides access to vast educational resources, supports a learner-centered setting through a non-linear structure, and furnishes a dynamic environment not possible with traditional printed materials (Jin & Willis, 1998). Using Internet technologies, the IESLP system was designed to deliver integrated, sequenced learning experiences, emphasize authentic problems of practice, provide school leaders the tools of modern technology, and create the capacity to make information-based individual and group decisions (Mayer, Crawford, & Forsyth,
Although technology is essential to the delivery of the IESLP resources, learners work in face-to-face groups on problem exercises using computers as they do or will in professional practice (UCEA Review, 1998).

In response to preparation program reform recommendations, the UCEA developed IESLP to replace obsolete simulation activities designed in the 1970s and simplistic in basket activities which defined administrative practice as reacting to problems rather than emphasizing a proactive stance (UCEA Review, 1998; Forsyth, 1999). Grounded in problem-based learning assumptions, IESLP provides authentic problems in an authentic environment as well as the necessary tools to solve those problems in a collaborative setting (UCEA Review, 1998; Mayer, Crawford & Forsyth, 1998, p. 5). Designed as a cross-disciplinary educational resource IESLP uses the information from existing school districts and university research library resources as a backdrop for problem-based learning activities (Forsyth, 1999; Remidez, 1998). Considering the advancement of technology and frequent changes in information, Hart and Pounder (1999) suggested that IESLP may indeed be the future of preparation programs. The purpose of IESLP was to provide a relevant integrated approach to administrator preparation that would advance the knowledge and skills of school leaders in the use of information and collaboration in order to make decisions that would improve student learning (Forsyth, 1999).
Summary

The goal of university preparation programs in the past was to disseminate specific information; their new task is to educate learners to access, analyze, interpret and use a universal data base of knowledge (MacNeil, & Harmon, 1998). Technology provides the means and opportunity for school districts and universities to collect, store, retrieve, and analyze information related to the practice of school administration (Forsyth, 1987). Hershey (1986) asserted that when embedded in a "realistic simulation, the principles of modeling, rehearsal, and reinforcement can lead to rapid skill development, participant enthusiasm, and effective transfer of skills to on-the-job performance" (Quoted in Reynolds, 1994, p. 7). The innovations in IESLP may have a major impact on the instructional delivery and the revamping of administrator preparation programs (Hart & Pounder, 1999). Jin and Willis (1998) declared that writing a better textbook will not address the need for relevant, complex instructional resources, however, taking advantage of available technology and creating an electronic resource that provides administrators with the experiences, knowledge base, and skills necessary for practice will.

Murphy (1992) hypothesized that preparation programs would employ instructional strategies other than direct instruction and lecture. Additionally, these new modes of instruction would be "so tightly interwoven with issues of program content that it will be impossible to pull them apart" (p. 154). Creating a dynamic delivery mode that encourages collaboration, promotes information
access, fosters problem solving and centers on the learner should redefine the content and the presentation method of administrator preparation (Clark, 1994; Wood, Stevens, McFarlande, Peterson, Richardson, Davis, & LeJuene, 1998). Results of the ACOT studies demonstrated that the creation of an innovative, collaborative environment could act as a catalyst toward change (Haymore Sandholtz, Ringstaff, & Dwyer, 1997).

Although, models for effective preparation programs exist (Witters-Churchill & Erlandson, 1994), the issue of technology assimilation into school administration has not been thoroughly reviewed (Barta, Telem, & Gev, 1995). Mackett, Frederick, and Abrams (1992) noted that research on the organizational effect of technology has focused on business rather than education. The impact of technology on education continues to be unclear (Crane & Spoon, 1998). In order to provide a model for change and address the current issues, the Milken Exchange (1998) recommended that researchers identify, study, and disseminate examples of effective technology integration. Informal and formal data should be collected from multiple sources to assess the impact of technology integration on student outcomes, teacher instruction, administrative practices (Clark, 1994; Riedl, Smith, Ware, Wark, & Yount, 1998, p. 313). With the efficacy of administrator preparation programs being disputed (Brent, Haller, & McNamara, 1997; Brent & Haller, 1998; Dembrowski, 1998), the serious examination of specific programs that seek to reform traditional structures and content is imperative (Wiggins, 1992; Anderson, 1994). Therefore, this study will describe and examine the barriers,
incentives, and challenges encountered during the development and implementation of IESLP as well as the use of IESLP as a learning environment, instructional tool, and a communication medium for the preparation of administrators.
CHAPTER 3

METHOD

Background of Study

In response to criticisms raised in A Nation at Risk (1983), many states and school districts began to scrutinize performance assessment methods for students and teachers (Adelmna & Pringle, 1995; Miller, 1987; Daresh & Playko, 1992). Subsequent studies announced the failure of public education and recommended sweeping reforms to address the future challenges faced by society and schools (Stevens & Lonberger, 1998). However, these recommendations did not focus on the role, performance, or preparation of the administrators until the late 1980s (Murphy, 1992; Gresso, 1993; Schneider, 1998). With the realization that administrators played a key role in the success of schools, educational critics began to examine the role of administrators and the efficacy of administrator preparation programs (March, 1974; Murphy, 1992).

Between 1985 and 1990, national organizations called for the transformation of preparation programs (Duke, 1992). Daresh and Playko (1992) noted that although planning occurred in most university programs, it was little more than periodic review of twenty years of coursework using the same old deteriorating lecture notes (p. 141). Recognizing that many university programs offered ineffective coursework, used outmoded instructional
strategies, and did not serve administrator practice (Achilles, 1987; Murphy, 1992; Daresh & Playko, 1992; Cordeiro, Krueger, Parks, Restine & Wilson, 1993), the National Commission on Excellence in Educational Administration (1987) made a series of recommendations for the improvement of administrator preparation. Recommendations noted the need for clinical experiences, problem-based learning, data-driven decision making and technology competence (Forsyth, 1987; Griffiths, Forsyth & Stout, 1988; Engle, 1990; Murphy & Forsyth, 1999). The development of conceptual and structural guidelines were needed to direct public education and administrator preparation program reform (NASSP, 1992).

Brent and Haller (1998) argued that given the stress educational policy makers placed on extensive formal training in educational administration, ascertaining the impact of administrator preparation was imperative. With the efficacy of administrator programs being questioned (Brent, Haller, & McNamara, 1997; Brent & Haller, 1998; Dembrowski, 1998), serious review of specific program reform efforts are warranted (Anderson, 1994). Barta, Telem, and Gev (1995) noted that the issue of technology assimilation into school administration had not been thoroughly reviewed. Having focused on the organizational effects of technology in business, researchers remain unclear regarding the impact of technology on education (Mackett, Frederick & Abrams, 1992; Crane & Spoon, 1998). In order to provide a model for change and address the current issues, the Milken Exchange (1998) recommended that researchers identify, study, and disseminate examples of effective technology
integration. A university implementing innovative administrator preparation programs should expect to encounter individual as well as organizational issues, concerns, and challenges (Ubben & Fowler, 1992). In order to provide insight into these issues, this descriptive case study chronicled and examined the development and implementation of the Information Environment for School Leadership Preparation (IESLP) program in the preparation of administrators.

**Problem Statement**

Using a descriptive case-study model, this study examined the IESLP program as a learning environment, instructional tool, and communication medium for preparing future administrators by describing the genesis, design, content development, and implementation of the program.

**Purpose of the Study**

Haller, Brent, and McNamara (1997) suggested that a need existed to revamp graduate administrator preparation although the nature of the changes was unclear. This study was designed to chronicle the development and implementation of IESLP as an instructional tool, a learning environment and a communication medium within administrator preparation programs. The IESLP program is a unique and innovative tool that promotes the use of problem-based learning, technology, collaboration, and data-driven decision-making in the instruction of preservice administrators. Therefore, it is important to scrutinize the incentives and barriers to the teaching/learning process due to the use of IESLP. This study has added to the literature base by identifying the benefits, challenges and issues associated with the use of the Internet.
environment within a face-to-face course. Finally, this study examined the cultural transmission with regard to the participants' attitudes toward and use of the IESLP program as a data collection, research, and communication tool to solve "real world" problems encountered by school administrators.

**Research Questions**

The focus of this study was on answering the following research questions:

1. **Does the IESLP program implement the recommendations presented in *Leaders for America's Schools* (Griffiths, Stout, Forsyth, 1988)?**

2. **What benefits, issues, and challenges does the use of the IESLP program in administrator preparation courses present to developers, designers, instructors, and students?**

3. **What barriers or incentives exist in using IESLP as an instructional tool?**

4. **Does IESLP incorporate the best practices of applying technological tools, as defined in this study, to administrative practice?**

5. **How does the use of IESLP, as an instructional tool, effect participants' attitudes about technology?**

6. **Does the use of IESLP produce the conditions under which the attitudes and skills necessary to integrate technology into administrator practice are transmitted and acquired?**
Research Design

Between 1987 and 1992, the Danforth Foundation provided twenty-two universities funding in order to initiate preparation program reform. The selected universities represented departments that had begun to initiate alternative approaches as well as those that were preparing to begin reform efforts (Gresso, 1993; Cordeiro, Krueger, Parks, Restine, & Wilson, 1993). The Danforth Programs for the Preparation of School Principals advanced the recommendations for alternative approaches to administrator preparation outlined in Leaders For America's Schools (Griffiths, Forsyth & Stout, 1988; Murphy, 1992; Cordeiro, Krueger, Parks, Restine, & Wilson, 1993). In 1991, a study examined the impact of the Danforth-sponsored programs, noted differences and similarities among the preparation programs, provided descriptive data, and identified the circumstances that impacted the success of the alternative programs (Ubben, & Fowler, 1992; Cordeiro, Krueger, Parks, Restine, & Wilson, 1993). The consortium conducted descriptive case studies to examine specific issues, concerns, and barriers in the genesis of the preparation programs (Witters-Churchill & Erlandson, 1990). Using the naturalistic inquiry method proposed by Lincoln and Guba (1985), researchers conducted case studies, attempted to provide thick description for each program, interviewed a sampling of university professors and principals, used triangulation and member checks to evaluate data, and formulated a framework of promising practices (Gagne, 1990). Similarly, a descriptive case study utilizing the ethnographic techniques of stakeholder interviews and
document analysis was selected as the appropriate research design for this study.

Goetz & LeCompte (1984) noted that qualitative studies of a phenomenon, particularly an organizational innovation, have become more common. Wolcott (1990) asserted that due to wide acceptance within the last two decades, researchers no longer need to defend the use of qualitative design nor provide an exhaustive review of the literature about qualitative methods. Maxwell, Bashook and Sandlow (1986) suggested that the "critical examination of alternative hypotheses, and not the use of specific research techniques" should be the focus of research and evaluation (p. 140). Additionally, Fetterman (1986) argued that researchers have overemphasized the importance of the design and allowed specific tools to dictate the research methodology. Goetz and LeCompte (1984) posited that quantitative and qualitative researchers share common decisions regarding "developing a focus or problem situated within a theoretical perspective, choosing data sources that permit examination of the problem, assuming a position or role toward the data sources, developing a means for obtaining data from their sources, and analyzing the data acquired for its relevance to their focus or problem" (p. 7).

Since no a priori hypotheses existed, this study employed an inductive, and generative qualitative case study methodology (Goetz & LeCompte, 1984; Borg & Gall, 1989; Pitman, 1991). Merriam (1988) defined a case study as an intensive, holistic description of a social system or phenomenon emphasizing...
how people make sense of their experiences and their interpretations of the experiences. This case study focused on understanding the barriers, incentives, and challenges encountered during the development and implementation of the IESLP program "in its own terms, according to its own criteria of meaningfulness" (Wilcox, 1982, p. 459). Therefore, the researcher could not have predicted in advance which aspects of the development and implementation process would have significance. Just as the problem statement determined initial data gathering, stakeholder interviews and document analysis directed further data collection in order to create a thick descriptive account of the development and implementation of the IESLP program (Wolcott, 1990; Pitman, 1991).

Educational researchers are faced with a jumble of direct and indirect variables (Nash, 1974; Crawford, 1994) entrenched in a set of values about how programs should or should not be realized (Cambron-McCabe & Foster, 1994). Quantitative methodology attempts to physically or statistically control mitigating variables resulting in context stripping or assessing participants as though they existed under carefully controlled conditions (Guba & Lincoln, 1989). Guba and Lincoln (1981) maintained that all phenomena exist in a dynamic context characterized by interactivity and researchers must seek to understand the influence of that context. A strength of qualitative approaches is that they can directly investigate causal processes that are unavailable to quantitative experimental designs (Maxwell, Bashook & Sandlow, 1986). The complexity of the issues, concerns and challenges encountered while
implementing the IESLP program could have only been understood by describing and analyzing the patterns of interactivity, not isolated variables. It is doubtful that quantitative methodologies would identify these labile, complex patterns. "It is patterns that must be searched out, less for the sake of prediction and control than for the sake of understanding" (Guba & Lincoln, 1981, p. 57).

In order to offer insights into the contribution of the technology-based innovation to educational administration preparation, it was necessary to develop a historical understanding of the contexts in which the innovation was developed and implemented (Goodson & Mangan, 1991). A descriptive case study approach provided this researcher with the opportunity to interview participants as people rather than subjects (Wolcott, 1990) and to provide a rich descriptive analysis of the contexts, activities, and beliefs of participants in the IESLP program (Guba & Lincoln 1981; Guba & Lincoln, 1985; Guba & Lincoln, 1989). It was the position of Guba and Lincoln (1981) that the qualitative methodologies provided the best fit for all social-behavioral inquiry and certainly for the descriptive investigation of this innovative Internet environment. In order to understand causal relationships within the IESLP program, this researcher employed ethnographic techniques to conduct the case study (Wolcott, 1982). Peshkin (1982) identified ethnographic techniques as particularly appropriate for exploring phenomena that do not have an extensive literature base or for which other approaches have not developed promising variables (p. 53). Both of these conditions exist within the IESLP program since
the impact and use of Internet technologies for the preparation of pre-service
administrators has not been thoroughly reviewed and remains unclear (Wilson,
1993; Bart, Telem & Gev, 1995; Crane & Spoon, 1998).

Seigel (1974), Spindler (1987), and Warren (1987) conceived of
education as a cultural transmission. Cultural transmission includes the
transmission of tradition and the transmission of new knowledge from
someone who knows to someone who does not (Nash, 1974; Singleton, 1974,
p 28; Warren, 1987). Based on this concept, the school acts primarily as a
cultural agent, "transmitting a complex set of attitudes, values, behaviors, and
expectations" (Nash, 1974; Wilcox, 1982, p. 463). Semi-structured interviews
and document analysis were used to understand the issues, concerns, and
challenges surrounding the IESLP program from as many points of view as
possible (Fetterman, 1984; Simon, 1986) and to identify discrete elements as
levers of change within a network of interrelationships (Fetterman, 1986). This
researcher conducted a holistic case study of the intended and unintended
consequences as well as the socio-cultural contexts encountered during the
development and implementation of the IESLP program (Fetterman, 1984;
Goetz & LeCompte, 1984; Fetterman, 1986).

Wolcott (1994) listed three major modes through which qualitative
researchers gather data; interviewing, document analysis, and participant
observation. Memos, correspondence, on-line chat transcripts, manuals,
proposals, presentations, student work, and other related communications
between and among stakeholders were examined during this study. However,
interviews with key stakeholders in the IESLP project were the primary method for gathering data. In order to avoid limiting the frame of reference and prevent conditioning of respondents, general questions were asked first (See Appendix II). Participants were allowed to diverge from the semi-structured interview questions in order to add comments that clarify the discussion (Borg & Gall, 1989). Questions that imply or suggest a response were not used. This technique permitted the researcher to query comments and ideas that seem informative and enlightening. Guba and Lincoln (1981) recommended the use of semi-structured interviews when the researcher (a) chooses participants who have special knowledge; (b) focuses on a subject in depth; (c) operates in a discovery rather than a verification mode; (d) is interested in direct interaction with respondents; (e) seeks to uncover some motivation, intent, or explanation as held by the respondent; and (f) attempts to ascribe meaning to a situation or circumstance.

To enhance communication during interviews, become familiar with the IESLP project, and to develop a common language, this researcher attended a conference presentation about IESLP and observed students and their instructor interact while using the program (Goetz & LeCompte, 1984). Borg and Gall (1989) defined content validity as the degree to which information derived from sample questions represented the information that the questions were designed to measure (p. 276). The content validity of the semi-structured interview was heightened through procedural refinement and field testing. These activities enabled the researcher to clarify statements, discern
appropriateness of the questions, and estimate the time necessary to complete an interview (Bogdan & Bilken, 1982). Initially, a qualitative research methods professor in the education department at University of Nevada, Las Vegas reviewed the semi-structured questions and interview protocol. Field-testing was conducted with Larry McNeal, professor in the educational leadership department at the University of Arkansas, Little Rock. A leading researcher, Larry McNeal was a content developer on the IESLP project. All comments and suggestions for improvements were documented and incorporated into the final version of the semi-structured interview questions.

All interviews were audiotaped and transcribed (Fowler, 1988). Six interviews were face to face and five were conducted over the telephone at a time and location agreed to upon by the researcher and the respondents. All research data such as audiotapes, online-chats, transcripts, and other written documents were secured in a private locked facility for three years. Participants were given an opportunity to review the reported data for verification of content and interpretations as well as a written copy of summary findings to review for accuracy and clarity. In-depth semi-structured interviews provided an account of the IESLP project in the respondent’s own language, minimized misunderstanding between the researcher and the respondents, and provided the researcher access to those with specialized knowledge about the project (Guba & Lincoln, 1981).
Population

Several groups were involved in the genesis, design, content development, and implementation of the IESLP program. From the inception of IESLP, a management team oversaw the coordination and organization of these groups during the various implementation phases. Exercise, software, and rural environment developers contributed to the design and construction of the IESLP environment. The implementation phase involved university instructors and students from four UCEA affiliated universities. Stakeholders from each group were interviewed regarding their perceptions of their roles, expectations, successes, concerns, and challenges while involved in the IESLP program.

Participants were chosen because of their unique knowledge of and involvement in the IESLP program from inception to the beta-test year 1999. Bogdan and Bilken (1992) stated that informed consent and protection from harm enhances the voluntary cooperation of respondents and minimizes their exposure to risks. A copy of the research proposal, a overview of the interview questions, and an Informed Consent letter were given to each respondent prior to beginning the study (See Appendix I). Prior to each interview, participants were told that the interview will be stopped upon their request and that they may choose to not participate any time during the study. Unless express and explicit permission is given by the respondent to report otherwise, references to individual respondents by name were kept strictly confidential. To the extent possible every effort was made to protect the anonymity of all participants.
Researcher

By virtue of the researcher defining the problem, collecting certain data, analyzing the data, and determining the information to report, the researcher is a key instrument in any qualitative study (Bogdan & Bilken, 1982; Simon, 1986; Warren, 1987; Pitman, 1991). As a requisite for conducting an informed and critical study, the researcher must have insight, be familiar enough with the topic to comment intelligently, understand and be able to report the perceptions of those involved, be capable of delineating pertinent information, and bring a new perspective, informed by theory and reflection into the discussion (Strauss & Corbin, 1990; Goodson & Mangan, 1991; Wolcott, 1994). Wolcott (1994) asserted that by “the very act of constructing data out of experience, the qualitative researcher singles out some things as worthy of note and relegates other to the background” (p. 13). Furthermore, Bogdan and Bilken (1992) emphasized that researchers report and interpret the data based on personal beliefs and biases. In order to address these biases, it is important to note the background of the researcher (Bogdan & Bilken, 1982).

At the time of this study, this researcher had been a public school educator for twenty years beginning in 1979. Of those years, twelve were as a classroom teacher in the subjects of music, mathematics, and computers. For one year in the role of computer strategist, this researcher provided peer mentoring for the purpose of integrating technology into classroom instruction across all disciplines. Seven years were in administration both at the site level and district central-office level. The use of technology by teachers and
administrators for instruction, research, communication, managerial tasks, and decision making was a key component in each of these administrative positions. These circumstances have contributed to an enhanced understanding of and cultivated personal beliefs about the use of technology and the preparation of administrators. Recognizing these biases, this researcher attempted to suspend preconceptions and to remain open in order to focus on participant constructs during the discovery and inquiry processes within this study (Peshkin, 1982; Goetz, & LeCompte, 1984; Pitman, 1991; Wolcott, 1994).

Data Analysis

Extending beyond pure description, data analysis is a systematic method of organizing and reporting information to identify key factors and relationships (Wolcott, 1994). This study utilized a grounded theory approach in that the theories emerged from or were grounded in the data (Strauss & Corbin, 1990). As outlined in the grounded theory approach, a systematic set of procedures were designed to identify themes, their relationships, the context, and the process within the IESLP project thereby providing a theory of the phenomenon that extended beyond description (Becker, 1993). The analysis involved three processes: (a) open coding in which relevant themes were identified; (b) axial coding in which themes were refined and related; and selective coding in which central themes that connect other concepts were identified and related.
Following each interview, this researcher summarized notes beginning the initial analyses by recording issues, concerns, and descriptors (Guba and Lincoln, 1985; Pitman & Dobbert, 1986, Wolcott, 1994). Guba and Lincoln (1981) defined concerns as any matter about which the respondent felt threatened or believed would lead to undesirable consequences and issues as points of contention (p. 92). In the initial stage of analysis, this researcher divided information into observational, conjectural, and operational notes (Guba & Lincoln, 1981). In order to identify key problems confronting respondents, the notes were studied for paradoxes, issues, and concerns about which all of the respondents either agree or disagree (Millman & Gowin, 1974; Wolcott, 1994).

The systematic, periodic, and recurrent examination and organization of data from different sources in order to increase the researcher's understanding and ability to report findings to others is key to analysis (Millman & Gowin, 1974; Bogdan & Bilken, 1982; Bogdan & Bilken, 1992; Wolcott, 1994). Although, researchers have suggested various strategies for organizing data analysis, there seems to be no one right way (Millman & Gowin, 1974; Peshkin, 1986; Guba & Lincoln, 1981; Merriam, 1988; Pitman & Dobbert, 1986; Wolcott, 1994). However, Guba and Lincoln (1981) outlined two stages of interview data analysis. "The first is the analysis of the single interview, taking into account the respondent's personal context, the possibility of respondent bias, the credibility of what has been reported, and the interactions between interviewer and respondent. The second is the analysis of the interview as part of a larger
set of interview data, which will be integrated to form the total inquiry" (Guba & Lincoln, 1981, p. 178).

The trustworthiness of all research is judged by its applicability, replicability, and comparability across groups (Goetz & LeCompte, 1984). Several procedures for establishing reliability (replicability), validity (applicability), and generalizability (comparability across groups) exist. These procedures include (a) prolonged engagement, (b) depth of scope, (c) disinterested peer debriefing, (d) negative case analysis, (e) researcher bias monitoring, (f) triangulation, (g) member checks, (h) thick description, and (i) external audits (Guba & Lincoln, 1989; Creswell, 1998). Stake (1995) advocated researcher bias monitoring, triangulation, member checks, and thick description as appropriate procedures for case study methodology.

Monitoring researcher bias began with a review of the researcher’s natural biases that have resulted from past experiences in public education, as an educational administrator, and with the use of technology. As a strategy for clarifying researcher biases, Wolcott (1990) suggested that after periods of neglect the researcher will “do a better job of strengthening the interpretation, spotting discrepancies and repetitions, locating irregularities in sequence or logic, and discover overworked words, phrases, and patterns” (p. 50). Intrarater reliability is the degree to which this researcher agrees with initial judgments about the same data at a later time (Bogdan & Bilken, 1982). Reevaluating the consistency of data coding, notes, and findings after a three to four week period of time checked researcher biases and intrarater reliability.
A process of comparing and contrasting information collected from two or more different sources of data, triangulation strengthens the validity and reliability of the study (Guba, & Lincoln, 1981; Wilcox, 1982). Comparing the summaries and findings against the raw descriptive material provides a check; if the findings don’t match the data, something must be wrong with the analysis (Wolcott, 1990). This researcher reviewed documents with regard to their history, completeness, original version, the author, the writer’s source of information, the writers’ bias, and the existence of corroborating data (Guba & Lincoln, 1989). Guba and Lincoln, (1981) declared that the triangulation of data was the “best means of ensuring that one will be able to make sense of data collected through interviews” (p. 155).

Determination of validity was accomplished through member checks. In member checks, respondents were given data and interpretations for review and asked if they find the results plausible and accurate (Guba & Lincoln, 1981; Stake, 1995). All respondents involved in the case study of IESLP were requested to assess the intent, review materials, provide additional information, and corroborate the findings (Guba & Lincoln, 1989). After the respondents reviewed developing drafts, suggestions and comments were included in subsequent drafts (Wolcott, 1990). Goetz and LeCompte (1984) professed that although reliability poses a threat, validity may be a major strength of qualitative studies. Diversified data compared over time in multiple ways strengthens the likelihood that the researcher is actually measuring what was intended to be measured (Goetz & LeCompte, 1984).
The generalizability of the study may be limited to the population studied for three reasons. First, the data collected through stakeholder interviews about their expectations, concerns, and challenges will be dependent upon self-reflection and self-analysis by the respondents. Therefore, the reported data are limited by honesty and accuracy of the interviewees (Borg & Gall, 1989). Secondly, a critical variable in student learning "is the instructor - particularly the differences among instructors." These differences may be due to normal variations in teaching techniques. However, these differences could indicate that instructors did not have a shared understanding of their program's purposes (Engel, 1990, p 39). Conversely, participants in a preparation program bring with them core beliefs that may limit the impact of the training (Sergiovanni, 1994).

When speaking of his qualitative study of the principalship, Wolcott (1982) quipped that the "tricky part will continue to be in relating the micro-culture to the macro-culture" (p. 91). Generalizing to the population at large remains to be the tricky part of all research. When quantitative designs do not adequately consider context and meaning, their results may be significantly less generalizable than the results of a comprehensive qualitative study (Spindler, 1982, p. 8). An important technique for establishing generalizability is thick description. A comprehensive and detailed descriptive account of the genesis, design, development, and implementation of the IESLP program from inception to the beta test year of 1999 was provided (Simon, 1986; Guba, & Lincoln, 1989). Using thick description, the study provided a literal description...
the circumstances surrounding the development and implementation of IESLP (Guba & Lincoln, 1981; Wilcox, 1982). To strengthen generalizability, attributes of the IESLP project that are salient for comparison with similar phenomenon were clearly described and identified (Goetz & LeCompte, 1984, p. 229). In an effort to enhance external reliability of this study, this researcher addressed (a) researcher bias, (b) respondent selection, (c) social contexts, (d) theoretical assumptions, and (e) procedures for collecting and analyzing data (Goetz & LeCompte, 1984, p. 214 - 217).

Significance

Technology provides the means and opportunity for school districts and universities to collect, store, retrieve, and analyze information related to the practice of school administration (Forsyth, 1987). Hershey (1986) asserted that a realistic simulation could enhance skill development, participant enthusiasm, and transference of skills to on-the-job performance. The innovations in IESLP may have a major impact on the instructional delivery and the revamping of administrator preparation programs (Hart & Pounder, 1999). Based on the ACOT studies, Haymore-Sandholtz, Ringstaff and Dwyer (1997) found that the creation of an innovative, collaborative environment could be a catalyst toward change. By taking advantage of available technology and creating an electronic resource that provides administrators with the experiences, knowledge base, and skills necessary for practice, IESLP addresses the need for relevant, complex instructional resources (Jin & Willis, 1998). Subsequently, IESLP should redefine the content and the presentation method of administrator
preparation programs through collaboration, information access, problem solving, and learner-centered instruction (Wood, Stevens, McFarlande, Peterson Richardson, Davis & LeJuene, 1998).

With the efficacy and necessity of administrator preparation programs being disputed (Brent, Haller, & McNamara, 1997; Brent & Haller, 1998; Dembrowski, 1998), serious examination of specific programs that seek to reform traditional structures and content is imperative (Anderson, 1994). By creating the IESLP program, the UCEA fundamentally altered the learning environment, instructional content, and delivery of leadership preparation programs. Although effective university preparation programs exist (Witters-Churchill & Erlandson, 1990), the issue of technology assimilation into school administration has not been thoroughly reviewed (Barta, Telem, & Gev, 1995). In order to provide a model for change and address the current issues, the Milken Exchange (1998) recommended that researchers identify, study, and disseminate examples of effective technology integration. To this end, this descriptive case study utilized semi-structured interviews and document analysis to chronicle and examine the genesis, design, development, and implementation of IESLP as a learning environment, an instructional tool and a delivery mode for the preparation of administrators.
CHAPTER 4

FINDINGS AND DATA ANALYSIS

Introduction

Responding to criticisms raised in *A Nation at Risk* (1983), many states and school districts mandated performance assessments for students and teachers (Adelmna & Pringle, 1995; Miller, 1987; Daresh & Playko, 1992). However, these mandates did not focus on the role, performance, or preparation of the administrators until the late 1980s (Murphy, 1992; Gresso, 1993; Schneider, 1998). With the realization that administrators played a key role in the success of schools, educational critics began to examine the role of administrators and the efficacy of administrator preparation programs (March, 1974; Murphy, 1992).

Upon inspection, the instructional models and course content used by many universities' preparation programs were inadequate (Murphy, 1992). Sarason (1993) observed that curricular augmentations have been used to address program weaknesses rather than restructuring assumptions and practices. Additionally, emphasis on the advancements in modern technology or the "real world" application of research-based knowledge was rare (Daresh & Playko, 1992; Wilson, 1993). Recognizing the need to transform preparation programs, the National Commission on Excellence in Educational

Rather than disseminate specific information, the new goal of university preparation programs is to educate learners to access, analyze, interpret, and use a universal database of knowledge (MacNeil, & Harmon, 1998). In order to redefine administrator preparation, programs should employ an instructional strategy and dynamic delivery mode that encourages collaboration, promotes information access, fosters problem solving, focuses on content, and centers on the learner (Murphy 1992; Clark, 1994; Wood, Stevens, McFarlane, Peterson, Richardson, Davis, & LeJuene, 1998). Technology provides the means and opportunity for school districts and universities to reform the preparation of school administrators (Forsyth, 1987). The use of authentic simulations can lead to the rapid skill development, increased motivation, and the effective transfer of skills to on-the-job performance (Reynolds, 1994). Results of the Apple Classrooms Of Tomorrow (ACOT) studies demonstrated that the creation of an innovative, collaborative environment could act as a catalyst toward change (Haymore Sandholtz, Ringstaff, & Dwyer, 1997).

When creating the Information Environment for School Leadership Preparation (IESLP), the University Council Of Educational Administration...
(UCEA) fundamentally changed the content and delivery of preparation programs (Mayer, Crawford, & Forsyth, 1998) in order to help school leaders assess areas of need and improve student achievement (Downey, 1998, p. 15). IESLP employed problem-based learning, real-world data, and collaborative teams to discover, address, and solve problems from the field. Furthermore, IESLP required students to use technology as administrators would in the field for productivity, research, decision-making, communication, and publishing. By utilizing technology enriched instruction to provide preservice administrators with the experiences, knowledge base, and skills necessary for practice, universities could address the need for relevant programs (Jin & Willis, 1998). Through collaboration, information access, problem solving, and learner-centered instruction, a web-based instructional environment should redefine the content and the presentation method of administrator preparation programs (Wood, Stevens, McFarlande, Peterson Richardson, Davis, & LeJuene, 1998). The innovations in IESLP may have a major impact on the instructional delivery and the revamping of administrator preparation programs (Hart & Pounder, 1999).

In order to provide a model for change, the Milken Exchange (1998) recommended that researchers identify, study, and disseminate examples of effective technology integration. The development of conceptual and structural guidelines are needed to direct public education and administrator preparation program reform (NASSP, 1992). A need exists to study and disseminate effective technology-rich programs to determine whether or not the results of
these approaches justify the changes made (Gagne, 1990; Witters-Churchill, & Erlandson, 1990; Clark, 1994). Innovative administrator preparation programs deserve the attention of both practitioners and researchers (Daresh & Playko, 1992; Clark, 1994).

**Purpose of the Study**

With educational critics and researchers questioning the effectiveness and the impact of graduate administrator training, interest in revamping university educational administration preparation programs was well founded (Sergiovanni, 1994; Haller, Brent, & McNamara, 1997; Achilles, 1998). Achilles and Ramey (1990) suggested that due to the limited research about university educational administrator preparation, programs have been built upon tradition with minimal evaluation and data-driven decision-making for program enhancement. In an interview, Forsyth noted that while there have been a number of efforts devoted to improving educational administration preparation, "we have largely ignored our responsibility to evaluate our innovations" (Mountjoy, 1998, p. 6).

The IESLP program is a unique and innovative tool that promotes the use of problem-based learning, technology, collaboration, and data-driven decision-making in the instruction of preservice administrators (UCEA, 1993; Nash, 1998). When implementing innovative administrator preparation programs, universities should expect to encounter individual as well as organizational issues, concerns, and challenges (Ubben & Fowler, 1992). In order to provide insight into these issues, this descriptive case study utilized
semi-structured interviews and document analysis to examine the genesis, design, development, and implementation of IESLP as a learning environment, an instructional tool, and a communication medium when training preservice administrators.

It was important to scrutinize the incentives and barriers to the teaching/learning process due to the use of IESLP. Benefits, challenges or issues associated with the use of this Internet environment within a face-to-face course were identified. Finally, this study examined the cultural transmission with regard to the participants' attitudes toward and use of the IESLP program for communication and data analysis to solve "real world" problems encountered by school administrators. The literature base was added to by identifying the benefits, challenges and issues associated with the development and implementation of an innovative technology-rich instructional method for the preparation programs for school leaders.

**Problem Statement**

Using a descriptive case-study model, this study examined the IESLP program as a learning environment, instructional tool, and communication medium for preparing future school administrators by describing the genesis, design, content development, and implementation of the program.

**Research Questions**

The focus of this study was on answering the following research questions:
1. Does the IESLP program implement the recommendations presented in *Leaders for America's Schools* (Griffiths, Forsyth, & Stout, 1988)?

2. What benefits, issues, and challenges does the use of the IESLP program in administrator preparation courses present to developers, designers, instructors, and students?

3. What barriers or incentives exist in using IESLP as an instructional tool?

4. Does IESLP incorporate the best practices of applying technological tools, as defined in this study, to administrative practice?

5. How does the use of IESLP, as an instructional tool, effect participants' attitudes about technology?

6. Does the use of IESLP produce the conditions under which the attitudes and skills necessary to integrate technology into administrator practice are transmitted and acquired?

**Data Collection**

In order to offer insights into the contribution of IESLP to educational administration preparation, this researcher conducted a case study of the socio-cultural contexts encountered during the genesis, development, and implementation of the IESLP program (Fetterman, 1984; Goetz & LeCompte, 1984; Fetterman, 1986; Goodson & Mangan, 1991). Merriam (1988) defined a case study as an intensive, holistic description of a social system or
phenomenon emphasizing how people make sense of their experiences and their interpretations of the experiences. This case study focused on understanding the perceptions of the participants in the IESLP program "in [their] own terms, according to [their] own criteria of meaningfulness" (Wilcox, 1982, p. 459). Therefore, the researcher could not have predicted in advance which aspects of the development and implementation process would have significance. Since no a priori hypotheses existed, this study employed an inductive and generative qualitative case study methodology (Goetz & LeCompte, 1984; Borg & Gall, 1989; Pitman, 1991).

Wolcott (1994) listed three major modes through which qualitative researchers gather data: interviewing, document analysis, and participant observation. Utilizing semi-structured interviews and document analysis, a case study was conducted in order to understand, from multiple perspectives, the issues, barriers, incentives, and challenges surrounding the IESLP project (Fetterman, 1984; Simon, 1986). Memos, correspondence, on-line chat transcripts, manuals, proposals, presentations, student work, meeting notes, agendas, and other related communications between and among stakeholders were examined during this study. However, interviews with key stakeholders who had unique knowledge of the IESLP project were the primary method for gathering data. In-depth semi-structured interviews provided an account of the project in the respondent's own language minimizing misunderstanding between the researcher and the respondents (Guba & Lincoln, 1981).
Goetz and LeComte (1984) reported that the trustworthiness of all research is judged by its reliability (replicability), validity (applicability), and generalizability (comparability across groups). Appropriate procedures to strengthen trustworthiness for case study methodology include researcher bias monitoring, triangulation, member checks, and thick description (Guba & Lincoln, 1989; Creswell, 1998; Stake, 1995). A descriptive case study approach provided this researcher with the opportunity to interview participants as people rather than subjects (Wolcott, 1990) and to provide a rich descriptive analysis of the contexts, activities, and beliefs of participants in the IESLP project (Guba & Lincoln, 1981; Guba & Lincoln, 1985; Guba & Lincoln, 1989).

Borg and Gall (1989) defined content validity as the degree to which information derived from sample questions represent the information that the questions were designed to measure (p. 276). The content validity of the semi-structured interview was heightened through procedural refinement and field-testing. These activities enabled the researcher to clarify statements, discern appropriateness of the questions, and estimate the time necessary to complete an interview (Bogdan & Bilken, 1982). Initially, LeAnn Putney, a qualitative research methods professor in the education department at University of Nevada, Las Vegas, reviewed the semi-structured questions and interview protocol. Interview field testing and content review were conducted with Larry McNeal, professor in the educational leadership department at the University of Arkansas, Little Rock. A leading researcher, Larry McNeal was a content developer on the IESLP project and able to simulate an actual
interview. All comments and suggestions for improvements were documented and incorporated into the final version of the semi-structured interview questions.

The IESLP Instructor's Guide identified people who were key to the genesis, development, and implementation of the environment. Participants were classified into six groups: Management Team, Exercise Developers, Software Development Team, Rural Environment Developers, Consultants, and Planning Team. Several people served on multiple groups and in multiple capacities throughout the development of IESLP. Participants were chosen based on the diversity, timeframe, and extent of their involvement in IESLP as well as their unique knowledge of the project (Guba & Lincoln, 1981).

Eleven semi-structured interviews were conducted between January 6, 2000 and February 18, 2000. Originally, twelve people were to be interviewed however; one participant did not respond to five emails and two phone messages. Since neither a negative nor a positive response was received, the researcher made no assumptions regarding attitude, perception, or understanding about IESLP by the person. Prior to the interviews, the respondents were given a brief overview of the study, provided the general topics to be covered during the interview, and requested to sign an Informed Consent letter (See Appendix I). Since one focus of this study is on the use of technology, it is worth noting that email was the primary method used to communicate, schedule interviews, furnish necessary pre-interview documents, and provide feedback.
Of the eleven interviews, five were conducted over the phone and six were conducted face-to-face. Each interview was tape recorded to ensure accuracy when reporting at a later date. The phone and the face-to-face interviews ranged between 1 and 2-1/2 hours. The wide range of interview lengths was due in part to this researcher asking semi-structured questions, operating in a discovery rather than a verification mode (Guba & Lincoln, 1984), and encouraging the respondents to clarify statements minimizing misunderstanding between the researcher and the respondents (Guba & Lincoln, 1981). In order to avoid limiting the frame of reference and prevent conditioning of respondents, general questions were asked first (See Appendix II). Individual interview questions varied slightly since participants occasionally diverged from the initial semi-structured questions in order to add comments or clarify the discussion (Borg & Gall, 1989). This technique permitted the researcher to query comments and ideas that seemed informative and descriptive.

From 1996 to the present, the UCEA and the IESLP project centers of operation have been in Columbia, Missouri. Five of the face-to-face interviews were conducted at either the UCEA headquarters or the Center for Technology Innovations in Education (CTIE) at University of Missouri-Columbia (UM-C). Based on the number of participants and the extensive documentation chronicling the development of IESLP located at UCEA headquarters, this researcher chose to travel to Columbia, Missouri. During four days in February 2000, this researcher became immersed in studying the IESLP project.
devoting approximately 12 hours each day to interviews or documentation review.

Documents from February 1987 to January 2000 were located in two lateral file drawers and two paper-file boxes. This researcher reviewed documents with regard to their history, completeness, original version, the author, the source of information, the writers bias, and the existence of corroborating data (Guba & Lincoln, 1989). These documents included meeting notes, agendas, presentations, letters, memos, newsletters, mailing lists, and emails among stakeholders in the IESLP project. After an initial review, documents were organized into three categories; (a) not relevant and re-filed, (b) pertinent and content information noted but not copied, and (c) significant and to be copied for future review. At the end of the four days, the files identified as significant took two hours to copy and the papers measured ten inches thick.

The concentrated effort to review documents at the UCEA headquarters in conjunction with previous interviews resulted in four three-inch binders of documents, twelve pages of single-space typed personal notes, and fourteen hours of audiotapes. The documents provided triangulation for information furnished during interviews and a rich contextual picture of the development of IESLP. The personal notes consisted of thoughts and reflections written after each interview as well as notes taken during the document review in Missouri. Initially, the documents were divided chronologically by year from 1987 to 2000. Although the date-driven system aided this researcher when describing the
history of IESLP, subsequent reviews of the documents necessitated reorganization around identified themes.

This study utilized an inductive rather than deductive approach allowing the data analysis to continually shape the data collection process. Initial data collection and the preliminary analysis occurred before the researcher incorporated prior research. Using a grounded theory approach, theories emerged from or were grounded in the data (Strauss & Corbin, 1990). As outlined in the grounded theory approach, a systematic set of procedures were designed to identify themes, their relationships, the context, and the process within the IESLP project thereby providing a theory of the phenomenon that extended beyond description (Becker, 1993). The analysis involved three processes: (a) open coding in which relevant themes were identified; (b) axial coding in which themes were refined and related; and selective coding in which central themes that connect other concepts were identified and related.

Several interrelated themes became apparent after repeated analysis of the interview transcriptions and documents. Common concepts surrounding the description of IESLP as well as the use of technology in administration practice and preparation began to emerge. Recurrent themes focused on the motivation for professors to alter their instruction, the pace of technology, the issues encountered during training, and the need to establish a unified direction. Each overarching category contained multiple narrow topics or concerns. These narrow topics were grouped to form the overarching themes presented throughout this chapter.
The eleven audiotaped interviews were transcribed. In order to ensure accuracy and capture individual inflections and tonal quality, this researcher's first review of the transcriptions was done while listening to the original audiotapes. As Guba and Lincoln (1981) recommended the interview data was analyzed in two stages. "The first is the analysis of the single interview, taking into account the respondent's personal context, the possibility of respondent bias, the credibility of what has been reported, and the interactions between interviewer and respondent. The second is the analysis of the interview as part of a larger set of interview data, which will be integrated to form the total inquiry" (Guba & Lincoln, 1981, p. 178).

In order to increase this researcher's understanding and ability to report findings to others, the data from different sources were systematically and periodically examined and organized four times (Millman & Gowin, 1974; Bogdan & Bilken, 1982; Bogdan & Bilken, 1992; Wolcott, 1994). As a strategy for clarifying researcher biases, Wolcott (1990) suggested that after periods of neglect the researcher will "do a better job of strengthening the interpretation, spotting discrepancies and repetitions, locating irregularities in sequence or logic, and discover overworked words, phrases, and patterns" (p. 50). The first data analysis was based on the chronology of the information. During the second examination, this researcher organized data by respondent or writer. The third and fourth analysis delineated the data by the identified recurrent themes. Intrarater reliability is the degree to which this researcher agrees with initial judgments about the same data at a later time (Bogdan & Bilken, 1982).
Reevaluating the consistency of data coding, notes, and findings after a three to four week period of time checked intrarater reliability and researcher biases.

Validity was accomplished through member checks. In member checks, respondents were given drafts of the study for review and asked if they found the results plausible and accurate (Guba & Lincoln, 1981; Stake, 1995). All respondents involved in the case study of IESLP were requested to assess the intent, review materials, provide additional information, and corroborate the findings (Guba & Lincoln, 1989). Unless express and explicit permission was given by the respondent to report otherwise, references to individual respondents by name were kept strictly confidential. To the extent possible every effort was made to protect the anonymity of all participants. After having respondents review developing drafts, their suggestions and comments were included in the final draft (Wolcott, 1990).

To strengthen generalizability, this researcher provided a comprehensive and detailed descriptive account of the genesis, design, development, and implementation of the IESLP program from inception to the beta test year of 1999 (Goetz & LeComte, 1984; Simon, 1986; Guba, & Lincoln, 1989). Using thick description, the study provided a literal description of the characteristics of the people involved with and the circumstances surrounding the development and implementation of IESLP (Guba & Lincoln, 1981; Wilcox, 1982). After an extensive review, analysis, and interpretation of the interviews, documentation, and personal notes, attributes of the IESLP project that were salient for comparison with the development and
implementation of similar technological and pedagogical innovations were clearly described and identified (Goetz & LeCompte, 1984, p. 229).

The Genesis of IESLP

During the late 1950s and early 1960s, UCEA led the development of in-basket materials using money donated by the Kellogg Foundation. Professors who wished to use the simulation materials were required to attend a workshop reviewing the various components, instructional uses, and intent of the simulations. Although occasionally updated, these simulations were never maintained to the extent or complexity of the initial projects. Forsyth (personal communication February 8, 2000) noted, "There was a period when cases and simulations fell into disfavor with professors of educational administration. That probably paralleled the theory movement because professors and universities were less interested in the practice features of preparation and more interested in grounded theory." Throughout the late 1960s and 1970s, a few simpler simulations were created and distributed by the UCEA. Essentially, the earlier sophisticated materials were outdated and the newer ones were less impressive.

During his transition to Executive Director of UCEA between winter 1984 and spring 1985, Patrick Forsyth discussed the current status of the in-basket materials with Daniel Griffiths, the interim director. Familiar with the UCEA simulations, Forsyth began to realize that the in-basket materials were conceptually flawed in that they portrayed administrative work as merely emptying a basket. The in-basket concept incorrectly portrayed administrative
work as confined, constrained, and responsive rather than proactive. "Real
effective administration and leadership had to do more with finding, shaping,
and framing problems. This was the original impetus for the IESLP idea" (P. B.
Forsyth, personal communication, February 8, 2000). Administrator
preparation programs should provide activities on a continuum from problem
discovery to problem presented experiences. Following the typical in-basket
exercises, problem-presented exercises have an identified dilemma and are
constrained by specific parameters. The more abstract problem-finding
exercises required the examination of aspects within the school organization
such as climate, relationships, behaviors, and communications to determine
how each might prevent the optimal teaching/learning from occurring.

When Paula Short transferred from Auburn University to the
Pennsylvania State University in 1992, part of her assignment was to act as
liaison to the executive director of UCEA. While at Pennsylvania State, Short
allocated 50% of her time to professorial duties and 50% to faculty fellow for the
UCEA. Throughout her first eight months with the UCEA, discussions between
Short and Forsyth evolved. Discussions, which had begun by centering on
methods for updating the existing UCEA case studies and in-basket materials,
changed to exploring how developing technologies could enhance learning
and ended by examining new teaching strategies emerging in educational
administration. Slowly the conversation incorporated new technologies,
problem-based learning concepts, and the case-studies approach. Paula
Short (personal communication, February 18, 2000) noted that these
discussions culminated with a written concept paper about an Information Environment for School Leadership Preparation (IESLP). This paper was to be "shared with a sub-group of UCEA folks interested in technology. Interested in innovation." As a result of these activities, Short became the IESLP project director.

In March 1993, an initial meeting was held to discuss the IESLP project. The sub-group of UCEA people met in Milwaukee to discuss how to improve the existing in-basket approach, incorporate new technologies into administrator preparation, and provide a comprehensive data base upon which to build problem-finding and problem-presented exercises. University of Wisconsin's Don Mclsaac was the project director for the Management Information System for Effective Schools (MISES®). MISES® was a data base system that integrated student, instructional, and program data (Mclsaac, Nash, Melvin, & Reyes, 1992). The MISES® program was employed in three ways (a) administrative tool to produce data lists and reports; (b) information management system regarding individual student progress, mastery of specific objectives, and assessment scores; and (c) instructional database integrated with analytical tools to conduct research at the site level. Through MISES®, the goal of Don Mclsaac was to work with school districts to define, develop, pilot test, and distribute a management system to enhance the information base for schools seeking effective program assessment. This innovation marked one of the earliest attempts to teach data-driven decision making in schools of education.
Between July 15-18, 1993, a subsequent meeting was held in Madison, Wisconsin. A UCEA Review article (spring 1993) extended an open invitation requesting that interested professors at affiliated universities attend a development meeting. Professors were encouraged to have a K-12 practitioner accompany them to the meeting. Thirty-five teams from around the country attended this meeting. Many of the members of the group were technology friendly but not necessarily technology literate. Additionally, a technology savvy individual noted, "a group of skeptics were present who firmly believed that one could not teach administrative problem solving using technology because the logistics of real time are confusing. These people were merely looking for a method to organize and analyze the massive amounts of information that school districts have laying around literally in piles."

For the management team, the goal of the Madison meeting was to conceptually present the IESLP vision and to have participants develop problem exercises to be included in the program. The agenda for the three days included presenting a conceptual overview of IESLP; providing an overview, a demonstration, and a training session for MISES®; demonstrating two established computer simulations; and conducting discussion groups. The hands-on training for IESLP was in an IBM computer lab since the MISES® application operated only on MS-DOS compatible machines. Based on the participants understanding that IESLP would employ CD technology and

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MISES® as the backbone database system, a major discussion ensued at this meeting about MAC versus PC platform issues.

Although the dialogue was rich and many people were enthusiastic about the possibilities inherent within IESLP, the goal of completing exercises was not realized at the Madison meeting. The concepts being presented were very complicated. Some people believed they were going to review a completed project rather than a limited MISES® database and a rudimentary concept of IESLP. One participant reflected about the Madison meeting, “The problem with that meeting is that is was held prematurely. What we found in that meeting was, it was just too complicated, too unclear what it was we were doing, and I think people got frustrated in the meeting. But I think we came away from the meeting kind of thinking, you know this is not moving in the right direction. And so, I think that slowed us down.” Another participant recalled, “We had a technological design issue that the techies ought to handle and pedagogical issue that the pedagogical folks ought to handle. Now the problem was most people wanted an answer to both questions to understand their assignment. And so things just kind of stalled out.”

During the Madison meeting a few fundamental concepts became clear. One was that IESLP would not be the usual simulation. There would be an environment through which people could create problem-finding or problem-presented activities. Not a lockstep, role-playing program but one in which a professor could engage students in data-driven decision making about topics and issues across the curriculum. IESLP would not involve role-playing or
interacting individually with a computer to supply the “right” answer to a set
problem. The environment would be very open to different uses within
educational administrator preparation. Unlike traditional computer
simulations, IESLP would include a human component. A group of educators
would work together to find and solve problems using a technology enhanced
information system as one would in administrative practice. It was evident that
the Madison meeting consisted of both pedagogical and technical debates.

In order to address one technical issue, the IESLP management team
investigated a partnership with a commercial software system, which
paralleled the Mc Isaac application but could accommodate both platforms.
UCEA attempted to entice Chancery Software a small Canadian company. The
management team presented the concept that if preservice administrators
learned to make decisions using MacSchool or Thesis for PCs, those
administrators would wish to purchase the same software for their district or
school after graduation. Although Chancery appeared to be interested in this
concept, the company did not pursue or offer funding for the IESLP project.

Between 1993 and 1996, much of the development of IESLP was left to a
few dedicated individuals who took it upon themselves to accomplish particular
tasks. Frederick Wendel, a professor from the University of Nebraska and an
IESLP exercise developer, offered, “there was going to be money; there wasn’t
going to be, there was; there wasn’t. Then Ed and Patti Chance picked up a lot
and I am not sure it would have gone far without their energy.” During the time
when funding was non-existent and little progress was made, Ed and Patti
Chance, a professor and practitioner from Oklahoma worked with a K-12 superintendent to gather extensive amounts of data from a rural school district. The data set included information about students, teachers, administrators, classified staff, school board members, master schedules, salary tables, community surveys, and local demographics. The initial IESLP proposal called for a rural, a suburban, and an urban data set. However, no one accepted the responsibility of the additional data sets. With little or no budget, the project faltered.

Recognizing that funding was a key issue Patrick Forsyth and Paula Short drafted a proposal outlining five areas requiring resources: (a) initiate Developers' Guide and training, (b) produce Developers' Guide and Learning Exercises, (c) produce data sets for IESLP, (d) develop users manual and users training, and (e) create problem presented exercises. Initially, the proposal was sent to 55 institutions that focused on either education or technology. This blanket mailing generated no tangible support and very little encouragement for the group.

Discouraged by the bleak response, the proposal was rewritten. Using a small sum of UCEA discretionary funds, Paula Short and Patrick Forsyth hired a team of technical experts to improve the funding proposal and define the technical issues. As an alternative to the failed blanket mailing and to focus the requests for funding, participants in the Madison meeting were asked to recommend a person, corporation, or foundation with which they had contacts. These funding proposals were submitted to the organizations and contacts.
endorsed by the members of the Madison meeting. The Honda, Carnegie, and Kellogg foundation showed some interest based on the second set of proposals. However, none of the foundations provided monies to continue IESLP. Forsyth (personal communication, February 8, 2000) noted that “part of it was that the idea was hard to get across to anyone in these foundations. This is at the time when people weren’t using the Internet; at the time we were just developing this - although its potential was there. It was very difficult to convey and to sell what the meaning of all this was going to be. In fact, the ideas in IESLP continued to develop as technology did.”

While headquartered at Pennsylvania State University, Forsyth (personal communication, February 8, 2000) said, “I courted the Danforth Foundation, which I had gotten money from over the years.” Adapting the earlier proposal, Short and Forsyth stated that the UCEA would match funds by securing additional investors who would donate four times the requested amount. The Danforth Foundation donated $65,000 funds to develop IESLP based on the commitment for matching funds. Confident that the Danforth initial commitment would attract other organizations wishing to contribute to IESLP, Forsyth and Short proceeded to seek additional funding. By 1995, a concept paper had been written, a design layout had been drawn, and partial funds had been pledged but IESLP was still an idea. The most concrete part of IESLP was the hard-copy data that Ed and Patti Chance had collected from the rural district. There was still no application or resource to demonstrate.
The Development of IESLP

Leaving the UCEA in 1995, Paula Short accepted the position of chair in the educational administration department at Missouri University, Columbia. With the support of Short and the planned relocation of UCEA to Missouri, Forsyth and the University of Missouri administration began discussions about a cooperative agreement. Several projects that involved the university overlapped IESLP. The University of Missouri had received a grant providing $800,000 annual funding from the legislature to develop and implement a statewide cooperative doctorate program between the regional institutions and the Columbia campus. Additionally, the university received a Goals 2000 grant to develop online decision-making tools for school administrators. A portion of the money was allocated toward creating and staffing a high-tech center to design innovative online instructional resources. Hence, the university technical staff was capable of designing the database and interface for IESLP.

Recognizing that IESLP could be a way to develop some distance learning capacity and be a valuable online decision-making tool, UCEA and the University of Missouri made the decision to collaborate on the future development of IESLP. Through this collaboration, UCEA would receive technical support and funding resources while the University of Missouri utilized IESLP as a distributed learning tool with their own students. The University of Missouri pledged funds toward IESLP enabling the UCEA to approach the Danforth Foundation with a cooperative agreement rather than matching funds. In a letter dated May 24, 1996, Forsyth wrote,
Following Danforth’s agreement in principle that UCEA’s collaboration with the University of Missouri on overlapping projects might be considered as replacing matching funds for our $65,000 IESLP grant, we have met several times with the University of Missouri’s Center for Technology Innovations in Education staff to work out the nature of the collaboration. (The university of Missouri Center is funded by the USDE to develop “Planet Innovation,” a project also aimed at improving the ability of school administrators to make informed decisions, but unlike IESLP, it is not concerned with simulation.) A number of conditions have prevented the formulation of specifics until now, including the rapid evolution of the technology both projects are projected to use, the distance between UCEA’s current Pennsylvania address and Columbia, and the fact that both projects are still evolving and gearing up. All this is about to change with UCEA’s arrival in Columbia mid-June.

After transferring the UCEA headquarters to Columbia, Forsyth contacted a doctoral student recently assigned to Paula Short to take the role of IESLP project liaison. Forsyth requested to meet with James Crawford, the graduate student, regarding the UCEA sponsored project. At this initial meeting, Forsyth gave Crawford a stack of files a foot high to read prior to a second meeting. The following week, Crawford met with Forsyth and Short. Both began to conceptually outline the IESLP project. Based on information presented in the stack of documents and oral descriptions, Crawford conjectured that “the exercises [for IESLP] were the type that began with a hostile phone call from a
parent. Paula's' first comment was, no it's more than that" (J. Crawford, personal communication, February 17, 2000). This statement caused Crawford to rethink the complexities of IESLP and began his involvement with the project.

Throughout the following year, Crawford worked to coordinate resources, organize technical assistance, and facilitate meetings for the UCEA while building a stronger conceptual understanding of the IESLP project. An initial and particularly difficult task while working with IESLP was trying to digitize and upload the data into a searchable database. Within the first months of being involved in IESLP, Crawford drafted a memo reviewing the contents of the hard copy data set, difficulties encountered while digitizing the data, frustrations with an inability to access the data, and suggestions to start a whole new database.

In May 1997, negotiations began between the UCEA and the University of Missouri. On May 2, an initial proposal was submitted for review to the university outlining the application development and training/field testing phases of development. Addenda were presented delineating issues such as intellectual property rights, software and invention development, ongoing web hosting, data storage, system administration, and a project liaison. Summarizing the conversations at the meeting, Forsyth wrote a memo to IESLP stakeholders reviewing the issues and concerns of both parties: (a) distinctions between the IESLP project and the Cooperative Ed.D. project, (b) completion of fifteen K-12 principalship exercises; (c) design of IESLP information management tools, (d) delivery of professional development and
assistance, and (e) project liaison to oversee both IESLP and the Cooperative Ed. D. project. These negotiations continued through the summer and fall of 1997 as each side clarified their positions, the scope of work, strategies for hosting data, and rights to ownership.

On December 4, 1997, a meeting was held to examine the delays, review issues, and finalize the agreement. Meeting notes documented that delays occurred due to issues surrounding ownership of the project, intellectual property rights, drastic reorganization, personnel changes, and the sub-contracting of services not being a standard method for operation within the University. After a review of the issues from the past eight months, a final contract was created and signed on January 6, 1998. Despite the lengthy process of drafting a suitable contract, activities were undertaken and progress was being made on IESLP during the summer and fall of 1997. A project liaison had been hired and a mid-July 1997 meeting had been organized to write problem exercises.

A parallel movement in the preparation of educational administrators was occurring while the IESLP program was being developed. This movement was the Problem-Based Learning (PBL) exercises and simulations created by Edward Bridges and Phillip Hallinger. Forsyth reported, "There was no real intellectual awareness or overlap between those two areas. It was like two people inventing the light bulb independently." Although not initially impressed with the original PBL cases, Forsyth read Implementing Problem Based Learning in Leadership Development (Bridges & Hallinger, 1995) and
recognized a correlation between PBL and IESLP. In preparation for the July 1997 meeting, Forsyth drew a chart of the essential elements of PBL and a parallel chart of the IESLP learning system. The similarities between the learning strategies were evident. Table 1 was presented at a conference for the first time to a team of exercise developers.

Table 1

Comparison of IESLP and PBL: Exercise Construction

<table>
<thead>
<tr>
<th>IESLP</th>
<th>PBL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catalyst</td>
<td>Problem</td>
</tr>
<tr>
<td>Learning Objectives</td>
<td>Learning Objectives</td>
</tr>
<tr>
<td>Library</td>
<td>Resources</td>
</tr>
<tr>
<td>Constraints/Complicators</td>
<td>Time Constraints/Guiding Questions</td>
</tr>
<tr>
<td>Tools</td>
<td>--</td>
</tr>
<tr>
<td>Context Information</td>
<td>Background materials</td>
</tr>
<tr>
<td>Reporting Mechanism</td>
<td>Product and product specs</td>
</tr>
<tr>
<td>Assessment</td>
<td>Assessment Exercises</td>
</tr>
</tbody>
</table>

The three-day conference was organized to develop IESLP exercises. Fifteen people were invited to participate in the July 16-19, 1997, St. Louis, Missouri meeting. Eleven had participated in the original 1993 Madison meeting while the other four Missouri participants were new to IESLP. The eleven experienced members, exercise developers, were to write problem catalysts. The newer members from Missouri were to provide technical assistance and support throughout the three days. Participants received a $100 per day stipend for the four days. Funded with Danforth monies, the total cost of airfare, hotel, and stipends for the four days totaled $14,394.70.
The goal for the meeting was to complete 10-15 problem presented exercises for use in IESLP. Each exercise developer was to prepare and submit a conceptual framework for a minimum of two authentic problem-presented exercises by July 10. When the exercise developers met in St. Louis, they were ready to refine and complete the instructional exercises. The exercises created during the meeting were required “to fit or at least not conflict with, the constraints” of the data gathered from the rural district. To accommodate any problem exercises that did not reflect the existing rural database, participants were told that data could be added at a later time. The exercises were required to have a catalyst, knowledge objective, skills objective, value objective, a reporting mechanism, and a resource library. Of the twenty-three exercises worked on during the three days eight were incorporated in to the IESLP program.

The three-day conference included a history of the IESLP project, a system overview, a review of the data components. However, a hands-on demonstration of the IESLP program was not conducted because at the time nothing concrete existed. There was still no way to see, use, or explore the IESLP program. Indeed the rural data set was still in paper form with no way to electronically cross-reference, analyze, or search the data. There was a great deal of time spent creating catalyst rather than seeing how IESLP might actually look on a system or how one might use it. One technology neophyte reminisced that “it was harder for me to see the how you might actually weave your way through the catalyst … it would have been great in hindsight if we
could have had a half day where you know, we were able to access the data sets and see what it looked like."

In St. Louis, team members had lengthy discussions in an attempt to clarify how the various components of IESLP would function. One participant quipped that the conference was like a 'lock down' with participants working ten and twelve hours a day. Another person equated the four days with a writers’ workshop “we just went off and wrote and when we got back together, we would edit each other’s work and ask questions about how you could solve it if, in fact, the design was supposedly in the database and try to figure out different ways that you could interpret it in the database.” According to summary notes of the meeting, a number of content issues were discussed: (a) exercises should have a set of descriptors to be used by a search engine, (b) exercises should be adaptable by instructors for use in a particular time frame, (c) exercises should require only data that would realistically be available to decision makers, (d) exercises should not require information about a specific person, (e) assessment and reporting mechanisms are not necessarily the same thing, and (f) instructors screens should include feedback frames regarding use. Although nothing concrete existed in July 1997, the concentrated and intensive conversations of a diverse group of people with varying comfort levels with technology clarified the design of the future IESLP web site.

In order to maintain contact, receive feedback, and provide updates, a CTIE software developer created a listserv shortly after the St. Louis meeting.
This listserve was to provide a method to send and receive communications, updates, and feedback among developers as the program progressed. During the interviews, respondents reported receiving information through periodic email updates and annual UCEA conference sessions.

Although slower than expected, progress continued on the IESLP project through the fall of 1997. As the web site was being built, IESLP took form for the first time and finally went beyond the conceptual framework. As Forsyth wrote,

The IESLP has been in the planning stages for nearly 8 years. ... We now have in place a mechanism to bring our IESLP dreams to fruition—it includes a grant from Danforth and a subcontract with the University of Missouri’s Center for Technology Innovations in Education to complete specific tasks and an arrangement with MU Cooperative Doctoral Program to develop and deliver instructor training and field testing of IESLP exercises. ... Unfortunately, the schedule we had established in St. Louis last summer for rolling out IESLP and field testing had been blown out of the water by the delays in employing a project director, sorting out various technical and data issues, and delays in contractual negations. There is NO field testing of IESLP going on at present because the system is not nearly ready. At this time, I believe that the team here at MU would agree that the system should be sufficient to accommodate limited field testing this summer.
Despite delays, the management team and software developers adopted an aggressive timeline to implement IESLP. Discussions centered on concrete tasks such as designing a logo and graphic layout for the web site, identifying urban and suburban school data sets to be added to the current data, and creating training documentation to be published by the UCEA. Weekly discussions between the UCEA and the CTIE project liaisons centered on the immediate concerns of creating a users guide as well as cleaning-up the data and exercises. Once loaded into the web site, it appeared that some of the data were corrupted or incomplete. The exercises needed to be consistently formatted so they could be posted on the web. During a January 22, 1998, planning session the timeline in Table 2 was developed.

Table 2

IESLP Timeline

<table>
<thead>
<tr>
<th>Month</th>
<th>Task</th>
</tr>
</thead>
</table>
| Jan/Feb | Upload and test run data  
Create users guide |
| April | Instructor training to prepare for May 16 implementation  
Second field test of electronic version of exercise #9 |
| May | Danforth Report due  
Third field test of electronic version of exercise #4 |
| June | Cohort students meet to discuss use of IESLP  
Cohort begins to work on exercise #4 |
| Aug | Submission deadline for IESLP article  
Remote training for the Chances  
Begin monthly remote training |
| Oct | Grand unveiling of IESLP at UCEA conference |
| Nov | Post conference instructor training sessions  
Invitation to any professor who wishes to participate |
A focal point of the timeline was the preparation for the July 1998 field test to be conducted with the University of Missouri. From the data collected during this field test, the developers planned to determine and prioritize improvements that would need to be made before the unveiling in October 1998. Further this field test would be used to inform ongoing development of the software documentation, tutorials, problem exercises and the web site in general. From the standpoint of both learners and instructors, the management team and software developers anticipated the following outcomes:

1. Provide a meaningful and valuable learning experience for the Ed.D. cohort.
2. Determine usability of the IESLP web site interface/navigational system.
3. Determine the readability and ease of comprehension of the site’s textual components.
4. Determine the aesthetic appeal and functionality of the graphic design.
5. Observe the utility and functionality of a complete problem exercise.
6. Determine whether the format of the problem exercises is logical and readily useable.
7. Identify the strengths and weaknesses of the problem exercise format.
8. Determine the usability and completeness of the system’s tools and resources.
9. Identify “bugs” and other facets of the system that require alteration.
10. Get input from instructors regarding necessary contents of documentation.
11. Get input from instructors and users regarding suggested improvements.
The Implementation of IESLP

During the summer of 1998, the statewide University of Missouri Cooperative Ed.D. Leadership cohort (56 students, 7 faculty members) alpha-tested IESLP. Although the program was operational, there were a number of technical and pedagogical problems. For about a year, the leadership policy department had been planning and developing an intensive eight-week summer program. The program was to include courses in research and statistics, organizational analysis, case study methodology, an internship, and the IESLP program. In January 1998, members from UCEA, CTIE, and the educational leadership office planned an IESLP presentation for the cohort students and faculty for April 21st. In preparation for the alpha test, students were provided a one-hour presentation consisting of a cursory tour of IESLP and the faculty received no training. A respondent lamented, “We tried to get the instructors together, but the instructors never could get together and come to a meeting. So, we compounded the problem because the instructors had no earthly idea what was going on; they did not know how to answer questions.” Consequently, all questions simple or difficult regarding access, use, and content were directed to either the UCEA or the CTIE office.

The upload and test run of the original 1994 rural data collected by Ed and Patti Chance occurred in January and February only four months before the alpha test in May 1998. The query system did not work consistently. No one had anticipated the time and effort associated with administrating the system such as entering passwords, correcting email addresses, logging student
names, or providing user support throughout the test. The technical ability of
the students varied drastically. Some students had never sent an email or
browsed the Internet. Many students provided incorrect email addresses so
initial email messages were not received until the addresses were corrected.
During the test, students reported that after entering search criteria into the
query system no data was generated by the program. Given the minimal time
allotted to the use of IESLP by the eight-week cohort, the students and
professors were frustrated reporting that the technical issues far outweighed
the perceived benefits of IESLP. The program coordinator chose to suspend
the alpha test prematurely.

During one interview, a respondent suggested that “no one had gotten
[the Ed.D. cohort or their instructors] buy-in from the very beginning. But
somehow they were going to be one of our users. And, they really had no
incentive for doing something other than what they had been [in their
coursework].” Likewise, a member of the development team provided insight,

I was mandated - you will use, we will use IESLP. ... So I had really good
ideas how I could make it all fit together and use this as the sole center
piece of the curriculum. ... And, no, we’re not going to do that ... we’ll let
them access the data and run a simple t-test on the data. That’s not
getting with the concept of IESLP, if you ask me. And here’s the problem
and frustrations. We didn’t beta test. We used one function of it for one
week.
Another respondent conjectured that the implementation issues stemmed largely from (a) the pressure exerted on the IESLP team to implement the program prematurely, (b) the unanticipated system administrations tasks, (c) the leadership policy department using IESLP as separate, additional coursework rather than integrating it into existing content, and (d) the lack of training for both students and faculty. A software developer acknowledged,

Did we do everything that we could to help transition people who are adept at a different kind of instruction to this new way of thinking about instruction? I don't think so. Getting people to use [IESLP] really wasn't addressed well. ... I am thinking of our own faculty here at the University of Missouri just didn't grab on to it because they didn't know where to begin with it or how to deal with assessment issues, or how to make it fit the schedule of what they were doing.

Scribbled on a development meeting agenda in June 1998, was the item “what do we have and is it what we want?” Although the program was now tangible and an alpha test had been initiated, this document revealed the continued uncertainty about IESLP by the management team and software developers.

Assessment data from the alpha test centered on the technical problems and was rather limited with regard to the impact of IESLP on teaching/learning. An IESLP update from July 16, 1998, listed the rising frustration levels of the students and cost benefit ratio in terms of time as the reason for suspending the program. However, the alpha test was noted as
being "successful in terms of meeting our needs [to identify issues surrounding] the interface, usability, debugging, and exercise usefulness."

After speaking with and reviewing the product created by the students participating in the alpha test, the UCEA project liaison, Crawford, reported that the exercises proved to be "thought provoking and challenging to the students."

An August 1998 letter to the exercise developers identified lessons learned during "a limited field test." The first lesson was that given the student learning curve the program should be used throughout an entire course. The second was that the instructor’s familiarity with the program was essential to implementing IESLP.

Throughout the following year, feedback from the alpha test was reviewed in preparation for a beta test scheduled for the summer of 1999. Forsyth and Crawford representing the UCEA met weekly with the project leader and the technical support team from CTIE to modify the query system, enhance usability, insure completeness and accuracy of data, supply training, provide user support, and correct technical problems. Fall target dates were identified to complete the first draft of the instructor’s guide, design web version of user’s and instructor’s guide, and field test instructor training module. Although work continued on the technical issues and web site development, the target dates for the web version of the user guides and the instructor training were not met.

A misunderstanding occurred among the UCEA, CTIE and the University of Missouri administration regarding funds to develop the training system. At
the October 1998 UCEA conference and IESLP unveiling in St. Louis, an announcement was made regarding a $150,000 funding commitment from the University of Missouri “to implement the training and development of IESLP to benefit the Missouri Ed.D. Cohort” (personal email communication, December 17, 1998). Summarizing a series of emails sent between December 14-18, 1998, CTIE submitted a $150,000 budget to hire a staff member to develop the training materials, to cover costs of developing training materials, to cover expenses directly related to conducting training of the Ed.D. cohort faculty, and to further develop the IESLP system based on feedback received from cohort faculty during the alpha test year. However, the university stated that the $150,000 had been allocated from the previous year’s budget for training and support for two faculty members per regional campus. It was the university’s position that funding to train professors nationally should come directly from the UCEA. In essence, the members of UCEA and CTIE interpreted the funding commitment as a future commitment while the University of Missouri component considered it a commitment fulfilled in the past. As a result of the misunderstanding and the subsequent email messages, a meeting was held among the administration of the UCEA, CTIE, and University of Missouri on Friday, January 12, 1999, at 10:00 AM. During the meeting, all parties agreed that in addition to the previous $150,000 the University of Missouri would commit another $78,000 toward the future development and training for IESLP.

In December 1998, Forsyth hired a University of Missouri graduate to develop a training system for IESLP. Initial discussions between the
management team, the software developers, and the training developer included the need to develop training using a combination of face-to-face sessions and online tutorials. The training developers believed that the chances of IESLP being implemented in a uniform manner would be increased if everyone using the program were provided the same training. The training was to be delivered in three phases: (a) phase one was a how-to-use-IESLP tutorial, (b) phase two assisted instructors in integrating IESLP into their coursework, and (c) phase three helped departments to integrate IESLP across the curriculum. However with the knowledge that the Danforth funds were limited and finite, the cost effectiveness of the face-to-face training was reconsidered. Based on reported success in implementing PBL throughout the University of Missouri, College of Medicine, the trainer researched the use of PBL in higher education. As a part of this research, the trainer had in-depth discussions with the dean of the medical program.

A number of the decisions regarding the content of the training were based on the trainer's knowledge and perceptions of PBL and training needs. Commenting on the training design, the training developer said, "they left it pretty much up to me to figure out what was the best way ... I was really trying to think of something that would last for a long period of time ... because I knew there was only limited amount of funding and that's where I said OK, well web based." The final decision to develop a comprehensive online tutorial that would review the three phases of training was made. This decision was based on the developer's belief that an online tutorial was the best investment of
available time and funds by providing the most efficient, enduring, and consistent method of training.

Throughout the development of the online tutorials, the trainer received recommendations during regular meetings with the UCEA executive director and project liaison, the professor coordinating the Ed.D. summer cohort as well as software developers from CTIE. Through a process of elimination, the trainer listed the main components of the system to be covered in an online tutorial that were not self-explanatory. Once the components were determined, the technical team and the trainer identified "what technology was best." For a time, a wide array of technologies was considered from video conferencing to purely text based. A final constraint to be considered was the end user's system such as computer processor and modem speed. The instructors who beta tested IESLP in the summer of 1999 were the principal target audience for the training. Although instructors new to the system and students would have access to the training, they were not the primary audience. Considering these factors, a series of web based animated tutorials were created.

The web-based, self-guided training addressed the areas in the original three-phase program. The first tutorials focused on how to navigate the site, how to log on, how to download software. When discussing the IESLP program with instructors, the trainer realized that they were having difficulty "visualizing how [IESLP] might work on an actual day-in, day-out basis, not so much conceptual, but what happened on day one; what happens on day two." Based on these concerns, the trainer developed three different scenarios using
both problems presented and problem finding exercises. These scenarios provided instructors with teaching strategies and lesson formats for using IESLP. A text-based review of Problem-Based Learning (PBL) concepts, methods for integrating PBL into a course, and adult learning theory was provided. Additionally, a section included a synopsis of the stages of concern and group assessment designed to address change issues encountered by departments.

While the online instructor-training program was being developed, a winter semester beta test was being conducted with a handful of professors from the University of Nevada-Las Vegas, Northern Illinois University, Arkansas State University and the University of Missouri. Prior to the beta-test, a few instructors received a half-day face-to-face training in Columbia focused on navigating the web site and performing different tasks within the system such as a scavenger hunt. The trainer reported,

It was more of a technical how-to than it was, we’re going to change your approach to teaching and we’re going to teach you about PBL. It was more like we’re going to show you how to go to this page look at this problem ... go over here and do a search. And now, OK, you see that file, download it and see that it opens up in Excel. At that point, we didn’t actually have them manipulate the data or make them come up with a recommendation or anything like that. We just figured, well they’re instructors, they could probably figure that out.
Some of the professors who beta tested IESLP in the winter semester of 1999 attended the on-site training while others used the online tutorial or just worked their way through the web site by trial and error. In the end, the training for the beta test instructors was not consistently delivered or implemented and did not address the pedagogical issues of teaching with PBL and technology.

A memo from the CTIE project director to the director of the University of Missouri summer cohort program dated May 12, 1999, indicated the funds contributed in January were adequate to provide training for the University of Missouri professors and to continue development of IESLP until the spring of 2000. The instructor-training program was identified as “ready to use in orienting the MU cooperative Ed.D. faculty before the cohort’s July MU experience.” Shortly after this email message, the University of Missouri notified CTIE and UCEA that the summer cohort would not be using IESLP in their instructional program. Based on the student frustration levels and instructors reports from the alpha test, the University of Missouri chose not use the IESLP program with the 1999 statewide Ed.D. program. Paula Short, educational leadership department chair at the time, explained,

The faculty realized that we kind of got all out of that we can at this point...until databases are added beyond the rural data base it's not as helpful to us – it's limited. The faculty discovered that it's really a course in itself. See we tried to use IESLP by just dropping it in to other instruction modes and different times for different things. I am getting the feedback from the faculty that IESLP might be better used through the
whole course. In other words, it could be used for a whole set of
courses; that it becomes the focal point for the delivery of the course
rather than dropping down at points. It would almost be the textbook
(personal communication, February 18, 2000).

Although the University of Missouri cohort refused, seven professors of
educational administration from five UCEA affiliated universities agreed to beta-
test IESLP during the summer of 1999. The professors beta-testing ISEL P
implemented the program in different ways. Some used a problem-presented
approach using existing exercises and data, another used problem-finding
exercises with the existing data, yet another introduced additional data and
created a problem exercise particular to their state requirements. Likewise,
some of the professors provided computer skill-building opportunities for
students while others required students to learn the technology skills on their
own. Professors spent varying times on familiarizing students with the
environment. Common issues identified by the students and professors
participating in the beta-test were (a) frustrations dealing with the incomplete or
conflicting data, (b) a lack of technology skills may be a factor in the use of
IESLP, and (c) technical problems with online chats, data queries, and
downloads. One respondent stated that "none of the technology worked…so I
just gave up on it and as it turned out, since then I haven’t been highly
motivated to try it again." Despite these issues, most of the professors were
pleased with the system as a whole and believed that IESLP could be used to
integrate multiple disciplines within educational administration preparation.
In concert with the beta test, two of the institutions conducted a student pre/post survey about problem solving. Data collected from online chats, performance based assignments, journals entries, and the surveys indicated that:

1. Students valued the opportunity to work with IESLP.
2. Students identified problems with more clarity and focus.
3. Students recognized the need to use data to improve schooling.
4. Students realized that those with superior computer skills were able to develop more meaning from the data (Isernhagen, Bryant & Armstrong, 1999).

The overall response from students and professors was positive. They agreed that IESLP built a link between theory and practice by providing opportunities for students to collaborate, apply current research, participate in data-driven decision making, and increase technology skills in order to solve problems of practice. Having withstood the beta-test, UCEA and CTIE believed that the IESLP system was robust enough to begin planning the move from the testing stage to full implementation.

On June 7, 1999, a CTIE representative sent Forsyth a letter ending the two-year relationship among the UCEA, CTIE, and the University of Missouri to develop IESLP. Effective June 30, 1999, CTIE planned to conclude work on the development of the IESLP system. The existing software would be installed on a University of Missouri server and UCEA would be responsible for the system administration. The decision that CTIE “will no longer have any responsibilities
associated with the operation, maintenance, or improvement of the IESLP system" was driven by three factors: (a) the original agreement among the UCEA, ELPA and CTIE had been met, (b) the funding from the ELPA had been exhausted, and (c) since IESLP was entering a service mode and CTIE is a research and development organization continued involvement would be counter to the CTIE's perceived mission. The letter did mention that CTIE desired to embark on new line of research that involved problem-base learning, information environments, and preparation for educational leaders that "goes beyond the notions and idea encapsulated in the IESLP system." In response to the letter from CTIE, Forsyth wrote that the "decision to cease all work on IESLP in 16 working days came as surprise to me. It is difficult for me to understand this action (personal communication, June 10, 1999).

Two participants voiced that both the university and UCEA were concerned about intellectual property rights and ownership issues. A software developer reported,

[IESLP] is sitting on [the University of Missouri] server. We are not doing anymore development work. We will not do anymore development work. There's no plan in place for it. We hit the end of the agreement that UCEA wrote with us and they made it clear it's theirs. And that was that. We did all the things we said we were going to do under the agreement. The money's been spent, you know. There it is. It's yours. We're delivering it to you. You asked for a product, we gave you a product.
Members of UCEA conjectured that CTIE spent funds intended for IESLP to work on university projects and regular technical maintenance rather than IESLP. A respondent reported that although the agreement with University of Missouri provided the “impetus for the Danforth coming through and [IESLP] made a lot of progress but I’d say most if it was because of the Danforth grant.” On the other hand, university personnel expressed frustration that the four contributions totaling $300,000 made by the university and the extended efforts of CTIE to develop a tool for preparing University of Missouri administrators went unfulfilled.

By fall 1999, the CTIE was no longer developing the program, the Danforth Funds were depleted, and work on IESLP was suspended. During subsequent meetings, the university and the UCEA reached a compromise allowing the IESLP web site to reside on the University server. As of February 2000, discussions regarding the maintenance and system administration cost had not been resolved. A participant in these discussions commented, “we’ve been in discussions with folks here at CTIE about, and I keep hearing about something called maintenance. And since they keep mentioning it, I assume there is a cost associated with that or they wouldn’t keep mentioning it to me.” Maintenance issues centered on equipment replacement, system administration, and software upgrades. The UCEA has ownership of a functional web site, the 1994 rural school data set, nine exercises as well as the intellectual property rights regarding the use of an Internet environment, PBL, and school data to train pre-service administrators. A software developer
noted, "Things owned by people that way just die unnatural deaths ... unless somebody is there to foster and continue to work and continue funding, it just goes away. And right now, as far as I see IESLP is dead in the water. It's sitting on the [University of Missouri] server which was provided ongoing as part of the relationship between the college of education and UCEA."

As reported at the January 2000 UCEA Executive Committee, plans to augment and expand IESLP were in progress. The Houston School Independent District (HISD) approved a ten-year contract that provided the UCEA and the IESLP project access to all of their school data. In return, UCEA agreed to provide HISD unlimited use of IESLP for staff development. Discussions regarding time lines, hardware use, software requirements, programming issues, personnel demands, and financial needs for the acquisition and the development of the user interface for HISD data were in progress at the time of this dissertation. At the time of this writing, preliminary discussions occurred between the UCEA and the Stanford Learning Lab at Stanford University to incorporate curriculum assessment and performance evaluation processes into IESLP. Additionally, James Crawford, the UCEA project liaison, began discussions with the University of Nevada, Las Vegas, and Clark County School District, Nevada, to provide leadership, direction, motivation, funds, and technical expertise to further develop IESLP.

Forsyth summarized that the development phases of IESLP coincided with the movement of the UCEA headquarters. The Arizona period marked an awareness that the UCEA should develop instructional materials to replace
and improve upon the out-dated simulation materials, the epiphany that
traditional in-basket approach was flawed, and the initial conception of the
IESLP program. While the UCEA was housed at Pennsylvania State, the
conceptual framework took shape as the Madison meeting focused on the
instructional design, a learning development team drafted a funding proposal,
and Forsyth and Short began an intensive search for funds. The
implementation phase began at the University of Missouri with the acquisition
of the Danforth funds, creation of problem-based exercises, launching of the
online environment, and alpha/beta tests of the program.

A Common Framework

After numerous examinations of the data, commonalties in the
respondents' thoughts, attitudes, and beliefs regarding IESLP were
discovered. Specific phrases were used by multiple people to describe IESLP
such as "comparing and contrasting data," "more than a simulation," and "there
is no one right answer" to the problems. Realizing that the common language
or a mutual set of phrases may be an indication of a shared conceptual
framework, this researcher began to categorize the common verbiage. Certain
compelling elements were understood and articulated by several people. Not
as though they were reading a script but as though a common language or
belief system had emerged throughout the eight years during genesis,
development, and implementation of IESLP.

A database was used to isolate excerpts from the interviews according
to the common language and thoughts expressed when describing IESLP.
The excerpts however rarely contained a single concept but rather multiple concepts within a single statement. From this point, a table was created indicating the number of participants who responded with a particular concept, the isolated idea expressed, and an example of the full quote (See Appendix III). Through this process, it became apparent that a common understanding of the IESLP program was held among the group members. This coding process was repeated throughout this study in order to construct meaning from the data.

Six common ideas about how IESLP impacted administrator preparation continually resurfaced in the various descriptions of IESLP. Using IESLP, students would learn to:

1. solve problems in order to improve schooling;
2. access, interpret, and use information effectively;
3. become proactive by developing the skills to identify problems;
4. bridge the theory-practice gap by building professional and practice knowledge;
5. collaborate with others to solve a common problem; and
6. master concepts through integrated content rather than isolated courses.

Additionally, two concepts appeared multiple times with regard to the impact of IESLP on instruction. IESLP provided ways to deliver distributed learning models and established an innovative, interactive, and engaging method for teaching/learning. Incorporating the eight themes, a clearly articulated
composite definition emerged. IESLP represents an innovative, engaging, and cross-curricular technology-based instructional tool that bridges the theory-practice gap by providing a context or information environment in which students interact in groups to identify and solve problems by analyzing and interpreting real-world data and problems of practice in order to improve schooling.

To determine if this common conceptual framework was tied to the respondents' use of technology in their profession or their beliefs about the use of technology in administrator preparation, the transcripts and documents were reexamined. When referring to technology, nine people used the term tool. One respondent stated, “Technology enables certain kinds of activities and behaviors. Communication, collaboration tools, information exchange, remote presence, and those types of things.” Another recognized the importance of the human element when using technology, “The power is not in the equipment. The power is in the person understanding how it works. Is it the technology or is it the understanding of how it could be used and then manifesting it in an actual application and presentation to the culture to create some end.” Table 3 lists the six uses of technology in administrator preparation programs as identified by the respondents:
Table 3

Use of Technology in Administrator Preparation

<table>
<thead>
<tr>
<th>Activity</th>
<th>Number of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communicate</td>
<td>11</td>
</tr>
<tr>
<td>Manage data</td>
<td>8</td>
</tr>
<tr>
<td>Conduct research</td>
<td>6</td>
</tr>
<tr>
<td>Collaborate</td>
<td>3</td>
</tr>
<tr>
<td>Present information</td>
<td>3</td>
</tr>
<tr>
<td>Distribute learning</td>
<td>3</td>
</tr>
</tbody>
</table>

Although eight respondents specified email as their primary method of electronic communication, several other forms such as chat rooms, synchronized messaging, list serves and discussion boards were mentioned individually. A respondent commented that higher education and K-12 districts participating in school choice programs might wish to communicate on a broader scale. For marketing purposes, administrators may use technology to alert potential families and parents of programs in their schools. Likewise, another respondent celebrated the "possibilities of communicating instantly and frequently with parents focusing on the specific learning needs and problems and joys of children."

Research and data management emerged as separate but related categories. Following the identification of the Internet as a resource enabling one to find and retrieve information, the respondents marveled that "this kind of capacity is terrific" and "we have access to a broader and deeper knowledge." When remarking about data management, respondents discussed activities occurring after data retrieval. Three respondents mentioned operational
efficiency and one discussed presenting data in a powerful way. The following statement, although somewhat detailed, is representative of all eight of the responses.

Being able to tap information, secure information, analyze information, and use information in decision-making. I think it's facilitated with technology. They learn how to use, to do teacher evaluation, teacher observations and use the technology and some software to help kind of code and create themes around observations. ... if they're focusing on data driven decision making, they have to know technology to do that. Because in this day and age you can't do it without technology. I mean, technology is a means to and end, but it's a tremendous means, it's a tremendous facilitator.

Collaboration was mentioned by three of the respondents. One of which mentioned it only as a part of list of activities. Three respondents who had taught online courses mentioned distributed learning or remote learning. One participant questioned whether "sophisticated thought or patterns of compassion, things that are less tangible elements of professional work" could be taught through remote learning without human interaction. Three participants identified presenting information and course content. Of those, two noted the importance of modeling technology for students. One person listed critical components of technology administrator preparation as being an informed consumer to purchase software and to recognize the information
accessible due to technology as well as being aware of technology application dimensions to “figure out where that fits in any kind of curriculum.”

Two participants articulated developing new methods for learning or redesigning the curriculum by questioning how technology facilitated the creation of student-centered and engaging learning environments in both K-12 and higher education. One respondent who used technology extensively promulgated that technology use and training should:

Transform the way [teachers] think about the operation of their classroom and that transformation is based on the capabilities technology provides by using the tools to help scaffold activities and to provide communication. In the process changing the way people think about instruction so that it less didactic, more project oriented, more driven by individual interest and puts the teacher in that mentor role rather than in the role of sage on the stage.

Upon comparing the conceptual framework of IESLP and the beliefs of how technology should be used in administrator preparation as identified by the respondents, some interesting similarities and discrepancies emerged. Accessing, interpreting, and using information to solve problems was comparable to data management and research. However, seven respondents mentioned collaboration in the IESLP framework while only three noted it as a use for technology. The number of times distributed learning was stated was comparable. Eight identified IESLP as a means to establish new methods for learning while only two expressed this understanding as a potential for
technology. Three items were specific to the IESLP framework (a) develop problem finding skills, (b) bridge the practice theory gap, and (c) integrate course content. The only item mentioned by multiple respondents for the use of technology and not IESLP was presenting information. Interestingly when asked what would he design differently, one of the software developers said, "I would probably have different tools for accessing the data in the school and presenting that information that would be stronger today."

Despite several commonalities between the conceptual framework and the beliefs about the use of technology, interesting differences arose. In order to account for those differences, the respondents' attitudes toward technology because of their involvement with IESLP as well as their motivation to participate in IESLP were examined. One respondent noted that he had a greater appreciation for the "technical gurus" who design technology tools, another admitted that the experience reinforced his weakness in using technology. Yet another revealed that his understanding of the capabilities of technology advanced dramatically because of his involvement in the IESLP project. He exclaimed, "Man, I tell you what, I leapfrogged about nine spaces forward on that." However, eight of the respondents stated that no single project or experience effected their attitude toward technology but that it was a composite of experiences. One participant reported, "I can't distinguish what I learned from that project or from what I learned form technology surrounding my life. I don't know whether or not IESLP has effected my attitude toward technology or technology effected my hopes and for IESLP. I think my attitude
toward tech waivers." Another noted, "I think I'm even more committed to it than I was even in 1992 because I think I've learned over time just the extent to which technology is part of our lives. And I think that in 1992 it wasn't part of our lives. And I think, I mean it was, e-mail was nice and, you know, Internet was interesting, but it's a way of life now."

When describing how IESLP effected their attitude toward technology, respondents also revealed their general attitudes toward technology. Four participants identified a love/hate relationship with technology. While telling stories of frustrations in using technology, each of the four identified what they considered a "healthy skepticism" questioning how, when, and if technology should be used. A self described advocate one day and a leadite another, a member of the management team asserted, "Most people are ambivalent about technology in that most people get accustomed to doing their work in one way. ... When I pick my pencil, it works and I don't have to worry about anything else, it works instantly, and I know exactly what to do with it. When people are trained in what works, they are disgruntled by technological change." Seven respondents expressed the view that technology had become an integral part of their lives and was destined to become ubiquitous in the future. One respondent forecasted that "an administrator we're preparing today is going to be an administrator in the year 2030. It's almost impossible to believe that that administrator won't be working in a technology rich environment. Even if you have all the reservations and all the issues about cost, take where we've been going and project it out 30 years, they're going to be working with technology."
Announcing the inevitability of technology, another respondent simply stated, "Technology. It's the future; it's not a fad."

Attitudes varied toward technology; the respondents consistently identified personal benefits rather than external rewards as their motivation for participating in the IESLP project. Among the personal benefits listed were (a) the prospect of learn something new, (b) the belief that IESLP would impact instruction, (c) the notion that the ISELП represented "a sort of salvation for preparation programs," and (d) the opportunity to network with colleagues. In six cases, participates noted that the basis for their motivation was tied to their belief system or personality. One respondent proffered "there are syncretic benefits that just happened to mesh with my personality." Yet another professed, "IESLP fits my belief of the whole instruction of [technology and administration]. I think I saw it as something that would help us move toward leader preparation in a way that was going to be effective and positive."

Challenges and Issues

Respondents reported that IESLP was a valuable instructional tool, technology was a requisite for administrator preparation, they had positive attitudes toward technology, and they had received personal benefits from their involvement in IESLP. They also noted several challenges and issues that prevented IESLP from reaching what many people felt could have been its full potential. Upon examination of the interviews, documents and the reported historical overview, six overarching themes became apparent:

1. training for professors piloting the program,
2. direction toward completing of the project,
3. disconnect between users and designers of the program,
4. funds for developing the program,
5. pace of recent technological changes, and
6. faculty incentives for altering current instruction.

The most complex of the challenges encountered during the implementation of the IESLP program were training and direction which were noted by all eleven respondents.

Training issues were divided into five subcategories. The most frequently identified training issue was assisting professors in altering their teaching styles. The training offered during the implementation of IESLP purposefully did not address the teaching strategies or styles but rather provided "more of a technical how-to." The training developer maintained, "We're not going to teach you about PBL. We didn't tackle that monster." However, all respondents reported the importance of professors understanding PBL, collaborative teaching methods, and technology when using IESLP for instruction. One respondent commented, "I don't think anyone has designed anything like this. You've got to work at figuring out as professor, how to use it. It is not, again, put together in a lap step, module kind of thing. It's very much the professor who has to look at it and learn it and then apply it in a way that meets what they are trying to accomplish in the teaching." Another noted, "A lot depends upon the knowledge and skill of the instructors. I don't think anyone can just point to IESLP and say, go to it. I think it takes a much deeper
understanding of what something like IESLP can do. This kind of program in some people's hands it may not be well used.” A software designer lamented, “you've got faculty whom you want to use this, and they are not well versed in the web or problem-based learning, or how all of this is supposed to integrate into their instruction.” These concerns were tied to the conceptual understanding that IESLP and the use of technology were tools to establish new teaching strategies moving from didactic, rote learning to a collaborative, interactive approach where the teacher is not longer the “sage on the stage” but a facilitator of learning and the student constructs practice and professional knowledge.

Seven respondents listed the ability level of the end user as an issue when designing training. These participants discussed the need to address levels of ability when designing the IESLP program as well as the training. With regard to this concept three participants indicated a need for hands-on training that would allow the professors to complete a problem exercise just as students would when those professors taught using IESLP. Four respondents reported that training was not an initial priority but more of an after thought. Indeed the hiring of a training developer in the final year of development would indicate this to be true. Reported as a prevalent barrier to technology integration (Sheingold & Hadley, 1990; Teles & Duxbury, 1991; MacNeil & Harmon, 1998), only one respondent noted lack of time to learn IESLP as an issue.
The direction that IESLP took varied throughout the eight-year genesis, development, and implementation being examined in this case study. Participants identified five factors affecting the direction of IESLP (a) lack of a single guiding force, (b) unclear concrete picture of IESLP (c) multiple goals for the IESLP program, (d) reliance upon on two enthusiastic people for sustaining the development, and (e) the priority level of the project. Three respondents recognized that the project "would not have gone far" without the energy and "the passion of one or two individuals." One participant added that the UCEA was involved in several activities and had multiple priorities,

I don’t know that if that's a leadership issue, or funding issue or just a priority issue because IESLP was one of five goals that [UCEA] set. ... So there are a lot of other UCEA activities going on. I think it’s kind of been left up to those that are really committed to it. To kind of keep it up there, to keep it up front, keep it going. And, I don’t know unless they do discover a way to get people across the country involved in using IESLP whether it will reach it's full potential.

In addition to the priority level shifting, three respondents questioned if clear goals had been established for using the IESLP program. In the words of an exercise developer, “you know UCEA hasn’t really decided what to do with it. I mean it’s like most of the stuff, it just sort of lays there and if you know about it you can order it.” While a management team member vacillated, “On the one hand you have the issues of preservice use of it to prepare future
administrators. On the other hand, you have the inservice dimension of it to enhance the capacity of people already fulfilling those roles."

Six respondents cited the lack of a single direction or guiding force to provide leadership and coordinate decisions. During the past eight years the IESLP project was passed between two different UCEA project liaisons. Both new liaisons spent months internalizing how problem-based learning, simulations, data-driven decision making, and technology could be used in an administrator preparation program. Multiple respondents remembered identifying dominant personalities during the various planning meetings each attempting to bring IESLP to fruition based on their own conceptual underpinnings about technology and administrator preparation. Additionally, a team of technical experts assisted in writing a funding proposal and program design in Pennsylvania but a different technical group developed and implemented IESLP in Missouri.

Within the CTIE technical team, there were several personnel changes between 1996 and 1999. Two respondents reported that one CTIE administrator "worked with [UCEA] for awhile to try and figure out what it is they wanted to develop, and then at some point, [another person] just took the project over as the project that he would be working on here in Missouri."

Similarly, a second respondent explained that three different software developers replaced the three original software developers who began the work on IESLP. Throughout the genesis, development, and implementation phases, various groups, each with their own backgrounds, beliefs, and agenda
about technology, instruction, and administrator preparation, set the direction of the IESLP program.

Since no one entity focused the direction or goals for IESLP, priorities and steps were taken based on trial and error. One respondent argued that "conceiving of what is the right thing to do is tough to know until you do it and then you get feedback and then you find out whether it was good or bad and you still don't know if that is better than some other alternative. The most important stuff to us originally was getting the data on line and having a place where the problems are presented. Everything else was, well wouldn't it be nice, wouldn't it be nice, wouldn't it be nice. ... Then there was a lot of press to say let's get it all on line. They submit projects on line. They communicate on line. And so it becomes more of a web community thing."

Working in this manner created a situation where the target was ever moving with no clear definition as to what IESLP should or would be. A member of the management team suggested that "because the idea was, at the time, an idea ahead of its' time. ... This was kind of a moving thing that was an information environment. Nobody could understand what we meant by information environment. And then, how would it be used." The lack of direction due to several separate decision-makers, multiple goals, low priority, and unclear direction, impacted other areas and hindered the development of IESLP.

Seven respondents reported a "disconnect" or discrete perspectives among the software developers, exercise developers, and professors piloting
the program. Design decisions were made with little or no input from the exercise developers, professors, or students. When interviewed three exercise developers expressed interest in knowing how the project had progressed. In the words of one exercise developer, "we kind of went in quickly and then wrote some cases, left those, and then heard periodically where the project was going, but we never had any more direct contact with or involvement in the program." Software developers indicated that feedback was desired, "It was hard to figure out how to get people actively engaged in the design of the system. And today we have more tools for helping get people engaged as communication tools beyond e-mail."

Throughout the interview process the disconnect became apparent in comments about the exercise, data, and design of the program. One software developer was under the impression that the rural data had been collected for another project and been re-purposed for IESLP. However, another respondent revealed that lengthy discussions occurred among exercise developers and the management team about which student, teacher, and fiscal data should be collected. Additionally, a survey had been designed and conducted specifically to supply community data to compliment the school data in IESLP. Attempting to clarify this disconnect, an exercise developer explained, "... because they don't really understand. A lot of our technology coordinators come from business and industry and don't have a background in education. Frequently they aren't well informed about why people think this or that and
what is critically important … they don’t know the education questions to ask instead of the technical questions."

This disconnect was most evident in the design of the original database query system. A software programmer admitted that “a programmer had designed the interface and it showed, as opposed to someone who would really say, OK, now how is the user going to use this. So it made sense to me but I knew it wasn’t mapping well to what the users came with.” Some of the software developers did not address the drastic variations in user abilities. Amazed by the disparate technology abilities, one software developer stated, “how could you do that because, I mean, coming from my perspective, I automatically understand that a message board is to be used for this. You can’t build the system for a bunch of people like me. You can’t assume a lot.”

During the genesis phase of IESLP, four respondents reported a chasm between the technical and pedagogical issues. Software designers struggled with “understanding as part of the design how this thing would be incorporated into a faculty member’s instruction. We didn’t know a whole lot about what it is they were going to try and do. Because many, many people were doing something that was so completely unrelated.” Although the educators found the disconnect frustrating, one software developer proffered, “I don’t think that’s any different than any other software development project that I’ve been on, especially one of this scale, with this many people involved in it, and this many decisions, and this many chiefs. It seems like it went about as I expected it to go.”

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From early in the genesis of IESLP, funding issues were evident. The UCEA recognized a need to contract exercise developers to write problems and technical experts to design the data rich environment. Initial funding proposals had a strong conceptual basis for administrator preparation but were vague about the technical design issues. Approached with creating an information environment using real school data, technology, and PBL in administrator preparation, funding institutions were leery of subsidizing such a nebulous innovation. UCEA administrators sought assistance from technology experts to provide a concrete picture and clarify the technical aspects the IESLP project. An early member of the IESLP team said, “Once the UCEA was able to articulate the idea of IESLP more clearly, there were a significant number of people who were very interested.” The four-year search for funding culminated with the partnership among the UCEA, Danforth Foundation, and the University of Missouri-Columbia. Through the development and implementation of IESLP, obtaining funding for web site design, faculty training, systems maintenance, and national distribution continued to be a challenge. A respondent directly involved in the funding issues remarked, “Any kind of technology is an expensive issue, and therefore, from a policy perspective and a funding perspective, you know you’re always going to face a challenge to create the technology infrastructure to support what you’re trying to do.”

Part of the support required for IESLP was the technical support for professors and students. Many of the professors had little or no computer skills or experience with the Internet. Consequently, these professors were not
able to comfortably incorporate the use of technology into their instruction or provide assistance to their students. This issue became most apparent during the 1998 summer pilot program at Missouri. Professors reported that the benefits received did not outweigh the efforts required to use IESLP. One participant asserted, "I think it will continue to be a problem in that the professors will want to do things the way that they currently do them. And, when that is the case, their skill level is going to be relatively low ... Because most of them aren't motivated to be teachers. Most of them are motivated to be, you know, research is what pays." Higher education academic reward systems actually reduce faculty incentives to learn about effective integration of technology and engaging teaching strategies. A university professor and participant in the IESLP project maintained, "A faculty member's concern is not necessarily teaching. Their concern is tenure. And provide research, right? So, teaching really gets shorted in our programs and that's a systemic problem." Self-motivation is the only incentive for faculty to improve their technical skills in order to integrate technology and new teaching strategies into their instruction. A respondent declared that "the payoff for teaching is how students respond, how well they do and how well they like it and what extent it has an impact on them." If universities intend to play a role in preparing administrators to effectively use technology, faculty must be provided incentives and rewards to improve their skills and integrate new technologies into their instruction.
Just as the use of technology for administrative purposes, "has changed so much it's unreal." Rapid changes in technology had a profound effect on the progress and design of the IESLP. During the genesis stage of IESLP, concerns surrounding computer access, platform matters, CD technologies, and obsolescence of information were discussed. Finally, the developers decided "they were willing to take a real risk at starting a database that just the very second, the very instant that they said it, it was obsolete." With the advent of the Internet, the platform issue became mute and the developers began to imagine a web-based rather than a CD-based design. One participant expressed that "the ideas in IESLP continued to develop as technology did. Most of it was kind of exhilarating; discoveries of the new technology opened up new doors and removed old problems."

In one sense, the pace of technology made problems disappear. In another sense, the pace of technology highlighted what have been described as design deficiencies in the web site. The web site was created between winter 1997 and summer 1999, a span of only two years. However, during those years tremendous changes occurred in available web-design technologies. Aspects of the early designs were limited in comparison to what was available and possible by 1999. A software developer explained, "The capabilities that are part of the system were also limited by our own skills and abilities here at the time in doing during web based applications. Because it was such a new technology, what I know today about building web applications and supporting the web, you're talking two years, that's a lifetime in the
Internet.” Technology tools to support communication, data presentations, query systems, and collaboration became more robust and reliable between 1997 and 1999.

**Summary**

A study of the development and implementation of the technology-based information environment for administrator preparation program indicated that despite participants' conceptual agreement about the effective use of technology and the appropriate content of administrator preparation programs barriers existed that hindered the implementation process. Inhibitors to implementing the innovative program were scarce resources, training issues, existing disconnect between educators and software developers, rapid pace of technology, and a lack of consistent direction. These findings have implications for those who provide leadership for the curriculum within administration programs, the use of technology in administrator preparation programs, as well as leaders overseeing the implementation of innovative programs.
CONCLUSIONS AND RECOMMENDATIONS

Background of Study

Researchers have reported the failure of public education and recommended sweeping reforms. In response, many states and school districts began to scrutinize performance assessment methods for students and teachers (Miller, 1987; Daresh & Playko, 1992; Adelmna & Pringle, 1995; Stevens & Lonberger, 1998). With the realization that administrators were key to the success of schools, educational critics began to examine the role, performance, and the preparation of administrators in the late 1980s (Murphy, 1992; Gresso, 1993; Schneider, 1998). Recognizing that many university programs offered coursework that did not serve administrator practice, the National Commission on Excellence in Educational Administration (1987) made a series of recommendations for the improvement of administrator preparation (Achilles, 1987; Murphy, 1992; Daresh & Playko, 1992; Cordeiro, Krueger, Parks, Restine & Wilson, 1993). Recommendations noted the need for clinical experiences, problem-based learning, data-driven decision making, and technology competence (Forsyth, 1987; Griffiths, Forsyth & Stout, 1988; Engle, 1990; Murphy & Forsyth, 1999).
Twenty-first century schools are different from those in the past (Barta, Telem, & Gev, 1995). As noted by the Interstate School Leaders Licensure Consortium (1996), the social fabric of schools is changing. The pace of change in education and technology intensifies the demands on educational administrators to adapt (Mackett, Frederick & Abrams, 1992). Due to the shift to a post-industrial society and a growing reliance on technology, school administrators are faced with significant new challenges, provided new opportunities to implement reform efforts, and required to learn new leadership skills (Means, Olsen, & Singh, 1995; Streifer, 1999). The ability to access, interpret, and analyze information for the purpose of improved data-driven decision-making and increased responsiveness enables administrators not only to accomplish work differently but to accomplish different work (Mackett, Frederick & Abrams, 1992).

Potentially, universities play an invaluable role in preparing educators to use technology effectively in their professional practice. However, studies have suggested most universities are far from realizing that potential (O'Flahavan, 1988; Report to the President, 1997; Riedl, Smith, Ware, Wark, & Yount, 1998; Milken Exchange, 1999; Lemke, 1999; Roblyer & Erlanger, 1999). The cross-curricular integration of instructional technology as well as the use of technology to solve problems and complete real-world tasks is critical in the preparation of educators (McKenzie, 1993; Means, et al, 1995; Milken Exchange, 1999). By providing global communication, problem-based instruction, collaborative
learning, and access to information, new ways of working, learning, and solving problems can be facilitated by technology (Harasim, Hiltz, Teles & Turoff, 1995).

Although models for effective administrator preparation programs exist (Witters-Churchill & Erlandson, 1994), the issue of technology assimilation into school administration has not been thoroughly reviewed (Barta, Telem, & Gev, 1995). Research on the organizational effect of technology has focused on business (Mackett, Frederick & Abrams, 1992). Therefore, the impact of technology on education continues to be unclear (Crane & Spoon, 1998). A need exists to study and disseminate instructional innovations that incorporate the integrated use of technology, facilitate collaboration, promote data-driven problem solving, and support knowledge-building activities (Gagne, 1990; Witters-Churchill, & Erlandson, 1990; Daresh & Playko, 1992; Clark, 1994; Riedl. Smith, Ware, Wark, & Yount, 1998). A university implementing innovative administrator preparation programs should expect to encounter individual as well as organizational issues, concerns, and challenges (Ubben & Fowler, 1992). In order to provide insight into these issues, this descriptive case study chronicled and examined the development and implementation of the Information Environment for School Leadership Preparation (IESLP) program in the preparation of administrators.

**Problem Statement**

Using a descriptive case-study model, this study examined the IESLP program as a learning environment, instructional tool, and communication
medium for preparing future administrators by describing the genesis, design, content development, and implementation of the program.

**Research Design**

Between 1987 and 1992, the Danforth Foundation provided funding to twenty-two universities in order to initiate preparation program reform that would advance the recommendations for alternative approaches to administrator preparation outlined in *Leaders For America's Schools* (Griffiths, Forsyth & Stout, 1988; Murphy, 1992; Cordeiro, Krueger, Parks, Restine, & Wilson, 1993). In 1991, a study examined the impact of the Danforth-sponsored programs, noted differences and similarities among the preparation programs, provided descriptive data, and identified the circumstances that impacted the success of the alternative programs (Ubben, & Fowler, 1992; Cordeiro, Krueger, Parks, Restine, & Wilson, 1993). Conducting descriptive case studies, the consortium interviewed a sampling of university professors and practicing principals to examine specific issues, concerns, barriers in the genesis, development and implementation of the preparation programs (Lincoln & Guba, 1985; Gagne, 1990; Witters-Churchill & Erlandson, 1990). Similarly, a descriptive case study utilizing stakeholder interviews and document analysis was selected as the appropriate research design for this study.

In order to offer insights into the contribution of the IESLP program to educational administrator preparation, it was necessary to develop an historical understanding of the contexts in which the IESLP program was developed and implemented (Goodson & Mangan, 1991). A descriptive case study approach
provided the researcher with the opportunity to interview participants as people rather than subjects (Wolcott, 1990) and to provide a rich descriptive analysis of the contexts, activities, and beliefs of participants in the IESLP program (Guba & Lincoln 1981; Guba & Lincoln, 1985; Guba & Lincoln, 1989). Merriam (1988) defined a case study as an intensive, holistic description of a social system or phenomenon emphasizing how people make sense of their experiences and their interpretations of the experiences. This case study focused on understanding the barriers, incentives, and challenges encountered during the development and implementation of the IESLP program. Since no a priori hypotheses existed, this study employed an inductive and generative qualitative case study methodology (Goetz & LeCompte, 1984; Borg & Gall, 1989; Pitman, 1991). Although the problem statement determined initial data gathering, stakeholder interviews and document analysis directed further data collection (Wolcott, 1990; Pitman, 1991).

Memos, correspondence, on-line chat transcripts, manuals, proposals, presentations, student work, and other related communications between and among stakeholders were examined during this study. However, interviews with key stakeholders in the IESLP project were the primary method for gathering data. In order to avoid limiting the frame of reference and to prevent conditioning of respondents, general questions were asked first (See Appendix II). Participants were allowed to diverge from the semi-structured interview questions in order to add comments that clarified the discussion (Borg & Gall, 1989). Questions that implied or suggested a response were not used. This technique
permitted the researcher to query comments and ideas that seemed informative and enlightening.

Content validity is the degree to which information derived from sample questions represent the information that the questions were designed to measure (Borg & Gall, 1989, p. 276). The content validity of the semi-structured interview was heightened through procedural refinement and field-testing enabling the researcher to clarify statements, discern appropriateness of the questions, and estimate the time necessary to complete an interview (Bogdan & Bilken, 1982). Initially, a qualitative research methods professor in the education department at University of Nevada, Las Vegas reviewed the semi-structured questions and interview protocol. Interview field-testing and content reviews were conducted with Larry McNeal, professor in the educational leadership department at the University of Arkansas, Little Rock. Larry McNeal, a leading researcher and content developer on the IESLP project, was able to simulate an interview. All comments and suggestions for improvement were documented and incorporated into the final version of the semi-structured interview questions.

Six groups were involved in the genesis, design, content development, and implementation of the IESLP program: Management Team, Exercise Developers, Software Development Team, Rural Environment Developers, Consultants, and Planning Team. Participants were chosen based on the diversity, timeframe, and extent of their involvement in IESLP as well as their unique knowledge of the project (Guba & Lincoln, 1981). Respondents were interviewed regarding their perceptions of their roles, expectations, successes,
concerns, and challenges while involved in the IESLP program. Prior to each interview, participants were given a copy of the research proposal, an overview of the interview questions, and an Informed Consent letter (See Appendix I). In order to maintain confidentiality throughout the study, the names of respondents were not used unless express and explicit permission was given by the respondent to report otherwise. To the extent possible every effort was made to protect the anonymity of all participants. All interviews were audiotaped and transcribed (Fowler, 1988). Six interviews were face-to-face and five were conducted over the telephone between January 6, 2000 and February 18, 2000. Following each interview, the researcher summarized notes and began the initial analyses by recording issues, concerns, and descriptors (Guba and Lincoln, 1985; Pitman & Dobbert, 1986; Wolcott, 1994).

The trustworthiness of all research is judged by its applicability, replicability, and comparability across groups (Goetz & LeCompte, 1984). Stake (1995) advocated researcher bias monitoring, triangulation, member checks, and thick description as appropriate procedures for case study methodology. As a strategy for clarifying researcher biases and to triangulate data, the systematic, and periodic examination of data from different sources was key to analysis (Millman & Gowin, 1974; Bogdan & Bilken, 1982; Bogdan & Bilken, 1992; Wolcott, 1994). In this study, the consistency of the data coding, notes, and findings of the interview transcripts and documents were reevaluated after a three to four week period of time. Using thick description, the study provided a literal description of the circumstances surrounding the development and
implementation of IESLP (Guba & Lincoln, 1981; Wilcox, 1982). To strengthen generalizability, attributes of the IESLP project that were salient for comparison with similar phenomenon were clearly described and identified (Goetz & LeCompte, 1984, p. 229). Determination of validity was accomplished through member checks. In member checks, respondents were given data and interpretations for review and asked if they found the results plausible and accurate (Guba & Lincoln, 1981, Stake, 1995). All suggestions and comments were included in the final draft.

**Limitations**

This study may be limited to the population studied for three reasons. First, the data collected through stakeholder interviews about their expectations, concerns, and challenges will be dependent upon self-reflection and self-analysis by the respondents. Therefore, the honesty and accuracy of the interviewees may have limited the reported data (Borg & Gall, 1989). Secondly, a critical variable in student learning “is the instructor - particularly the differences among instructors.” These differences may be due to normal variations in teaching techniques. However, these differences could indicate that instructors do not have a shared understanding of their program’s purposes (Engel, 1990, p 39). Conversely, participants in a preparation program bring with them core beliefs that may limit the impact of the training (Sergiovanni, 1994).

**Research Conclusions**

In *Transforming Qualitative Data*, Wolcott (1994) identified three methods of reporting descriptive data (a) rendering an account or description of the data...
as fact, (b) identifying essential features and interrelationships among the data, and (c) attempting to understand and explain the meaning of the data. After reporting the history of IESLP and allowing the “data to speak for itself”, chapter four expanded and extended beyond pure description to an analysis that proceeded in a systematic way to identify key factors and relationships among the data (Wolcott, 1994, p. 10). In order to identify key issues confronting respondents, the data were studied for paradoxes, issues, and concerns about which all of the respondents either agreed or disagreed (Millman & Gowin, 1974; Wolcott, 1994). Through this analysis of the data, certain themes began to emerge which were relevant to the problem statement and the research questions. Based on the descriptive account and analysis of the data, the goal of chapter five is to interpret the data in order to answer the question “what does this all mean” (Wolcott, 1994)? The interpretation of the data is based on the analysis of data in relationship to the following research questions:

1. Does the IESLP program implement the recommendations presented in Leaders for America’s Schools (Griffiths, Forsyth & Stout, 1988)?

2. What benefits, issues, and challenges does the use of the IESLP program in administrator preparation courses present to developers, designers, instructors, and students?

3. What barriers or incentives exist in using IESLP as an instructional tool?

4. Does IESLP incorporate the best practices of applying technological tools, as defined in this study, to administrative practice?
5. How does the use of IESLP, as an instructional tool, effect participant’s attitudes about technology?

6. Does the use of IESLP produce the conditions under which the attitudes and skills necessary to integrate technology into administrator practice are transmitted and acquired?

With regard to research questions one and four, examination of the data indicates that IESLP implemented the recommendations presented in Leaders for America’s School (Griffiths, Forsyth & Stout, 1988) and incorporated the best practices of applying instructional technology tools, as defined in this study. In reference to questions two and three, respondents identified personal benefits and incentives rather than external rewards. A strong personal commitment regarding the potential of using IESLP to improve administrator preparation induced respondents to participate in the project. Based on the data in this study, six barriers were identified (a) lack of consistent direction, (b) scarce resources, (c) training issues, (d) existing disconnect between educators and software developers, (f) rapid pace of technology, and (g) reduced incentives for higher-education faculty to integrate technology into instruction. Research question five addressed changes in participant’s attitudes toward technology due to their involvement in IESLP. The effects of IESLP on participant’s attitudes toward technology were undistinguishable from the effects of other technologies. The data from this study was not conclusive regarding whether IESLP produced the conditions under which the attitudes and skill necessary to integrate
technology into administrator practice were transmitted and acquired. Therefore, research question number six remained unanswered.

The Role of Technology in Administrator Preparation

Based on the analysis of the data, a profile was developed which described the features and attributes of IESLP as they related to the recommendations in Leaders for America's Schools (Griffiths, Forsyth & Stout, 1988). Among the initiatives recommended by the National Commission on Excellence in Educational Administration report (1988) were the integration of clinical experiences with course work, instructional delivery based on adult learning theory, realistic problem solving through actual cases and simulations, the reorientation of research to practical problems encountered in the field, the development of optimum uses of technology, the use of data-driven decision making in order to improve schooling, and strategies for peer collaboration (Sergiovanni, 1987; Griffiths, Stout, & Forsyth, 1988; NASSP, 1992, Murphy, 1993; Sergiovanni, 1994). As reported by respondents, IESLP represents an innovative, engaging, and cross-curricular technology-based instructional tool that bridges the theory-practice gap by providing a context or information environment in which students interact in groups to the identify and solve problems by analyzing an interpreting real-world data and problems of practice in order to improve schooling. As Figure 1 indicates, IESLP does implement the recommendations presented in the in Leaders for America's Schools (Griffiths, Forsyth & Stout, 1988).
In order to determine whether or not IESLP represents the best practices of applying technological tools, the researcher compared the description of IESLP, based on the data, with the definition of best technology practices or the invention level of technology use. At the invention level, teachers viewed instruction as a creative, learner-centered endeavor and encouraged students to collaborate, problem solve, and construct knowledge from information gathered through a variety of sources (Haymore Sandholtz, Ringstaff, and Dwyer, 1997). Respondents reported that the IESLP program was a unique and engaging instructional tool that promoted student centered-learning, provided access to information, and facilitated the use of problem-based learning, technology, collaboration, and data-driven decision-making in the instruction of preservice administrators. Based on work, journals, and comments, students valued the collaborative activities fostered by IESLP such as exchanging information, ideas,
and perspectives in order to build knowledge and solve complex problems. Therefore, similar to PBL and inventive uses of technology (Bridges, 1992; Harasim, Hiltz, Teles, & Turoff, 1995), IESLP provided benefits at the cognitive, affective, motivational, and functional level. Evidence from the interviews and documents supports the conclusion that IESLP does advance the best practices of applying technology to administrator preparation.

Despite their belief in the potential of IESLP to impact learning, four participants identified a "healthy skepticism" toward technology and stressed the need to question when and how technology is used in schooling. It is important to examine if one is using the "right technology at the right time to meet the right objective" (CEO Forum, 1998, p. 6). If technology is to serve the purposes of educational reform, it must be grounded in the interests, abilities, needs, resources, and constraints of a community and embedded in a larger process of a coherent, school-wide instructional change (Means, Olsen, & Singh, 1995; Hunter, 1998). The IESLP experience demonstrated that an innovative instructional technology being employed in an administrator preparation program should (a) be based upon the recommendations presented in Leaders for America's Schools (Griffiths, Forsyth & Stout, 1988), (b) incorporate the best practices for applying technology to schooling, and (c) be an integral part of a comprehensive plan for reform. Additionally, university programs must ensure that preservice administrators acquire technology skills as well as understand the capability of technology to transform schools and promote new ways of learning and accomplishing goals.
Barriers and Challenges to Implementing IESLP

An analysis of the data regarding the genesis, development, and implementation of IESLP indicated that despite participants' conceptual agreement about the effective use of technology and the content of administrator preparation programs, barriers existed that hindered the implementation process. Among the barriers to implementing the innovative technology program were a lack of consistent direction, scarce resources, training issues, existing disconnect between educators and software developers, rapid pace of technology, and reduced incentives for higher-education faculty to integrate technology into instruction.

Kulik (1994) identified technology innovation as a three-stage process. Initially, innovations are vaguely characterized with no clear conceptual basis and definition of terms. This was apparent throughout the eight years of the IESLP project. Between 1993 and 1997, participants expressed difficulty when explaining the project to funding agencies and potential partners. When the design group settled on a DOS-based CD design, the capabilities of technology changed and so did IESLP. As IESLP moved to the web, people began to equate it with distance learning. Few could conceptualize how the environment would be incorporated in an administrator preparation program. The 1998 pilot group tried to “drop the program into their instruction.” Only after attempting to use the environment, did the pilot group realize that IESLP was designed to be the foundation of a preparation program rather than an add-on. After the 1999 summer beta-test, the IESLP program became more clearly defined.
Kulik (1994) reported that during the second stage of the process the innovation has a conceptual basis but is implemented in a variety of ways. By providing supplemental computer instruction, incorporating additional local data, utilizing the communication tools, and requiring varying extension activities, the 1999/2000 pilot teachers integrated the IESLP program into their instruction in different manners. In the final stage, as outlined by Kulik (1994), the innovation becomes defined precisely including specific instructional materials, well-developed training procedures, and detailed prescriptive manuals. Although, pre-publication draft of the IESLP Instructor's Guide was printed in limited quantities and an online tutorial was created, IESLP had not advanced to the third stage as of February 2000. Training procedures and detailed instructions were not clearly established or consistently employed. Challenges and issues hindered or may have prevented IESLP from completing this cycle.

When developing and implementing a technology innovation, the task is to insure that the innovation moves through the process to fulfillment. Based on the data, IESLP shifted directions repeatedly due to changes in personnel, technology, priorities, and participants' commitment. Although multiple personalities provided input, not all participants were represented such as the end users of the program. Critical to the project was the lack of a single guiding force; no one person provided leadership or coordinated decisions. Though a conceptual framework had been established, a vision and a process to realize that vision were missing. "Without a vision and without a process to imbue others with a sense of importance of that vision; and without a procedure to begin
to actualize that vision" (Chance, 1992, p. 38), then the innovation will fail. The development and implementation of an instructional technology innovation requires a leader capable of influencing the behavior, thoughts, and actions of all involved.

Implementing an instructional technology innovation requires the efforts of several forces coming together. When developing a technology innovation for instruction, it is essential to have groups with unique knowledge of pedagogy, schools, and technology to provide input and expertise. The participants in the IESLP project consisted of six teams or clusters. These clusters were comprised of educators, practitioners, administrators, and technical staff. Upon examination of these teams, it became apparent that each cluster had their own language, goals, and perspectives regarding the implementation and the outcome of IESLP. To illustrate, educators discussed faculty skill level, pedagogical goals, and the reform of administrator preparation programs. In contrast, technical staff expressed concerns about "mapping well to what the users came with," hardware issues, system limitations, "getting the data online," and designing an innovative Internet tool.

Throughout the development and implementation of IESLP, these differences resulted in a disconnect among the participants that was most evident between the educators and the technical staff. However, each of these clusters played an important role in the development and implementation of a technology innovation for instruction. The New Economy: A Guide for Arizona (1999) reported that it is not just the individual clusters are important but "how
they are put together” (p. 12). When coordinating the teams or clusters, it is imperative that leaders are aware of the impact of the various perspectives. Designers might tend to underestimate the importance of a given factor to other stakeholders, leading to unmet expectations” (Klimczak & Wedman, 1997). A software developer’s comments illustrate this point,

    And I think when we started to build stuff, people responded to what we built in a variety of ways because it maybe didn't meet the conception in their head of what they thought they would be getting. Other people went, wow, oh that's interesting. I've never conceived we'd be doing that.

The combination of clusters of creative, knowledgeable people; an innovative idea; and technology has the power to reform administrator preparation programs. Coordinating these clusters requires a new kind of leadership. Key to the effective implementation of an educational technology innovation, a leader must be able to foster interaction among the clusters and learn to coordinate the teams (The New Economy: A Guide for Arizona, 1999). One participant stated that a way must be found to “actively engage people in the design of the project.” These collaborative and interactive endeavors are enhanced by the effective inventive use of technology (Dede, 1989; Koufman-Frederick, Lillie, Pattison, Watt, & Carter, 1999; Becker, & Reil, 1999). To prevent a disconnect among clusters, a leader must insure that open communication channels, frequent collaboration, and feedback loops are provided. This study revealed that the effective development and implementation
of a technology innovation requires leaders to create new connections among clusters and thrive on change.

Respondents reported that the pace of technology change had an impact on the design of IESLP. One participant commented that "IESLP continued to develop as technology did." IESLP was first conceptualized as utilizing CD technology. However, Internet technologies became available and IESLP was designed as a web site. In order to accommodate improvements in technology, this study revealed that applications should be designed with open architectures that are flexible and adaptable. Six of the participants reported that the school district data in IESLP was out-dated. In 1999, UCEA began negotiations with the Houston School District to access dynamic student, teacher, fiscal, and community data. Although accessing live data would insure that IESLP remained up-to-date, it would require programmers to rewrite the database component. IESLP was designed to allow submission of additional problem exercises but was not designed to accept new data or to quickly update the existing data. Monroe City, Primus, and Apex became obsolete because of the extensive resources required to update and maintain the simulations or cases. The IESLP experience showed that technology applications should be designed to change with and incorporate new technologies.

Researchers have identified five barriers to the integration of technology into instruction: (a) lack of time, (b) lack of access to hardware, (c) problems with software, (d) need for training, and (e) lack of direction on how to integrate technology (Teles & Duxbury, 1991, Means, Olsen, & Singh, 1995, MacNeil &
Harmon, 1998). In this study, only one respondent reported time as an issue suggesting that time and equipment were no longer the strongest barriers to implementation. In the 1990s a nationwide goal was to increase the amount of technology available to schools (McKinsey & Company, 1995; George, 1998). The focus was on the acquisition of computers and software with little thought toward integrating technology into instruction (Haymore-Sandholtz, Ringstaff, & Dwyer, 1997; Riedl, Smith, Ware, Wark, & Yount, 1998). As the technology infrastructure in education increased faster than the effective incorporation of technology into curricula (ISTE, 1999), the identified barriers have shifted from time and equipment to the need for training.

Klimczak and Wedman (1997) asserted that training was the factor most frequently reported as contributing to the successful implementation of a new instructional product. Effective training is essential for the implementation of new instructional technology innovations. Therefore based on the data from this study, the new challenge is to determine the crucial elements to be included in the training. This study suggested that training for programs such as IESLP must address the following elements:

1. implementation of new engaging instructional practices such as PBL,
2. adult learning theory,
3. multiple delivery systems,
4. hands-on real-world activities,
5. levels of learners' technical ability, and
6. ongoing support.
Faculty members should move from rote and lecture to collaborative and interactive teaching as well as learn to effectively model and integrate the technology innovation into their classroom instruction. The implementation of instructional technology innovations must represent best practices or inventive uses of technology (Haymore Sandholtz, Ringstaff, and Dwyer, 1997). Training should be delivered in several delivery modes such as online, face-to-face, and written manuals. Additionally, training activities should provide the learner with the opportunity to use the technology innovation as they would in their instruction. Training must move beyond “how to use the program” to how the technology innovation will improve teaching and engage learners. Finally, the training must acknowledge and respect the disparate technical abilities of the users and provide methods for continued technical and pedagogical support once the initial training has been completed.

When responding to the how their involvement in the IESLP project affected their attitude toward technology, eight participants reported that no single project or experience influenced their attitude toward technology. A testament to the prevalence of technology in society, participants could not distinguish how their attitude was effected by their involvement in IESLP from the technology permeating their life. Although attitudes varied toward technology, personal benefits rather than external rewards were identified consistently as the motivation for participating in the IESLP project. During the 1998 summer pilot program at Missouri, professors reported that the benefits received by using IESLP did not outweigh the efforts required to use the program. The National
Council for the Accreditation of Teacher Education reported that due to a lack of incentives, university faculty did not use technology extensively in their own profession and underestimated the need for integration into preparation programs (NCATE, 1997). Higher education academic reward systems actually reduce faculty incentives to learn about effective integration of technology and engaging teaching strategies.

University professors are engaged in four major activities: research, publishing, service, and instruction. Tenure and salary are most often acquired through research, publishing, and service with little regard for instruction. This study documented that incentives for faculty to modify their instruction are grounded in the syncretic desire to positively impact student learning as well as the self-motivation to improve technical skills, to integrate technology, and to incorporate new teaching strategies. However, reliance on the personal motivation of faculty will not ensure widespread effective use of technology within preparation programs. If universities intend to play a critical role in preparing administrators to use technology, faculty must be provided incentives and rewards to improve their skills, model technology skills, and integrate new technologies into their instruction.

**Considerations for Implementing Technology Innovations**

Based on the conclusions in this study, an institution wishing to develop and implement an innovative, learner-centered technology based instructional program must consider the following:
1. Influence the behavior, thoughts, and actions of all of those involved by providing leadership with a focused vision and a process to realize that vision.

2. Foster leaders who are able to thrive on change and encourage collaboration among diverse groups.

3. Facilitate interaction, feedback, and communication loops among the cluster groups such as technical personnel and educators.

4. Design responsive and flexible technology applications that are capable of changing with and incorporating new technologies.

5. Insure that training addresses the integration of technology into instruction with a focus on inventive use and best practices.

6. Provide a strong and consistent professional development component based on adult learning theory, utilizes various delivery modes, addresses multiple technical skill levels, applies different learning styles, and provides ongoing support for professors and students.

7. Create meaningful incentive programs for faculty to integrate technology and incorporate the new teaching strategies.

**Recommendations for Further Study**

With regard to the final research question regarding whether IESLP produces the conditions under which the attitudes and skill necessary to integrate technology into administrator practice are transmitted and acquired, this study was not conclusive. Looking at the comments and work of the students identified in the 1999 pilot study, it would appear the IESLP does produce these conditions. Students valued the opportunity to use ISEL, identified problems with more
clarity and focus, and recognized the need to use data to improve schooling. However, this was a small sampling of students from only three universities and more research is needed on this subject.

Additional research is needed to clarify the leadership characteristics and skills necessary to successfully develop and implement instructional technology innovations. In order to provide effective training for the implementation of instructional technology innovations, the crucial training elements should continue to be explored. Recognizing that faculty rewards and incentives are necessary, further research should be conducted to determine what combination of incentives would most impact faculty teaching strategies as well as the integration and modeling of instructional technologies. Two respondents suggested that the value of the 1999 version of IESLP lay in the fact that it was a prototype. Developers and educators recognized IESLP as a prototype for integrating technology, PBL, data-driven decision making, and collaboration into administrator preparation. In which case, more research is needed to determine the next iteration of IESLP. However unless the issues identified in this study regarding the lack of direction, disconnect among clusters, critical training elements, pace of technology, and meaningful faculty incentives are addressed, IESLP may follow the in the steps of the defunct Monroe City, Primus, and Apex.

**Summary**

Based upon the analysis of the research data, the IESLP program incorporates the recommendations noted in the Leaders For America’s Schools (1987) and demonstrates the best practices for the integration of technology into
instruction. By describing the genesis, design, development, and implementation of IESLP, issues, challenges, incentives, and benefits to implementing ISELP were examined. Based upon the data, the issues of direction, disconnect, training, the pace of technology change, funding, and the lack of faculty incentives were identified.

These findings have implications for those who provide leadership for the curriculum within administration programs, the use of technology in administrator preparation programs, as well as leaders overseeing the implementation of instructional technology innovations.
APPENDIX I

PROTOCOL GUIDELINES AND FORMAT

INFORMED CONSENT
1. BACKGROUND: In the late 1980s, the UCEA proposed an innovative Internet-based learning environment that balanced the need for theory and practice in the teaching of school administration. The Information Environment for School Leader Preparation (IESLP) used information resources from school districts in conjunction with research libraries from universities as the backdrop for problem-based learning (Forsyth, 1999). IESLP provided a platform for future administrators to learn to collaborate, problem solve, and utilize technology for the ultimate purpose of improved schooling (Short, Forsyth, Mclsaac, & Grabowski, 1994).

Computer-based technology was designed to be an integral part of IESLP. The IESLP exercises were completed by students in face-to-face groupings using computers for "real world" applications (UCEA, 1997). IESLP required students to research, communicate, interpret, and present information using technology. Using the Internet-based environment, students used problem solving, collaboration, and group-decision making to study the complexities of modern schools while developing the skills and practices related to successful school leadership. The goal of this sophisticated problem-based instructional system was to stimulate a
revolutionary departure from predominant patterns of administrator preparation (Short, Forsyth, McIsaac, & Grabowski, 1994, Forsyth, 1999).

2. SUBJECTS: Several groups were involved in the genesis, design, content development, and implementation of the IESLP program. From the inception of IESLP, a management team oversaw the coordination and organization of these groups during the various implementation phases. Exercise, software, and rural environment developers contributed to the design and construction of the IESLP environment. The implementation phase involved university instructors and students from UCEA member institutions. Stakeholders from each group will be interviewed regarding their perceptions of their roles, expectations, concerns, and issues regarding the IESLP program. Three to five UNLV educational leadership students who used the program during the beta-test year of 1999 will be interviewed regarding their perceptions of the IESLP program. Participants will be asked to release documents in their possession that would be relevant, add depth, or be beneficial to this study. Respondents will not receive monetary benefit or academic credit for participation in the study.

3. PURPOSE, METHODS, PROCEDURES: This study will be designed to chronicle the development and implementation of the IESLP program as an instructional tool, a learning environment, and a communication medium within administrator preparation programs. This study will seek to identify incentives and barriers to the teaching/learning process when using IESLP; understand the cultural transmission of students' attitudes about and uses of
IESLP; and examine the benefits, challenges and issues associated with the use of the Internet environment within a face-to-face course. This study will add to the literature base regarding the development and implementation of innovative, effective, meaningful preparation programs for school leaders.

A descriptive case study employing the ethnographic techniques of stakeholder interviews, document analysis, and participant observation has been chosen for this study. Merriam (1988) defined a case study as an intensive, holistic description of a social system or phenomenon emphasizing how people make sense of their experiences and their interpretations of the experiences. Memos, correspondence, on-line chat transcripts, manuals, proposals, presentations, student work, and other related communications between and among stakeholders will be examined during this study. The primary method of gathering data will be through individual semi-structured interviews conducted with stakeholders involved in the IESLP program from inception to the beta-test year 1999.

4. POTENTIAL RISKS: The risks to participants in this study will be minimal. To insure minimal risks, participants will be given a copy of the research proposal to read prior to beginning the study. Prior to each interview, participants will be told that the interview will be stopped upon their request and that they may choose to not participate any time during the study. Additionally, the researcher will restate that to the extent possible all ideas, issues, and concerns expressed by the participants will remain anonymous and confidential.
The researcher will secure all research data such as audiotapes, online-chats, transcripts, and other written documents in a private locked facility for three years. Participants will be provided with a written copy of their interview transcripts and a summary of findings to review for accuracy. Unless otherwise agreed to by a specific participant, all references to respondents by name within the IESLP project will be kept strictly confidential. To the extent possible, the anonymity of participants will be guaranteed. Due to these safeguards, the risk to participants will be minimal. The results of the study may be published in professional journals or presented at professional meetings.

5. BENEFITS: Due to the limited research about university educational administrator preparation, programs have been built upon tradition with minimal evaluation and data-driven decision-making for program enhancement (Achilles & Ramey, 1990). The IESLP program is a unique and innovative tool that promotes the use of problem-based learning, technology, collaboration, and data-driven decision-making in the instruction of preservice administrators. Therefore, it is important to determine the existence of incentives and barriers to the teaching/learning process encountered when using the IESLP program. This study will add to the literature base by identifying the benefits, challenges and issues associated with the use of the Internet environment within a face-to-face course. Finally, this study will examine the cultural transmission with regard to the students' attitudes toward and uses of the IESLP program as a data collection, research, and
communication tool to solve "real world" problems encountered by school administrators.

6. COST TO SUBJECTS: The will be no additional costs incurred by respondents as a result of participating in this study.

7. INFORMED CONSENT: Prior to the first scheduled interview, a copy of the research proposal, semi-structured questions, and consent form will be mailed to each respondent. The researcher will begin the interview by summarizing the purpose of the study and explaining the conditions of the consent form. Each respondent will receive a copy of the signed consent form and the original will be stored in a private locked facility for three years.
DATE: December 6, 1999

TO: Karlene McCormick-Lee
   Educational Leadership
   3002

FROM: Dr. William E. Schulze, Director
      Office of Sponsored Programs (X1357)

RE: Status of Human Subject Protocol Entitled:
   "A Case Study of the Information Environment for School Leadership
   Preparation (IESLP) Project"
   OSP #303s1299-174e

The protocol for the project referenced above has been reviewed by the Office of
Sponsored Programs and it has been determined that it meets the criteria for exemption
from full review by the UNLV human subjects Institutional Review Board. This protocol
is approved for a period of one year from the date of this notification and work on the
project may proceed.

Should the use of human subjects described in this protocol continue beyond a year from
the date of this notification, it will be necessary to request an extension.

If you have any questions regarding this information, please contact the Office of
Sponsored Programs at 895-1357.

cc: OSP File

Office of Sponsored Programs
4505 Maryland Parkway • Box 451037 • Las Vegas, Nevada 89154-1037
(702) 895-1357 • FAX (702) 895-4242
University of Nevada, Las Vegas  
Department of Educational Leadership  
Informed Consent

To whom it may concern,

I am a doctoral student at the University of Nevada, Las Vegas in the Department of Educational Leadership. Dr. Patti Bruza-Chance is my advisor. I am requesting your participation in a descriptive case study of the Information Environment for School Leadership Preparation (IESLP) Project.

The following information is being provided to assist you in deciding whether or not you wish to participate in this study. Your participation in the current study is entirely voluntary and you are free to withdraw your consent at any time without adversely affecting your relationship with the researcher or the University of Nevada, Las Vegas.

Purpose:  
This study will be designed to chronicle the development and implementation of the IESLP program as an instructional tool, a learning environment and a communication medium within administrator preparation programs. Additionally, this study will examine the cultural transmission with regard to the students' attitudes toward the IESLP program as a data collection, research, and communication tool to solve "real world" problems encountered by school administrators.

Benefits:  
The IESLP program is a unique and innovative tool that promotes the use of problem-based learning, technology, collaboration, and data-driven decision-making in the instruction of preservice administrators. Therefore, it is important to determine the existence of incentives and barriers to the teaching/learning process encountered when using the IESLP program. This study will add to the literature base by identifying the benefits, challenges and issues associated with the use of the Internet environment within a face-to-face course. Finally, this study will examine the cultural transmission with regard to the students' attitudes toward and uses of the IESLP program as a data collection, research, and communication tool to solve "real world" problems encountered by school administrators.

Procedure:  
A descriptive case study employing the techniques of semi-structured interviews, document analysis, and participant observation has been chosen for this study. The primary method of gathering data will be through individual semi-structured interviews conducted with stakeholders involved in the IESLP program from inception to the beta-test year 1999. Participation in this study

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will require approximately 2-4 hours of interview time. Either face-to-face or telephone interviews will be conducted at a mutually decided upon time and location. Follow-up telephone interviews may be necessary for additional information or clarification. Memos, correspondence, on-line chat transcripts, manuals, proposals, presentations, student work, and other related communications between and among participants will be examined during this study. You are being asked to provide and release documents in your possession that would be relevant, add depth, or be beneficial to this study.

Interview Topics:
During the semi-structured interview, you will be asked a number of questions regarding your involvement and experience with the IESLP project. Please begin with a brief autobiography of yourself including your current position and your role within the IESLP project. After which, describe your personal and professional use of technology. Characterizing barriers and incentives, please define the benefits, issues, and challenges you encountered while using the IESLP program. Additionally, discuss the potential value of IESLP as a learning environment, an instructional tool, and a communication medium. Please review your beliefs about the role of technology in administrator preparation and practice. Finally, describe how your involvement in the IESLP project effected your attitude toward using technology in your professional endeavors.

Conditions:
All research data such as audiotapes, online-chats, transcripts, and other written documents will be secured in a private locked facility for three years. Participants will be provided with a written copy of their interview transcripts and a summary of findings to review for accuracy. Unless otherwise agreed to by a specific participant, all references to respondents by name within the IESLP project will be kept strictly confidential. To the extent possible, the anonymity of participants will be guaranteed. The results of the study may be published in professional journals or presented at professional meetings. At the completion of the study you will receive a final report. No compensation will be given for participation in this study.

Your questions about this research are invited before, during, and after your association with the study. For questions regarding the rights of research subjects, contact the Office of Sponsored Programs, 702-895-1357. If you have further questions, please feel free to contact the project researcher, Karlene Lee, at 799-5417 ext. 332 or lee@interact.ccsd.net.
University of Nevada, Las Vegas
Department of Educational Leadership
Informed Consent

Your signature below will certify that the content and meaning of the information on this consent form have been explained to you. Also, your signature will indicate that you have decided to volunteer as a research participant. You will be given a signed copy of this agreement for your records.

_________________________________________     Date
Signature of Participant

_________________________________________     Date
Signature of Researcher
Semi-structured Interview Format

Introduction:

I am Karlene Lee a doctoral student from the University of Nevada, Las Vegas. I am conducting this interview as a part of the data collection for a descriptive case study of the IESLP program. It is not an evaluation of you but a means of soliciting your views and perspectives regarding the project. A critical aspect of the study is to get a sense of what everyone feels and thinks about the IESLP program.

I will guide this interview with some topics and ask that you respond to each item. I am going to record the interview so that I can focus on the discussion without having to take as many notes. I want to use your statements, as well as those of other respondents, to build a more complete story about IESLP. You are free to turn the tape recorder off at any time and whatever is said will remain anonymous.

Questions:

1. The first questions will provide background on you as a professional. Please give a brief autobiography of yourself starting with your current position, your role within the IESLP project, and how long you have been involved in the IESLP project.

   Probes:
   a. Are you a student, teacher, administrator, professor, consultant, technical expert?
   b. Are you a concept developer, designer, environment/exercise developer, teacher, student, technical expert?
   c. At what point did you become involved in the IESLP project - the inception (1987) or more recently (1999) ?

2. Now, I would like to focus on your views and use of technology. Please describe your personal use of technology. Discuss the use of technology in your profession career.

   Probes:
   a. What types of applications do you use? personal, professional
   b. How (Why) do you use technology in your personal life?
   c. How (Why) do you use technology in your personal life?
   d. Are there some technology skills you feel you need to develop?

3. Describe your beliefs about the role of technology in administrator preparation.

   Probes:
   a. What types of applications should preservice administrators use?
b. How (Why) should university professors use technology in administrator preparation programs?
c. How (Why) should preservice administrators use technology in their preparation programs?

4. Review your beliefs about the role of technology in administrator practice. How did you come to this belief?
   Probes:
   a. What types of applications are important for administrators to use?
   b. How (Why) should administrators use technology in their professional practice?

5. I would like to center the next questions on the IESLP project. Please describe the IESLP program?
   Probes:
   a. Positive? Negative?
   b. How have you used IESLP?
   c. What is the potential value of IESLP?

6. Explain the benefits, issues, and challenges of the IESLP program that you have encountered.
   Probes:
   a. Do you believe that using the IESLP program makes a person more efficient? makes it easier to communicate? makes a person more productive?
   b. Have there been problems that have interfered with your involvement in IESLP?
   c. Have there been instances when you overcame a challenge regarding IESLP? What was the occasion? How did it make you feel? How did it make you feel about IESLP? How did it make you feel about technology?
   d. If you could change something about the IESLP program, what would it be?

7. Characterize the barriers and incentives to using IESLP as an instructional tool, a delivery mode, or a communication medium.
   Probes:
   a. How has your involvement with the IESLP program affected or been affected by time, location, training, technical support, facilities?
   b. How have you addressed the each of these issues?
8. Describe how your involvement in the IESLP project has affected your attitude toward using technology in your professional endeavors. **Probes:**
   a. Are you more likely to use technology to research, communicate, interpret, and present information? or What have you learned about designing or troubleshooting technology programs for use by higher education professors for the preparation of administrators?
   b. What in particular about the IESLP program do you like? dislike?
   c. Describe how you will use what you have learned during your involvement in the IESLP project in the future?

9. Are there any topics about administrator preparation, IESLP, or technology you feel I should know about before we end the interview?

10. Would you feel comfortable continuing this dialogue about the IESLP project if I have additional questions in the future?

**Closing:**
Thank you for your participation in this session. I have learned a great deal from you that will very helpful when completing my study.

**Notes:**
Make final notes regarding interview, record any nuances or important observations, and catalog tapes (time, date, and respondent) for future reference.
APPENDIX III

CODED DATA ANALYSIS
## Coded Data Analysis

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<thead>
<tr>
<th>Number of Respondents</th>
<th>Category</th>
<th>Examples of complete statements</th>
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| Nine                  | 1. Access, Interpret, Use Information | 1. The assertion is, this is a very powerful learning tool that can build knowledge, can build skill, and, I think, could even build sensitivity to data, to what data say, to what saying those things might mean to people when they use those data  
  2. A set of data from a real school to provide data context and then a set of problems, challenges, project for student to work on in the context of that data.  
  3. The idea is not to do a simulation, but to provide providing a rich context of information and a set of problems, and then have the students develop plans and solutions to those problems. |
| Eleven                | 2. Solve problems in order to improve schooling | 1. It was based on that belief that we have an information environment in which educational leaders function and the true challenge was to figure out how to use information to make good decisions.  
  2. Able to tap information, secure information, analyze information, use information in decision-making. I have long had a very, very strong concern about how we as educators make decisions based on opinion on that level. We don't do a lot of data drive decision-making.  
  3. That was the original impetus for the IESLP idea, was that the problems that should be included for study and training of administrators and leaders should array themselves on a continuum form problem finding to what we called problem presented. To examine all of the things within the school organization to see how they prevent the optimal the teaching learning form taking place. |
<p>| Six                   | 3. Develop problem finding skills   | 1. I still think that effective problems base learning or problem solving is based on accuracy and problem identification. And |</p>
<table>
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<tr>
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<tbody>
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<td></td>
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<td>that's a real strength, as I see it.</td>
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<td></td>
<td></td>
<td>2. On the other end of the spectrum, something maybe even more valuable, some of the learning problem finding says, here it is. Somewhere in there is a problem, there always is, find it, preempt it, come up with a plan to avoid that potential problem becoming bigger or manifesting itself in a different way.</td>
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<td>3. The problem finding, over the long haul, may be the important aspect of problem based learning in my estimation.</td>
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<tr>
<td>Seven</td>
<td>4. Bridge the practice theory gap</td>
<td>1. That is where this professional knowledge starts to merge with practice knowledge that is based on information and theory but tempered y a set of experiences; efforts to impart practice knowledge; practice knowledge</td>
</tr>
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<td></td>
<td></td>
<td>2. Can recreate some aspects of this school in an electronic form; to address real problems of schools without physically being present.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Kinds of decision we have to make about schooling and good schooling a world of information</td>
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<tr>
<td>Seven</td>
<td>5. Collaborate to solve problems</td>
<td>1. People from different university programs comparing and contrasting what they were finding, learning, doing around the data set ... and enrich the size and number of networks that you might have in a program beyond just the people who are in your program.</td>
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<tr>
<td></td>
<td></td>
<td>2. The experience of IESLP was a human experience. People in groups to find and solve problems using a sort of enhanced tools and information systems.</td>
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<tr>
<td></td>
<td></td>
<td>3. Building a sensitivity to collaborating with others using hard data to address problem.</td>
</tr>
<tr>
<td>Five</td>
<td>6. Integrate course content</td>
<td>1. A way to integrate the curriculum. If you could get a cluster of faculty in a whole program to use IESLP to teach statistics, to teach law, to teach all the subspecialties. what a wonderful</td>
</tr>
<tr>
<td>Number of Respondents</td>
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| Eight                 | 7. Establish new methods for learning | 1. You start to get mature, very sophisticated and complicated learning going on when people are comparing and contrasting.  
2. So what IESLP was attempting to do and has done in part is help foster a different form of learning and to make an educational experience more engaging and create a deeper level of understanding.  
3. But that it be very, very open to different kinds of uses. That it wasn’t a locked step kind of thing that professors could engage students in the use of IESLP and the databases to do a whole host of things. |
| Four                  | 8. Use for distributed learning    | 1. Actually, the beauty of that is you wouldn’t always have to do that here in a university classroom, you could have people do that in a variety of places.  
2. Our students were distributive. IESLP would allow us to do distributive kinds of things with them. |
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