

Old Dominion University

ODU Digital Commons

Theses and Dissertations in Urban Services -
Urban Management

College of Business (Strome)

Spring 2000

Implementation Theory and Determinants for Success: A Case Study of Televised Distance Learning Implementation in an Urban University

Deanne Shuman
Old Dominion University

Follow this and additional works at: https://digitalcommons.odu.edu/urbanservices_management_etds



Part of the [Higher Education Commons](#), [Online and Distance Education Commons](#), and the [Public Administration Commons](#)

Recommended Citation

Shuman, Deanne. "Implementation Theory and Determinants for Success: A Case Study of Televised Distance Learning Implementation in an Urban University" (2000). Doctor of Philosophy (PhD), Dissertation, , Old Dominion University, DOI: 10.25777/rbs7-vy03
https://digitalcommons.odu.edu/urbanservices_management_etds/18

This Dissertation is brought to you for free and open access by the College of Business (Strome) at ODU Digital Commons. It has been accepted for inclusion in Theses and Dissertations in Urban Services - Urban Management by an authorized administrator of ODU Digital Commons. For more information, please contact digitalcommons@odu.edu.

IMPLEMENTATION THEORY AND DETERMINANTS FOR SUCCESS:
A CASE STUDY OF TELEVISED DISTANCE LEARNING IMPLEMENTATION
IN AN URBAN UNIVERSITY

by

Deanne Shuman
B.S. December 1974, Old Dominion University
M.S. August 1976, Old Dominion University

A Dissertation Submitted to the Faculty of
Old Dominion University in Partial Fulfillment of the
Requirement for the Degree of

DOCTOR OF PHILOSOPHY

URBAN SERVICES

OLD DOMINION UNIVERSITY
May 2000

Reviewed by:

Approved by:

J. J. Taylor Sims, Dean
College of Business and
Public Administration

Wolfgang Pindur, Director

Berhanu Mengistu
Graduate Program Director

Lindsay E. Rettie, Member

William M. Leavitt Member

ABSTRACT

IMPLEMENTATION THEORY AND DETERMINANTS FOR SUCCESS: A CASE STUDY OF TELEVISED DISTANCE LEARNING IMPLEMENTATION IN AN URBAN UNIVERSITY.

Deanne Shuman
Old Dominion University, 2000
Director: Dr. Wolfgang Pindur

The purpose of this study is to explore the implementation process of a distance learning initiative using televised instruction in an urban university. The scope and complexity of problems faced by colleges and universities today are growing, and public institutions are being asked to do more with less. Despite limited budgets and stretched resources, institutions are expected to be responsive to the challenges of change. Distance learning using televised instruction, which brings the classroom to the learner, is an available technology that can be responsive to students' diverse needs.

This study explores factors that facilitated or served as barriers in the implementation of a distance learning initiative at one urban university. Further, this study addresses the process used by management to implement televised instruction.

A single-case study design with embedded units of analysis was employed as the research design. Data collection included multiple measures, consisting of surveys of faculty, interviews of administrators, and a review of archival records and documents to answer the research questions. A Delphi method with three rounds was used to design a faculty survey

and identify significant facilitating factors and barriers to implementation of a distance learning initiative using televised instruction. Twelve faculty, representing all 6 colleges and with at least 3 semesters of televised teaching experience, were selected to participate as the expert panel in the Delphi rounds. The entire population of faculty, both full-time and adjunct, who had taught courses on television comprised the sample for the faculty survey. Administrators selected for interview were a purposive sample comprised of those individuals with direct experiences in the implementation of televised instruction on the campus. Interview results were analyzed by quantifying responses and employing pattern matching based on theoretical constructs from the literature on implementation theory. The Faculty Survey results were analyzed using frequency data and logistic regression analysis. Analyzing the experiences of one urban university with the development of televised distance learning can help other institutions seeking this innovation for education delivery for the purpose of expanding access to students who are bound to their geographic locations.

ACKNOWLEDGMENTS

Special acknowledgment is extended to my dissertation committee members: Dr. Wolfgang Pindur (Chair), Dr. Lindsay L. Rettie, and Dr. William Leavitt, and Dr. Berhanu Mengistu, Graduate Program Director. Their skilled direction and continued encouragement to me as a student are exceptional examples of mentorship.

I wish to acknowledge the many individuals from the university who participated in the various stages of the study --the administrators for their time for interviews and the many ideas they contributed; the panel of experts for their diligence in the challenging tasks I gave them; and the faculty for their completion of yet another survey.

Acknowledgment is given to Dr. Stacey Plichta who gave freely of her time and talents in the statistical analysis and interpretation of data.

Recognition is made of family members, colleagues, and friends who offered encouragement over the years and share in this achievement with me.

Thanksgiving and praise is given to God the Father to whom is dedicated all words and deeds of this work.

TABLE OF CONTENTS

	PAGE
LIST OF TABLES	viii
LIST OF FIGURES	ix
CHAPTER	
I. INTRODUCTION	1
BACKGROUND OF THE PROBLEM	2
STATEMENT OF THE PROBLEM	6
PURPOSE OF THE STUDY	7
SIGNIFICANCE AND RATIONALE	7
DEFINITION OF TERMS	9
SCOPE AND DELIMITATIONS OF THE STUDY	10
ORGANIZATION OF THE INVESTIGATIVE REPORT	11
II. REVIEW OF RELATED LITERATURE	13
THE STUDY OF IMPLEMENTATION: AN OVERVIEW	13
SABATIER AND MAZMANIAN'S IMPLEMENTATION MODEL	24
IMPLEMENTATION OF DISTANCE LEARNING IN HIGHER EDUCATION	27
FACTORS INFLUENCING IMPLEMENTATION OF DISTANCE LEARNING	30
SUMMARY	47
III. METHODOLOGY	48
RESEARCH DESIGN	49
SAMPLES	50
PROTECTION OF HUMAN SUBJECTS	53
INSTRUMENTATION	53
DATA COLLECTION PROCEDURES	57
DATA ANALYSIS PROCEDURES	59
RELIABILITY AND VALIDITY	64
IV. RESULTS AND ANALYSIS	66
DOCUMENT REVIEW	68
INTERVIEW RESULTS	73
DELPHI RESULTS	95
FACULTY SURVEY	99
V. CONCLUSIONS AND RECOMMENDATIONS	134
STRENGTHS AND WEAKNESSES OF THE THEORETICAL FRAMEWORK	134
IMPLICATIONS FOR POLICY	139
IMPLICATIONS FOR FUTURE RESEARCH	141
BIBLIOGRAPHY	143

APPENDICES	154
A. LETTER TO ADMINISTRATORS	155
B. INTERVIEW FORMAT AND QUESTIONS GUIDE	156
C. INFORMED CONSENT DOCUMENT FOR INTERVIEWS	157
D. LETTER TO DELPHI PARTICIPANTS	158
E. DELPHI QUESTIONNAIRE: ROUND 1	159
F. LIST OF DOCUMENTS REVIEWED	161
G. DATA COLLECTION INSTRUMENT FOR DOCUMENTS	164
H. CHRONOLOGY OF EVENTS	165
I. TABULAR SUMMARY OF INTERVIEW RESULTS	169
J. SECOND LETTER TO DELPHI PARTICIPANTS	183
K. RESULTS FROM DELPHI QUESTIONNAIRE: ROUND 1	184
L. LETTER TO PARTICIPANTS - DELPHI QUESTIONNAIRE: ROUND 2	192
M. DELPHI QUESTIONNAIRE: ROUND 2	193
N. RESULTS FROM DELPHI QUESTIONNAIRE: ROUND 2	202
O. COMMENTS FROM DELPHI QUESTIONNAIRE: ROUND 2	206
P. LETTER TO PARTICIPANTS - DELPHI QUESTIONNAIRE: ROUND 3	211
Q. DELPHI QUESTIONNAIRE: ROUND 3	212
R. RESULTS FROM DELPHI QUESTIONNAIRE: ROUND 3	220
S. FACULTY SURVEY	222
VITA	248

LIST OF TABLES

TABLE	PAGE
1. Planned Steps and Samples for Data Collection	51
2. Demographic Data for Faculty Teaching on Television..	52
3. Distribution of Faculty Survey Responses by College..	101
4. Faculty Survey Responses in Administrative Support Category (in percentages)	102
5. Faculty Survey Responses in Training & Assistance Category (in percentages)	104
6. Faculty Survey Responses in Technical Services Category (in percentages)	107
7. Faculty Survey Responses in Faculty Issues Category (in percentages)	110
8. Determination of Internal Consistency of a Functional Scale on Personnel Support with Six Items Using Cronbach's Alpha (n=137)	120
9. Determination of Internal Consistency of a Functional Scale on Rewards with Three Items Using Cronbach's Alpha (n=134)	122
10. Calculation of Chi-square for Cross Tabulation Between Factors and Enjoy Teaching on Television .	124
11. Results of Logistic Regression Analysis: Factors Associated with Enjoyment of Teaching on Television	127

LIST OF FIGURES

FIGURE	PAGE
1. Theoretical Model for Case Study on Distance Learning Telecourse Implementation.	14

CHAPTER I

INTRODUCTION

A policy perspective is often the focus of implementation analysis, and a primary criterion of the value of an implementation study is its policy relevance. An issue is the extent to which implementation studies can yield information that is pertinent and timely to individuals who must formulate and execute public policy. There are numerous studies that provide information on the process of implementation and offer rich insights; however, the degree to which these studies can offer support to the development of policies is still in question. As implementation research has grown, a gap has developed between information on strategies for studying implementation and research that uses established methodological strategies as a basis for policy examination and development (Williams, et al, 1982). The purpose of this study is to examine the implementation process used by one urban university for a distance learning initiative using telecommunications technology.

The journal model used in this dissertation is American Psychological Association. (1995). Publication Manual of the American Psychological Association (4th ed.). Washington, D.C.: American Psychological Association.

Distance learning using televised courses is having a tremendous impact on education delivery as demonstrated by the literature on distance education (Schlosser and Anderson, 1994). Effective use of distance learning using televised instruction is an efficient means to enhance learning opportunities for students, particularly for those who are bound by location or time (Douglas, 1993; Miller, 1992). Connick (1997) points out that "The future for most institutions will be determined by the extent to which they have an educational product or products that are provided conveniently for the consumer at a competitive cost" (pp.9). In 1984, few higher education institutions were offering televised courses through distance learning approaches; therefore, the university under investigation in this case analysis was in the forefront of this activity. The purpose of this study was to examine the implementation process of a distance learning initiative at an urban university. In-depth investigation of the incentives and barriers to implementation is one focus of this case study. Further, the implementation process was examined against existing theories of implementation of distance learning identified in the literature.

BACKGROUND OF THE PROBLEM

Distance learning origins in the United States can be traced back to the early 1950s. Extension programs enabled adult students to pursue college course work without traveling to conventional campus locations. Today, computer and

satellite technology, fiberoptic, and high resolution television offer advanced means to support distance learning instruction. Business and industry rely heavily on telecommunications to train and update employees and to inform managers of new procedures (Miller, 1992). Distance learning appears to be an effective mechanism for instruction and is a powerful delivery system for many subjects (Office of Technology Assessment, 1989; Chu & Schramm, 1979). Further, telecourses have been found to be as effective as face-to-face courses based on course grades or pretest-posttest measures (Blanchard, 1989; Jewett, 1997). Until recently, advanced technologies and indicators of learning success in televised teaching have not produced widespread alterations in teaching approaches on most campuses of higher education (Verdium & Clark, 1991). A few years ago, only a small number of schools offered "cyber-degrees"; today, more than a third of U.S. colleges are offering degree programs using distance technology (Eggen, 2000). A survey of 4,000 two- and four-year universities by Market Data Retrieval, an education research firm, reveals that in 1999-2000 online degrees are offered by thirty four percent of these schools (up from fifteen percent in 1998-99). And sixty seven percent of these colleges are involved in some form of distance education (up from forty eight percent in 1998-99). Some schools are offering distance learning courses as part of the traditional curriculum and other are following a market-oriented approach

by forming alliances with private firms or creating for-profit companies (Eggen, 2000).

In the 1980s, reductions in federal government support of higher education along with an eroding tax base caused a shrinking financial base at the state level for many state-assisted colleges and universities. Governors in key states backed the use of distance learning in higher education to control escalating costs (Primary Research Group, 1997). To balance budgets, some colleges eliminated programs, classes, and entire departments; reduced library holdings; decreased funding for equipment; enrolled larger numbers of students in single classes; and raised tuition. Distance learning can provide courses that are not otherwise available due to budget constraints or a shortage of teachers with content expertise (Bruder, 1991; Willis, 1994).

Rising tuition costs and program restrictions hinder students' access to higher education (Smith & Debenham, 1993). As society shifts from production-oriented to information-oriented, the need for education escalates. As a result colleges and universities are faced with a changing student market. Students are characterized as older adults, many of whom reside in urban areas, and minority students, who face career and family responsibilities that limit their access to higher education (Dillon, 1989). Further, the individual who resides in a rural area is the student who benefits most often from distance learning. These students demand more flexible alternatives to traditional program offerings (in terms of

weekend and evening courses) without leaving their geographical location. Higher education must become more accessible to the population, and wider alternatives for delivery must be sought to afford this access. Educational needs can be met with distance learning technology as it becomes more accessible and less costly (Bruder, 1991). In 1997, G. P. Connick predicted that "Access to education will be available to the population at large from a number of providers via information technology and telecommunications. It is likely to be available anywhere and anytime that the consumer wants it" (pp. 9). Distance learning technology is one way in which an urban institution can meet the educational needs of a diverse population as well as rural residents.

Barriers to implementation of a distance learning initiative in higher education, despite developments made in new technologies, can serve to impede the use of this technology. In particular, the attitudes of faculty as a barrier are often referred to in the literature on distance learning via televised instruction (Dillon, 1989; Evans, 1989; Koontz, 1989; Kovel-Jarboe, 1990; Schramm, 1962). In the past, authors questioned whether television had a place in higher education and whether technology could replace the face-to-face human element in the teaching-learning process of critical thinking and creativity (Blanchard, 1989; Egan, 1988). Today, the common concerns related to distance learning and televised instruction include the extended amount of time required to plan and organize television courses

(Dillon, 1989; Koontz, 1989; Kovel-Jarboe, 1990), fear of the technology itself, and lack of faculty rewards and job security (Bruder, 1989; Koontz, 1989; Kovel-Jarboe, 1990). Institutional policies that support distance learning implementation must be present for success. University-wide coordination, faculty work loads, instructional support, and valuing of distance education teaching through the reward system are issues consistently noted in the literature (Dillon, 1989; Koontz, 1989; Kovel-Jarboe, 1990). With such issues in mind, a question that must be asked is this: How can new technologies be implemented to improve teaching and enhance learning in higher education with the most time and cost efficient implementation?

STATEMENT OF THE PROBLEM

The research problem addressed in this study is how a distance learning initiative using televised courses has been implemented in one urban university. Through a single-case study design, the investigation answers the following specific research questions:

1. What process was used by the institution to implement a distance learning initiative using televised courses at the University?
2. Are there identifiable factors that facilitated or served as barriers to the implementation of distance learning using televised courses at the University?
3. What were the responses by management to overcome

barriers encountered during the implementation process of the distance learning initiative?

PURPOSE OF THE STUDY

The purpose of this study was to add descriptive knowledge to the literature about the implementation process of distance learning using televised courses by an urban university. Emphasis is on how distance learning using televised courses has been implemented as an educational modality, factors that have facilitated or served as barriers to effective implementation, and the processes used by management to overcome obstacles during the implementation of the distance learning initiative.

SIGNIFICANCE AND RATIONALE

Distance learning using television has been found to be as effective as face-to-face classroom instruction based on course grades, pretest-posttest measurements of learning (Blanchard, 1989, Jewett, 1997), and faculty perceptions (Dillon, 1989). Televised instruction is also an effective way to deliver instruction to learners who do not have convenient access to campuses, and thereby, increases access to higher education. Televised distance learning serves as an excellent case study of program implementation because there are distinct implementation problems. To remain competitive and to deal with rising costs of higher education, the study of effective implementation processes of televised distance learning may create a model for implementation that

incorporates the greatest educational benefits with the most efficient means of realization.

The question may be asked, "What can the systematic analysis of implementation contribute?" A basic issue is to consider what degree implementation studies can support the development of policies that are more sensitive to implementation problems and guide improvements in the management of practical implementation efforts (Williams, 1982). To this end, the crucial role of implementation analysis is to identify the factors that affect the achievement of stated objectives throughout the process. Mazmanian and Sabatier state that "The substance of programs to be implemented is obviously important to us, but secondary in the sense that the focus of implementation analysis is on 'how well' executed" (1989, iii).

While there is little consensus on the appropriate framework in which to conduct implementation research or the relevant variables that should be examined, literature abounds on particular portions of specific programs or on a narrow picture of the implementation process (Mazmanian & Sabatier, 1981). The field of implementation research has reached a plateau in which much is known about missing factors in numerous policy areas and programs, but little is summarized on how to generalize findings and how they contribute to the understanding of general social processes and public policy-making. Sabatier and Mazmanian have developed an implementation framework in which a finite number of variables

can be used to examine effective program implementation (Sabatier & Mazmanian, 1980; Mazmanian & Sabatier, 1981; Mazmanian & Sabatier, 1989). This model has been applied across numerous policy areas and offers a rich context within which to explore implementation. A portion of this model will serve as the conceptual framework within which to examine the implementation of a distance learning initiative at one urban university. Additionally, the barriers and facilitating factors identified from distance learning literature form the theoretical basis for this investigation.

DEFINITION OF TERMS

The following terms were defined for the purpose of this investigation:

1. Implementation: mechanism to explain how a phenomenon (in this study defined as an organized program of distance learning) becomes an integrated, working component in a university's service delivery operations.
2. Distance education or distance learning: facilitated learning in which the student and instructor are geographically separated from each other. A variety of mechanisms can be used to deliver instruction. In this study, a live, interactive, two-way telecommunications technology is used for providing instruction to on- and off-campus sites.
3. Telecommunications: use of video broadcasts using cable, satellite, fiberoptic distribution, and computer

technology to interactively follow part or all of an instructional course (Bruder, 1989).

4. Televised courses: use of telecommunications technology to deliver regular college credit courses.
5. Telecourses: university credit and non-credit courses delivered using interactive distance learning technology.

SCOPE AND DELIMITATIONS OF THE STUDY

As mentioned previously, the purpose of this study was to describe the implementation process of a distance learning initiative in one urban university. While a distance learning initiative was the phenomenon under investigation, the study was not intended to describe the research on distance learning using televised instruction in higher education or to describe the mechanics of the technology which were instituted, but rather to provide a focus on the implementation process. Further, this investigation did not focus on aspects regarding students' perceptions or effectiveness of televised instruction. Although students' issues were integrated into the assessment and planning process, this aspect generally was not addressed in the literature regarding facilitating factors or barriers to implementation. The reason for this is that once the institution decides to commit to the use of distance learning, issues regarding students form a distinct entity. As consumers of this method of instruction, students' needs often are addressed by offices charged with these responsibilities.

This study encompassed an examination of one institution of higher learning and the environment within which distance learning using televised instruction found fruition. Particular scrutiny focused on the facilitating factors and barriers identified within the university environment during the implementation of televised distance learning and the courses of action used by administrators to implement this approach to instruction.

ORGANIZATION OF THE INVESTIGATIVE REPORT

The report consists of five chapters, a selected bibliography and appendices. After Chapter I (Introduction), Chapter II, reports information found in the literature and is comprised of six sections: 1) an overview of the study of implementation, 2) the framework for implementation analysis which includes the conceptual framework of the implementation process and conditions for effective implementation, 3) research on the implementation of distance learning in higher education, and 4) factors influencing implementation of distance learning, 5) propositions for the case study based on the literature, and 6) a summary.

Chapter III has seven sections describing the proposed case study design, sample selection, protection of human subjects, instrumentation, data collection procedures, data analysis procedures, and reliability and validity.

Chapter IV consists of the results and analysis of the data collection measures followed by Chapter V, Conclusions

and Recommendations. Appendices include elements used for data collection and documentation in this case study report.

CHAPTER II

REVIEW OF RELATED LITERATURE

The research discussed in this chapter was selected on the basis of two criteria: 1) the literature pertaining to implementation analysis, and 2) the literature addressing implementation of distance learning using televised instruction in higher education with particular focus on the factors which facilitated or served as barriers to the implementation of the distance learning initiative. Figure 1 displays the model for the theoretical framework of this study.

Literature discovered for this review was obtained through computer-assisted search of the Educational Resources Information Center (ERIC), Dissertation Abstracts International (DAI), UnCover, and ABI/INFORM bibliographic data bases.

THE STUDY OF IMPLEMENTATION: AN OVERVIEW

Williams and Elmore (1976) define implementation simply as "the stage between decision and operations" and can range from the simple case (an individual's decision to do something and then doing it) to a complex process (numerous individuals across multiple layers of government) (p. xi). The fundamental question is whether the decision can be carried

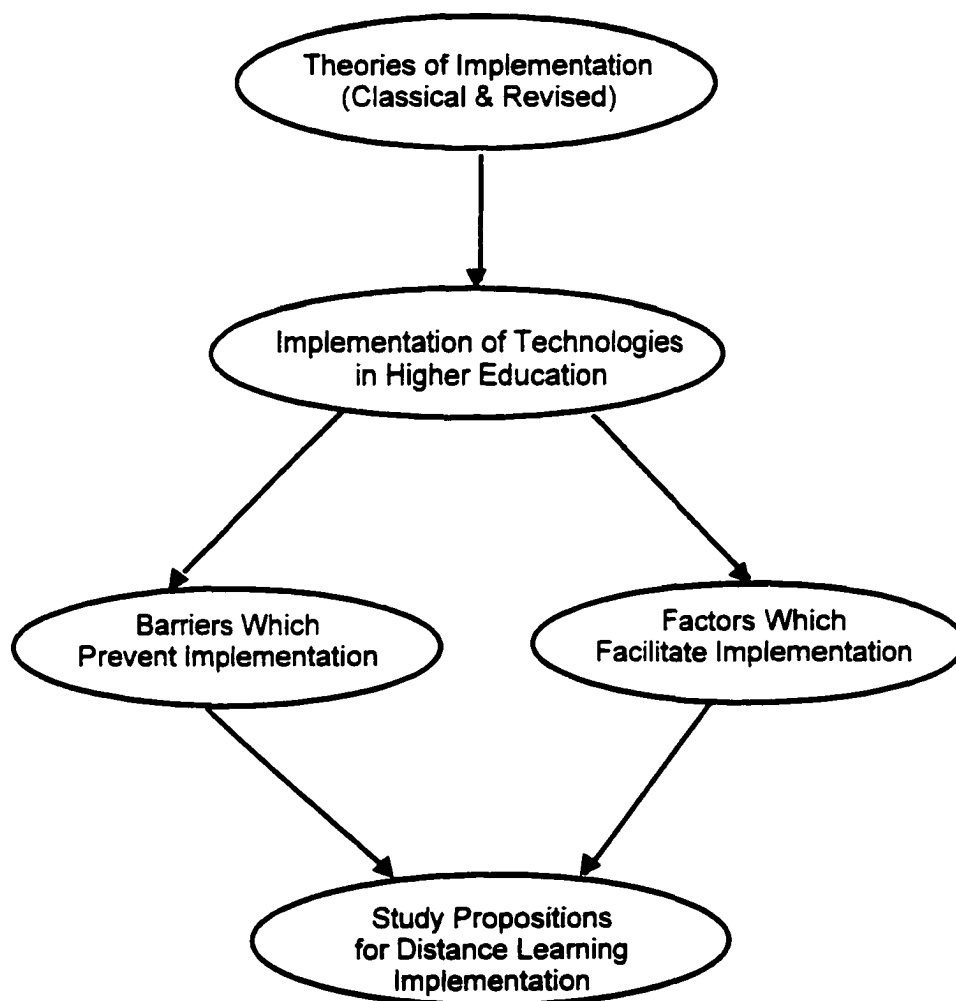


Figure 1. Theoretical model for case study on distance learning implementation

out in a manner consistent with what was originally intended. Van Meter and Van Horn (1975) are more expansive in their definition:

...policy implementation encompasses those actions by public and private individuals (or groups) that are directed at the achievement of objectives set forth in prior policy decisions. This includes both one-time efforts to transform decisions into operational terms, as well as continuing efforts to achieve the large and small changes mandated by policy decisions. (p. 447)

Implementation has its starting point after goals and objectives have been identified by prior statutes or policy decisions. As Pressman and Wildavsky (1973) point out, "After all, the world is full of policy proposals that are aborted. You can't finish what you haven't started. Lack of implementation should not refer to failure to get going but to inability to follow through" (p. xiv). Therefore, implementation analysis examines those factors that contribute to the fulfillment or non-realization of policy objectives.

A distinction must be made between the related concepts of impact, performance, and policy implementation. Impact studies examine the consequences of a policy decision while performance studies examine the activities that affect the rendering of public services. For example, do disadvantaged children improve their math and science skills as a consequence of a new education program? A performance study would examine the degree to which the program was actually

delivered and an impact study would examine the results or the effects of the program on the students. Consequentially, while impact studies ask, "What happened?", implementation studies ask, "Why did it happen in this manner?" "Indeed by expanding the task of evaluation beyond the mere measurement of outcomes to their causes, we can obtain knowledge that can be used to alter programs and/or their modes of implementation. Whether used to check progress or to change direction, evaluation includes the analysis of implementation" (Pressman & Wildavsky, 1984, xv).

Classical theory of implementation found its beginnings with the work of Max Weber (1946) who is credited with the formulation of the first systematic theory of bureaucratic organizations. He typifies the ideal bureaucracy as highly rationale, legalistic, and controlled by a small group of decision makers whose policies are implemented by subordinate administrators. In this ordered system there is a direct supervision of lower offices by the higher authorities. The number of subordinates controlled by the supervisor defines his/her "span of control," and the whole organization is controlled by one authority (Gulick and Urwick, 1937). The classical model of implementation minimizes the importance of implementation processes because of this top-down approach. The assumption is that once a policy is formulated, it will be implemented in the manner expected by policy-makers to achieve the desired results.

During the 1970s, ideas were proffered that refined understanding of the implementation process. Pressman and Wildavsky (1973) in their classic work, "Implementation", are central in documenting the close relationship between policy design and implementation and the integration of the two. While Pressman and Wildavsky do not break with the concept of the policy process being unidirectional, they reach beyond classical theory by stressing the interrelationship of, rather than the separation of, policy formation and implementation. Their work helps to identify factors that contribute to understanding policy implementation, but is limited by the absence of a theoretical perspective. They are credited with documenting the "complexity of joint action," which encompasses an examination of a myriad of actors in various institutions with diverse interests, objectives, and views of program implementation. Their observations include key elements (such as continuity of leadership and simplicity in policies) that are included in the models of later authors.

Another pioneer study authored by Martha Derthick (1972) examines an attempt by the Johnson Administration to establish new model communities on federally owned property in metropolitan areas. The program began in the summer of 1967 and identified seven target areas across the country. Four years later no new communities had been built, and four of the seven programs failed outright. The "new towns-in town" program is unusual in that it was solely a presidential

program and offered existing development aid (grants for planning, urban renewal, and housing construction) as the resource of land. Derthick posits that examining an extreme case of failure contributes something about conditions for success. The program failed primarily due to the disabilities of the federal government associated with it and its inherent central character. The federal government was limited in its influence over local government actions and to express goals in less than ideal terms or with inflated objectives. Derthick comments in closing that "in shared programs, both the federal government and local governments have a political function: both play a part in defining the objectives of public action and in responding to differences in value, interest, and opinion" (p. 101). This emphasis on interests of local players is a theme that is repeated throughout the implementation literature that follows this landmark case study.

There have been a number of major efforts to conceptualize the analysis of policy implementation. In one of the first endeavors, Rein and Rabinovitz (1978) identified three "imperatives" in the implementation process: 1) the respect for legal intent; 2) civil servants' concern for instrumental rationality; and 3) the general expectation that concerted action requires consensus both with the implementing agencies and in their external political system. They suggested that to reconcile these differing foci, the process

of implementation is characterized by a "principle of circularity." This is typified by no clear beginning and end to the policy formulation, implementation, and evaluation process with connections among them. The authors further support a high priority on bureaucratic and consensual agreement among contending parties to bring about a desired outcome. This break with the classical hierarchical model is characterized by fluid and reciprocal interrelationships between different actors in the implementation process. The principle of circularity is a system that has utility today particularly in examining technological changes within large and complex organizations.

Nakamura and Smallwood (1980) also apply a systems approach to the explanation of implementation. They conceive of the policy process as a set of communications and compliance linkages between policy formation, policy implementation and policy evaluation. They examine three "elements" of policy environments that de-emphasize implementation as a unidirectional phenomenon. These environments are always in flux and are not mutually exclusive, since the same actors participate in different roles in different environments. Communication and compliance between actors in the three environments join the policy system together. The authors pose these linkages primarily through leadership and communication styles. The difficulty with applying their model in implementation evaluation is the

objective measurement of their array of options, for example, the issue of power. While they apply their scenarios to a number of implementation efforts, they fail to cite the limitations of their own model.

Another major endeavor towards conceptualizing the analysis of implementation is provided by Bardach (1977). His analysis focuses on the characterization of the administrative processes in implementation and provides a different approach by highlighting obstacles to the assembling of the multitude of program elements necessary for the realization of statutory objectives. Bardach's theme to examining the implementation process is through the idea of "games". The metaphor of games centers attention on the conditions under which different strategies adopted by implementors can be organized. His examination of the implementation process consists of a series of games in which numerous semi-autonomous actors engage to protect their interests and gain access to program aspects not under their control--all within the expectation that some attempt will be achieved consistent with the legal mandate.

Radin's (1977) work supports Bardach's game theory by providing evidence that these approaches are part of the real world of policy implementation. The study environment was the Office of Education in the Department of Health, Education, and Welfare (HEW); and the Office of Civil Rights in the Office of the Secretary of HEW, and involved the implementation of Title VI (school desegregation policies) in

HEW. Radin found that extreme conflict is a reality between an administration of political appointees and permanent civil servants who had to carry out the policy. Further, there were no clear guidelines for enforcement through the legislative process. This implementation study is characterized by divergent perspectives regarding structure, discretion, power, legal requirements, and definitions of success. The implementation process described typifies the uncertainty and conflict in large-scale change and offers unique insight about the school desegregation issue and the role of the federal bureaucracy in social change during the 1960s.

Van Meter and Van Horn (1975) also picture implementation as a unidirectional process, but explore beyond classical theory by examining human and psychological factors that influenced actors in the implementation process. They provide a systems model of the implementation process involving the following variables affecting program performance: 1) policy standards and resources (primarily funding), 2) support for policies in the political environment, 3) economic and social conditions, 4) characteristics of the implementing agencies, 5) communication of policy standards and other decisions among implementing agencies, 6) incentives to promote compliance with policy decisions, and 7) policy dispositions of implementing officials. While Van Meter and Van Horn present one of the most comprehensive models of this time period, the framework is limited in that it does not identify variables

controlled by various actors in the implementation process.

McLaughlin (1976) also studies the interpersonal aspects of the principal actors and this influence on the prospects of implementation success. She focuses on individual motivation and commitment, centrality of strong face-to-face work groups, and explicit criticism of conventional notions of organizational efficiency. The approach emphasizes adjustments that take place between goals and strategies among various actors throughout the process to the point of rendering the policy formulation-implementation distinction meaningless.

Berman (1979) assumes that implementation problems arise from the interaction of a policy (macro implementation) with its institutional setting (micro implementation). Echoing previous implementation studies, Berman recognizes the roles of a variety of actors at the federal level and how policy passes through successive levels of operations. He concludes that outcomes are determined by the abilities and actions of local actors to implement policy directives. He views the process as an adaptive one in which local flexibility, mutual adaptation, and broad participation in planning are essential for successful policy implementation. He supports the need for a loose framework, which defines key concepts and major factors affecting implementation, and describes concepts within the context of macro and micro implementation as meeting this objective.

Beyer, Stevens, and Trice (1983) explore behavioral implications of policy implementation on participating organizations. They identify four dimensions of change: pervasiveness, magnitude, innovativeness, and duration. In their study of two new federal personnel policies, they found that 1) the policy with less pervasiveness produced weaker relations between actual use and other steps in implementation, and 2) the policy that involved a change of greater magnitude provoked more resistance among potential users. They also examined two specific organizational characteristics (loose coupling and size of implementing organization) for their effects on implementation. The interaction of these two characteristics with the four dimensions of change were used to derive hypotheses for specific effects on implementation.

Collectively, these works provide an overview of the complexity of factors that can either assure or impede effective implementation. But more is needed to explore the link between individual behavior and the political, economic, and legal context within which it occurs. While most of the previous works delineate the importance of clear and consistent objectives, adequate financial resources, and the incentives for compliance, they neglect other points (such as the capacity of statutes to identify veto points, the formal access of various actors to the implementation process, and the probable policy dispositions of implementation officials).

Further, none address the "tractability" or "solvability" of the problem(s) addressed by public policy. Finally, many of the models present factors that are useful in orienting thinking, but are abstract and difficult to operationalize.

SABATIER AND MAZMANIAN'S IMPLEMENTATION MODEL

The work of Sabatier and Mazmanian represents a "second generation" framework for implementation analysis and examines the interplay of political, technical, bureaucratic, organizational, and socioeconomic factors (Sabatier & Mazmanian, 1980; Mazmanian & Sabatier, 1989). The authors purport that the success of any implementation effort can be explained by a finite number of variables, which can be examined within a reasonable conceptual framework. In their opinion, "the crucial role of implementation analysis is to identify the factors that affect the achievement of statutory objectives throughout the entire process" (Mazmanian & Sabatier, 1981, p.6). They divide these factors into three broad categories: "1) the tractability of the problem(s) being addressed; 2) the ability of the statute to structure favorably the implementation process; and 3) the net effect of a variety of political variables on the balance of support for statutory objectives" (Mazmanian & Sabatier, 1989, p.21). The framework depicts three generic factors (independent variables) affecting the implementation process, which are distinct from the stages of implementation or dependent variables. The authors categorize these dependent variables

in five stages: 1) policy outputs of the implementing agencies, 2) compliance of target groups with decisions, 3) impacts of agency decisions, 4) perceived impacts of decisions, and 5) evaluation of a statute in terms of major content revisions. These five stages may be lumped together as a feedback loop; in other words, each stage is an input into the next stage. For example, target group compliance with the policy directives clearly has an affect on the actual impacts of those policies.

Conditions for Effective Implementation

Sabatier and Mazmanian (1980) focus primarily on traditional regulatory policies in which governmental agencies attempt to change the behavior of private target groups. However, they also discuss the applicability of the framework to other types of policies, such as those that attempt to change the behavior of 1) field-level bureaucrats through legal directives, 2) local and state officials through attaching conditions to the disbursement of funds, and 3) private actors through attaching conditions to the disbursement of funds. The program under examination in this case analysis fits primarily with item 1 in that institutional administrators, particularly in this case, deans, vice presidents, the provost and president, are key actors in the bureaucracy of higher education. Faculty, program directors, site directors, broadcast engineers and distance learning specialists are field level operators who apply the program.

While the full framework is useful to students and practitioners, Mazmanian and Sabatier identify six specific conditions to be considered in estimating the likelihood of successful program implementation:

1. The enabling legislation or other legal directive mandates policy objectives which are clear and consistent or at least provide substantive criteria for resolving goal conflicts.
2. The enabling legislation incorporates a sound theory identifying the principal factors and causal linkages affecting policy objectives and gives implementing officials sufficient jurisdiction over target groups and other points of leverage to attain, at least potentially, the desired goals.
3. The enabling legislation structures the implementation process so as to maximize the probability that implementing officials and target groups will perform as desired. This involves assignment to sympathetic agencies with adequate hierarchical integration, supportive decision rules, sufficient financial resources, and adequate access to supporters.
4. The leaders of the implementing agency possess substantial managerial and political skill and are committed to statutory goals.
5. The program is actively supported by organized constituency groups and by a few key legislators (or a chief executive) throughout the implementation process, with the courts being neutral or supportive.
6. The relative priority of statutory objectives is not undermined over time by the emergence of conflicting public policies or by changes in relevant socioeconomic conditions which weaken the statute's causal theory or political support (Mazmanian & Sabatier, 1989, p. 41-42).

While the issue of problem tractability is a major determinant in any successful implementation, the extent to which the six

conditions are met indicates successful objective attainment. Established programs are better measured by these conditions than those in the initial implementation phase. The distance learning initiative under investigation meets this condition, and the Sabatier and Mazmanian model has been selected as an appropriate framework for implementation analysis for the process used by management to implement televised instruction.

IMPLEMENTATION OF DISTANCE LEARNING IN HIGHER EDUCATION

The concept of distance learning is really quite basic in that learners are in one location while the instruction source is in another. Current definitions of distance learning generally refer to the conditions where learners and the instructor utilize telecommunications or electronic devices (i.e., cable, satellite, fiber optics, broadcast, video and computer technology) to interact. Using these technologies to transmit learning across distances was one of the fastest growing developments of the 90s (Bruder, 1991). Yet, there is still much to learn about distance learning in terms of developing competent teachers, valid instructional models, and appropriate in-school support (Office of Technology Assessment, 1989).

Who are distance learners? Generally, these individuals are found in secondary and higher education; however, distance education knows no age limit. Learners may include anyone from kindergarten to adult education. The distinction between traditional and distance learners may be more societal than

anything else. Distance learners may be those who are geographically disadvantaged, physically challenged, financially disadvantaged; those who want to take advantage of electronic media for learning; those in need of remediation; those who want to avoid particular learning dynamics or content; or those who want to protect cultural lifestyle and mobility (Bruder, 1989). Typically, the distance learner is profiled as an older, more motivated part-time student, married, with children. The majority of these students are women (Thomson, 1995).

Blanchard (1989) in a brief review on the effectiveness of telecourses, examines literature from the summer of 1986 to the fall of 1989. He finds that telecourses generally have been found to be as effective as conventional, face-to-face courses. Further, he finds that studies support the conclusion that telecourses are effective in the delivery of instruction to students who do not have convenient access to conventional instruction. "No one concluded that telecourses should replace conventional courses, but all judged telecourses to be an effective way to increase access to higher education as a complement or supplement to conventional classroom instruction" (Blanchard, 1989, p. 3). Blakely (1974) notes that it is no longer a question that adults can learn from instructional television, but rather that researchers need to examine the criteria for using instructional television for distance learning and ways to use

it effectively. New technologies can contribute significantly to addressing the different learning styles of students and move education away from strictly auditory presentations that are appropriate only for a small number of learners (Douglas, 1993). Dillon (1989) reports the faculty belief that students who require individual attention and feedback to stay motivated may not be successful with the telecourse format. She finds that telecourse students performed as well as or better than on-campus students. This finding is supported by most authors and was noted early in the literature on distance learning (Schram, 1962).

Certain subject matter areas or learning activities may be more effectively communicated via televised instruction than others. For example, classes in subjects for which demonstrations are important (i.e., natural sciences or art) may use the technology quite successfully (Schram, 1962). Television technology may not lend itself to interactive discussions as readily as face-to-face classes for students to explore ideas (Richmond & Leavitt 1995).

Throughout the literature, some of the most positive impacts of distance education (and compelling reasons for using it as an educational delivery system) are increases in enrollments, opportunities for nontraditional students, and alternative means for taking required courses (Blanchard, 1989; Dillon, 1989; Richmond & Leavitt, 1995; Thomson, 1995). There remains a number of issues associated with establishing

distance learning systems including policy issues that affect both faculty and learners: the responsibility for instruction (since distance learning may cross state boundaries or involve different school systems), funding, and accreditation and career advancement concerns. These will be covered in more depth in following sections.

FACTORS INFLUENCING IMPLEMENTATION OF DISTANCE LEARNING

The literature is replete with discussion of the possible factors that facilitated or posed as barriers to the successful implementation of television as a distance education delivery system. Research and literature on these issues are discussed in this section with a focus on points of interest to faculty and administrators and policy issues within the institutional environment.

Faculty

Many authors point out the number one issue in distance education is its acceptance and support as an important educational tool (Bruder, 1991). Numerous faculty and administrators regard the technology as non-essential, so without leadership and motivation to support this technology, it may not be used to its fullest potential. With more widespread (and even commonplace) use of this technology and demonstration of successful outcomes, faculty attitudes may change towards this teaching modality.

Brock (1987) finds that negative faculty attitudes form a major barrier to the use of telecommunications in higher

education. While there is growing acceptance among faculty, there are still many barriers to the use of telecommunications in higher education. Brock cites that the use of instructional telecommunications requires faculty to make dramatic changes in familiar teaching practices and may force them to relinquish control over the teaching-learning process. Fear of the technology itself is potentially a barrier for many faculty, so training should be provided by the institution (Kovel-Jarboe, 1990). Telecourses require planning by instructors that may not be present in the looser structure of the conventional classroom. While expert teachers may be able to "wing it" in the conventional classroom, they cannot in the telecourse setting (Blanchard, 1989; Richmond & Leavitt, 1995). In general, this weakness can be improved upon with skillful planning and attention to pedagogical issues.

Technology affects the transition from traditional classroom to distance teaching for some teachers and influences their comfort in the distance teaching setting (Olcott, 1997). The distance teacher no longer is the locus of control for all aspects of instruction and must work in collaboration with instructional designers, production technicians, support personnel, and administrative specialists. Other role changes for faculty include becoming a facilitator of adult students and adapting instructional objectives to the delivering technology.

If more students can be taught by a single teacher via distance learning, then faculty may perceive this as a threat to their job security (Bruder, 1989; Miller, 1992). The real issue may be that certain course work might not otherwise be available to students without distance education, therefore, faculty should not fear being displaced from their positions when distance learning aims are realized by the institution. Further, as the need for traditional classroom instruction shifts, faculty will need to develop skills in instructional design. Beaudoin (1990) asserts that the separation of teacher from the learner requires changes in teaching methods and that effective distance education does not just happen. Faculty must acquire new skills to assume roles to teach distance learners and organize instructional resources for independent study. University support in the form of release time for such activities and rewards for novel and effective uses of technology in teaching need to be in place (Digital Technology Task Force, 1989). The Digital Technology Task Force report highlights that the preparation time for a one-hour lecture increases by a factor of 3 to 10 (1989). Release time may relieve the concerns of faculty who are assigned to teach on television and must fit course redesign in their workload.

Another associated issue for faculty is that greater amounts of time are associated with course delivery. This is often because of the time needed to interact with a larger

number of students outside of regular class time. If a single teacher is given a larger workload through distance education courses then that teacher should be compensated financially or with a workload adjustment. A further concern regarding faculty is that television instructors may be viewed as "master teachers" because they are teaching so many students through distance education when they may not have reached that point on the traditional career ladder. These are weighty concerns that should be addressed by the policies of the institution and are explored further in this paper under the institutional environment section.

Throughout the literature, concern is expressed about the lack of frequent and spontaneous interaction between faculty and students and among students. However, none of these concerns is stated so strongly as to suggest that distance education courses not be used when conventional courses are not readily available to students (Dillon, 1989, p. 41; Blanchard, 1989, p. 3; Richmond & Leavitt, 1995). Telecourses trade off the intimacy of personal instructor-student interaction for the convenience of access.

Thomson (1995) shares the transformation in his teaching style from that of disseminating discipline-based knowledge to one of more inclusive learning modes and maximizing access. The expressed outcome of graduate classes in the Master's in Public Administration degree coursework was no longer one in which the students were required to fit into an expected mode

of learning, but rather one that empowered students to learn. More time was invested in developing student project teams in which they located resources and completed research papers.

As a whole, faculty attitudes are more positive than negative towards telecommunications in distance learning. Dillon (1989) finds that intrinsic, personal rewards are a significant form of incentive for many faculty. Some faculty expressed enjoyment in the change of pace afforded by the telecourse experience and were challenged by the diagnostic needs of distance students. She also notes in her study of eighty two faculty teaching distance courses, that eighty percent of them would volunteer to teach a telecourse again.

Dillon and Walsh (1992) characterize faculty who teach at a distance as well-educated, full-time, experienced instructors who represent a variety of disciplines. In general, their motivation to teach at a distance is based on intrinsic rewards and their attitudes improved with experience. Dillon and Walsh also report that while the literature reports the need for institutions to support distance learning, the research finds limited evidence of this commitment.

In a national study of 57 public institutions of higher education, Clark (1993) found that faculty were generally positive about the use of distance learning for college credit. There were no significant differences found in general attitudes between male and female faculty; however,

women faculty at community colleges were significantly more positive than men. Further, faculty who had substantial experience with media held more favorable views of distance education than faculty who had little experience with media.

Betts (1998) notes that despite the expanded efforts of universities and colleges to offer distance education courses, faculty members resist participation. In a study of 539 faculty members and deans at George Washington University, Betts found that intrinsic factors which included intellectual challenge, personal motivation to use technology, ability to reach students at a distance, and opportunity to explore new ideas positively influenced the participation of faculty. Those factors that negatively influenced faculty participation included lack of release time, lack of technical support, issues involving workload, and lack of grants for materials. Further, other extrinsic factors had little influence on faculty participation and these factors were consideration in promotion and tenure, recognition and rewards, merit pay, and copyright royalties. Betts also found that there were differences between what faculty and deans perceived as motivating factors. Issues regarding release time, lack of technical support, and workload concerns had a greater negative influence on faculty participation than perceived by deans.

Administrators

Connick (1997) believes that the most important issue

affecting higher education in the next decade is not technological, but rather effective leadership to shift higher education to an information age model. Recognizing the imbedded culture in higher education and factors in the resistance to change will be critical to implementing distance learning technology. Gaff (1978) points out that the political approach is the one most commonly used by colleges and universities to institute change. Administrators with formal authority usually are the individuals who see that policies are carried out. While this process has proven effective in many cases, it generally does not create significant support for teaching innovations among faculty. Faculty most often will view changes imposed in this manner as unacceptable, unilateral actions and an attempt by administration to impose its will on faculty, thereby dooming new innovations before they can be tried. Mohanty (1990) also identifies the culture of higher education institutions and the participatory role of faculty in the implementation process as key variables in the successful adoption of innovations into the normal practices of institutions. Kline's (1996) study of persons employed in student support services units for distance learners finds that those employees who were not involved in the planning process are missing important tools to incorporate changes within their work environments. They do not understand the concept of distance learning and have little information about students.

Many individuals expressed resentment and anger towards managers, students, and their work tasks, as well as felt a sense of personal and professional worthlessness. Wallach (1992/1993) also finds that the extent to which an innovation was implemented depends on the knowledge that person has of the technology and the extent to which the individual is involved with the innovation. Collis, Veen, and De Vries (1993) support the need for faculty training to receive the necessary knowledge and skills that are unique to teaching in the distance learning environment. Training of faculty, managers, and administrators is a key factor to address in distance education delivery as well as involvement throughout the planning process (Kovel-Jarboe, 1990)

While Kelly (1984) primarily discusses the implementation of computer technologies as an adopted innovation in higher education, many of his assumptions can be applied to any emerging educational technologies. One of his primary points is that chief academic officers must possess leadership qualities to embrace new technology for maximum improvements in the learning environment. This requires an understanding of the technology itself as well as substantive planning for changes. There are many "horror" stories where institutions installed new equipment only to find instructional personnel were not committed to its use, unfamiliar with how to use the equipment properly, and not in philosophical agreement with the direction planned by the institution. Administrators must

have a clear understanding of what is involved for faculty and students and must provide administrative encouragement.

Institutional Environment

Until recently, little or no emphasis has been placed on examining the structure, policies or events in the organization which affect project implementation. Distance educators have become more interested in organizational policy analysis to assess the barriers to successful implementation of distance education systems. This has been true particularly when examining new activities of traditional educational organizations, such as large public universities. Focus on identifying barriers or factors which facilitate the organization's ability to conduct such activities increases awareness of the environment in which the project is being implemented and thereby, enhances potential for success. Typically, such factors are beyond the control of project participants and therein lies the need for their identification (Simonson, 1997).

Tremblay (1992) finds that large institutions use telecourses more frequently than small institutions and respondents perceive telecourses as more appropriate for non-research universities. Two determinants of instructional television use related to the institutional mission are identified as size and ownership of the institutional charter and perceptual prestige of the technology. Kovel-Jarboe (1990) also mentions that the adoption of educational

technologies may depend on the extent to which strategies and outcomes are detailed in institutional planning documents and supported as priorities by the university.

Koontz (1989) comments that colleges and universities have been slow in using instructional television technologies as a teaching methodology because of the entrenched behavior of academia, which does not recognize the use of instructional television or distance learning programs as improvements. Further, it does not reward faculty for their efforts in teaching on television with additional merit pay or promotions. He purports that the wealth of literature supporting the potential of distance learning has been ignored by the decision makers of higher education institutions. Generally, there is a lack of budgetary and administrative support, and insufficient training of faculty and administrators in using distance learning technologies in higher education. Faculty who teach distance learners need additional planning time to adapt existing materials or create new materials. Implementation of policy that addresses planning time along with teaching time is an important factor for the institutional leadership to consider (U.S. Congress, 1989).

Cyrs (1997) emphatically states that institutions that do not provide training for instructors will not survive in the burgeoning distance learning market. There are many specific competencies that relate to teaching at distance that

instructors must achieve to be successful in this endeavor, and teaching at a distance is not the same as traditional classroom teaching. He supports the idea that distance learning instructors need more planning time, instructional support, and additional training to modify and teach a course. Institutions must plan for developing the capabilities of the instructor in addition to providing the necessary technology for distance learning. Ostendorf (1997) echoes the need for instructor training because of the unique requirements of distance teaching. Distance learning succeeds only when the learner is at the center; distance learning differs from traditional classroom instruction with the need for learner-centered design, learner-centered delivery skills and direct learner participation. Instructors who are not skilled in this type of teaching cannot function in the best manner to benefit students.

When faculty are evaluated by administrators, the development and production of an instructional course is not considered equivalent to a publication. Faculty who have limited incentive to pursue these types of endeavors must revert to the traditional norms of recognition and reward. Koontz states that faculty open themselves to negative feedback from peers and administrators by exposing teaching deficiencies through the use of televised technology for instruction. Lindquist (1978) also points to the lack of reward systems for faculty as a barrier to the successful

adoption of any innovation. The tenure/promotion process serves as a substantial link to technology implementation success, in that the more distance teaching is valued by the system, the more likely faculty will be to redesign courses (Kovel-Jarboe, 1990; Smith & Debenham, 1993). This issue may be particularly pertinent for new faculty who wish to obtain tenure and also are hesitant to experiment with nontraditional teaching methods. Midcareer faculty who have taken years to develop their teaching style or senior faculty close to retirement who want to maintain high merit pay may also view teaching style changes as detrimental to their career plans (Koontz, 1989). Smith and Debenham believe that the tenure system might be the greatest obstacle to overcome in creating new delivery systems (1993). Wolcott (1997) finds that at the institutional level, distance education receives a lower priority than at the college or departmental level. Generally, faculty work in distance education is acknowledged during annual performance reviews in the department and credited towards the faculty member's overall teaching record. She notes that the disadvantages to participation in distance education range from uncertainty about whether and how credit might be accorded in the workload to jeopardizing a career if discipline-based research and scholarly publications are sacrificed in order to participate in distance education. Incentives have to be in place for faculty to be motivated to pursue additional training and new roles and to develop

innovative approaches to teaching.

Douglas in a 1993 article quotes Glen Wilde, Dean of Learning Resources, Utah State University, who claims that one of the weaknesses with distance education nationally is the greater focus on the technology of distance learning systems rather than the course design and faculty support. Without qualified users, the acquisition and use of technology may not meet its intended purposes. Considering people's needs rather than imposing technology on them is one suggestion made about technological innovations that is repeatedly mentioned in the literature (Kelly, 1984).

Major and Levenburg (1997) submit that the greatest determining factor in student learning and satisfaction is the degree to which faculty are skillful managers of the instructional environment. To this end, the establishment of training programs for faculty who will teach on television is an implementation challenge that must be addressed by institutional leaders. The authors further recommend selecting faculty who want to teach in the distance learning environment; faculty should not be assigned against their will. Barker and Holley (1996) support faculty development efforts and note the different needs that faculty have who teach in this mode. The challenges that multiple sites pose for coordination of materials distribution, proctors for tests, and other site duties may require longer lead time for some faculty and additional skills in presentation.

The planning and time required for course development is greater for distance learning than for courses in a traditional classroom setting; therefore, many educational institutions have created faculty compensation plans that reward these efforts. At Grand Valley State University in Michigan, the compensation system covers three areas: 1) a planning stipend, 2) extra student load, and 3) travel to remote sites where faculty "teach back" to the main campus and/or other remote sites. (Major and Levenburg, 1997).

Institution wide coordination to meet a variety of needs is a primary strategy to gain acceptance and support mentioned by Kovel-Jarboe (1990). The high cost of telecommunication systems makes it imperative that academic and administrative units communicate their needs and work together to meet them. Kwentus, Boze, and Rettie (1992) point out that cooperation among the community, the institution, and the local television station are absolutely essential to provide leadership and to command the necessary resources to insure the successful delivery of a baccalaureate nursing distance learning program.

Katherine Boswell, with the Denver Education Commission, studies community college policy issues and says that institutional investments in technology are at unbelievably high levels. Schools fear being left behind and losing the competitive edge. However, the technology is still very expensive and attempts by every college to develop its own

infrastructure is not a logical approach. Boswell believes new models of collaboration and funding structures are necessary. Partnerships are an essential ingredient to successful distance education ventures (Wright, 1998). Meathenia (1998) provides a descriptive account of the East Texas Learning Interactive Network Consortium in which a successful distance learning partnership was fostered to meet the needs of small rural schools. A training program for educators to learn and use networks in new and innovative ways was one outcome of this consortium. The author supports the need for partners to identify and resolve issues unique to their respective communities' needs and those associated with distance learning.

Cahill and Overman (1996) voice similar concerns in discussing the contributions that information technologies can add to public administration education. They question who will assist faculty accustomed to traditional teaching methods to develop skills in using distance learning technologies. They also question how this new technology will be financed. They note that few institutions have the resources to train faculty or release them from other functions to support effective training. Further, few public administration programs have the long range vision to develop telecommunications plans. They note that the technological components (such as email, list serves, home pages for sharing class-related information, and news groups for collaborative

learning) are not isolated elements that have no links with each other and the total educational experience and that it does not take a great deal of technical expertise to create a plan to use them. They encourage faculty, administrators, staff, and students to focus on developing goals and functions in using adjunct technologies to enhance educational experiences and not to rely solely on university resources to take the lead.

Instructional support is probably the most frequently mentioned policy issue in the literature. Issues addressed include access to production facilities, consultants to assist faculty in redesigning courses for electronic delivery, technicians and producers to operate equipment, and persons to coordinate activities at remote delivery sites (Cyrs, 1997; Kovel-Jarboe, 1990; Wagner, 1993). Black (1998) affirms that even with experts to handle the technical side of distance learning, problems still abound in getting programs to run smoothly. "Twisting intangibles" such as contractual disagreements, competing schedules, and district rivalry can present significant barriers. While the promise of cost effectiveness money has made distance learning attractive, many administrators advise that the time and effort involved needs be examined before investing in this endeavor. Some feel that the literature gives glowing reports, but hard research evidence on student achievement results is limited.

Wagner (1993) notes that the success of the distance

learning experience is often determined by the quality of support services for students. These might include admissions, academic advising, counseling, student records, financial aid, registration, library services, interlibrary loan, and credit transfer. Services could be rendered by the extension of the usual on-campus service providers, coordinated by the central office, or negotiated by inter-institutional articulation agreements. Omotoso's study of exemplary distance education programs found that certain factors are essential for the development of distance education programs (1986). Factors include students' access to municipal facilities like public libraries, educational institutions, communication facilities and appropriate staffing. The key is to insure that students located at distance sites are provided with the support services they need to be successful in the same manner as services are available to on-campus participants.

Simonson (1997) comments that traditionally there has not been an emphasis on distance education research that examines the organizational context. He purports that identifying those factors that contribute to or distract from the distance learning project's ability to conduct its activities is important to the successful implementation of distance education systems. Examining the structures, policies, or events in the organization that helped or hindered the accomplishment of goals should be the focus of an

organizational context examination. Further, identifying what organizational context supports effective implementation (including unanticipated events) should be shared with others to improve distance education endeavors.

SUMMARY

Reviewing the literature on implementation theory and related conceptual frameworks along with that of distance learning using televised courses reveals many similarities for conditions of successful implementation. Barriers and conditions for successful implementation from the literature on distance learning using televised courses have been identified to provide a conceptual framework for implementation. The consolidation of theories serves as the framework for implementation analysis of one urban university's efforts to initiate a distance learning program using televised courses program. The framework provides the structure for data collection and analysis and lends insight into the factors of successful program implementation, and further, is useful for understanding effective program implementation in higher education settings in general.

CHAPTER III

METHODOLOGY

The research design of this study is characterized as a qualitative case study methodology, which allows for interpretation and development of understanding of the implementation process in an urban university. This study deals with basic research in its focus on investigating the implementation process of a distance learning initiative in the university as it relates to existing implementation theory. In this regard, the study's outcomes contribute to the body of knowledge on implementation in higher education settings by confirming existing theory and providing insight into how higher education institutions effect change.

This research can also be considered applied research in that it deals with an actual problem of a contemporary nature. That problem involves identifying the facilitating factors and the barriers to the successful implementation of a distance learning initiative. By describing these factors, administrators at other urban universities will have a model to better influence the successful implementation of the use of instructional technologies to the advantage of their institutions.

RESEARCH DESIGN

This research uses a single-case study design with embedded units of analysis. The single-case design was selected because of the desire to understand the phenomenon occurring in one particular urban institution, thereby establishing the uniqueness of the case. This design was selected based on Yin's (1988) criteria for different research strategies in case study research.

The study methods are explained briefly here to provide an overview to the research project. Research methods for this project included a three-round Delphi questionnaire, validated by a panel of 12 faculty who had experience in televised instruction. The Delphi rounds were used to validate concepts and to create a faculty survey. The purpose of the survey was to answer Research Question 2 and identify the perceived facilitating factors and barriers to the implementation of a distance learning initiative using televised courses at the institution. The survey was administered to a purposive sample of all faculty who had taught credit courses on distance learning television in a live format at the University (n=203). Further, selected administrators at the University were interviewed to identify the events and process of implementation as well as their perceptions of the facilitating factors and barriers to implementation of a distance learning initiative using televised courses (Research Questions 1 and 2), as well as to identify their responses to overcoming barriers encountered in

the implementation process (Research Question 3). Administrators selected to be interviewed were those who had a direct responsibility for implementation of the distance learning initiative using televised courses at the University. Lastly, a document review was used to collect supportive information on the implementation process. Table 1 displays the data collections techniques used in this case study. Data collection methods were ongoing simultaneously and did not proceed in a step order. For example, interviews and document reviews were conducted concurrently with the Delphi rounds 2 and 3.

SAMPLES

The use of surveys is a technique to gain information from faculty and obtain information about the variables of success and barriers to implementation of distance learning. It is an economical approach to data collection in that it allows the researcher to learn the perceptions of a large number of individuals at a low cost and in a relatively timely fashion.

The sample for this study was a purposive sample selected from a list of those on-campus faculty members who had taught at least one live course on television. This list was provided by the Academic Television Services unit on campus and consisted of a total of 289 individuals. Faculty who were no longer at the University were omitted from the list (n=66). Eight individuals were eliminated from the list who had not taught on television and were academic advisors for distance

Table 1

Procedures and Samples for Data Collection

Data Collection		
Procedures	Methodologies	Results
1. Survey of expert panel	Delphi Round 1 (n = 12) purposive sample of faculty with 3 semesters or more of distance learning experience	Definition of barriers and factors which facilitated success of implementation used to develop Delphi 2
2. Survey of expert panel	Delphi Round 2	Relative rank and value of factors used to develop Delphi 3 (draft of Faculty Survey)
3. Survey of expert panel	Delphi Round 3	Establish content validity of Faculty Survey
4. Interview administrators	Personal Interviews	Identify implementation process; theory validation
5. Faculty Survey (n = 203)	Written survey instrument	Identify barriers and factors which facilitated successful implementation; theory validation
6. Document review	Review documents from units across campus	Develop chronology of events; validate interview outcomes.

education courses. From the 216 individuals remaining, 12 faculty were identified to serve as the expert panel in the Delphi technique. Two representatives from each of the six colleges were chosen and all had at least three semesters of teaching experience in distance learning television teaching and included past and recent experiences over the time period of interest for this study. The remaining population of television instructors (n=204) was sampled for the faculty survey. This sample included adjunct faculty as well as full-time faculty members. Representation by gender was 69 percent male and 31 percent female. Table 2 displays the demographic data for the sample.

Table 2

Demographic Data for Faculty Teaching on Television

COLLEGE	n (% of Sample*)	Gender by Count
Arts & Letters	28 (14)	Male = 14 Female = 14
Business & Public Administration	46 (23)	Male = 34 Female = 12
Education	36 (18)	Male = 21 Female = 15
Engineering	50 (25)	Male = 47 Female = 3
Health Sciences	16 (8)	Male = 3 Female = 13
Sciences	28 (14)	Male = 21 Female = 7

*totals may not equal 100 percent due to rounding

Administrators selected for interview consisted of the six college deans or associate deans and the chairpersons of

the School of Nursing and the Department of Engineering Technology. These chairpersons were selected because their departments were the first to offer televised distance learning courses. Other individuals selected for interviews included the President of the University, the Provost and Academic Vice President, the Vice President of Lifelong Learning and Academic Television Services (the unit within which distance learning by televised instruction is housed in the University), and administrators within this service unit. Appendix A is the letter of introduction mailed to all individuals selected for interviews. The interview format and guide is discussed fully in the instrumentation section of this paper.

PROTECTION OF HUMAN SUBJECTS

The research proposal for this study was submitted to the Human Subjects Review Committee of the College of Business and Public Administration and the Old Dominion University Institutional Review Board in early October 1998 and was approved in late November 1998, prior to the implementation of this study. Documents of approval of the study are retained by the committee.

INSTRUMENTATION

Data collected in this research study included multiple measures of both primary and secondary data. Six instruments were used in this study: an interview format and questionnaire guide, three Delphi questionnaires, and a faculty survey based on results of the three Delphi rounds. Primary data included

interviews with key personnel in administration and surveys of faculty. Secondary data collection involved document review.

Interview Format and Questions Guide

The interview format and questionnaire guide (Appendix B) provided the structure for conducting the interviews with administrators involved in the implementation process. The guide identifies the introductory comments made by the interviewer, a review of the consent document to participate and tape the interview (Appendix C), a list of questions, and a closing statement.

The purpose of the interviews was to answer Research Questions 2 and 3 by identifying important barriers or factors which facilitated the implementation process in this particular university setting as perceived by administrators and their responses to overcome barriers. A broad question was asked to prompt the initial response of the participant, and then more focused questions were used to identify barriers and facilitating factors. The same researcher conducted all interviews and coded the interviewees responses.

Delphi Questionnaires

The Delphi method, which originated in 1948, is an attempt to gain expert opinion in a systematic fashion, primarily to achieve agreement on controversial subjects (Fink, et al, 1991). When properly employed, consensus strategies allow experts to determine more justifiable and credible solutions. A basic tenet is that solvable problems must be selected for the Delphi method as well as a panel size

commensurate with the scale of the problem. Experts are polled individually, usually with a self-administered questionnaire, and do not know which members contribute particular statements or opinions. Often the group members are not told who else is in the group. In this manner, the panelists are not influenced by the reputation or opinions of other panel members and may change their opinions anonymously (Portney and Watkins, 2000; Morgan and Griffin, 1981). Surveys are conducted using rounds, varying from three to four, after which results are tabulated and reported to the group. Delbecq, et al. (1975) offer suggestions for how to tabulate results and these were used in this investigation as a model. The first round is completely unstructured and panelists are asked to forecast trends or important events in the content area under investigation. Rounds are continued with similar sets of items combined and items of lesser importance eliminated to create the next questionnaire. A Delphi study is considered complete when a consensus of opinion is reached or a point of diminishing returns is achieved (Fink, et al, 1991).

A three-round Delphi method was used to design the faculty survey in this investigation. A cover letter (Appendix D) and the Delphi Questionnaire: Round 1 (Appendix E) were the initial data collection tools used to solicit statements on the supporting factors and barriers to successful implementation of televised instruction as perceived by the panel of experts. The second and third

Delphi questionnaires were designed upon analysis of results of previous rounds. Questionnaire formats were reviewed with several experts in survey research. The Faculty Survey was developed based on the results of the first two Delphi questionnaires and was examined for content validity in the third round.

The first-round Delphi questions were broad in focus so that participants could describe freely what they believed were important facilitating factors and barriers. One half of a standard letter size page was allocated for written responses. Brief instructions are provided and participants were directed to return the questionnaire within one week to the researcher. Respondents were reminded that a signature was not necessary.

Faculty Survey

The Faculty Survey was designed as a structured instrument based on the outcomes of the three Delphi rounds. The instrument asked respondents questions about facilitating factors and barriers to implementation of televised instruction at the University as identified by the panel of experts. The survey organization and question format were reviewed for content validity with several experts in survey research design. Closed-ended statements were developed and respondents were asked to provide their perceptions of the implementation process as well as to respond to several questions related to demographic variables.

Document Review

Secondary data was useful in providing additional insight into the implementation process. Secondary data sources were archival records that included proposals, correspondence, newspaper articles, and other documents relative to the study. (see Appendices F and G). The section on data collection procedures that follows describes how documents were accessed and what guidelines were used in selection of documents for review in this case study.

DATA COLLECTION PROCEDURES

Interviews

Administrators selected for interview were contacted first by letter of introduction and then telephoned to schedule an interview appointment. The interview content was described briefly to them to provide a context for the study. Interviews were conducted in the individual's office. The first few minutes of conversation developed rapport and was used to answer any questions he or she might have had about taping the interview, confidentiality of results, and the study in general. Interviewees were assured that their comments would be kept confidential and no identifying information would be used in the case study report. All interviewees read and signed the interview consent document and were given a personal copy.

In all interviews, the tape recorder was placed between the two persons in an unobtrusive location. The tape ran throughout the entire interview and upon completion of the

formal questioning was turned off. The researcher asked if the individual had any further comments or questions before ending the meeting. Interviews lasted approximately thirty minutes and were transcribed verbatim by a professional transcriptionist. Interviewees were coded by an alphabetic letter and the date and time of the interview.

Delphi Questionnaires

A letter of introduction along with the questionnaire was sent to the individuals selected to be part of the expert panel. The letter explained the study and the three rounds of the Delphi process to be used for development of the faculty survey. The first round Delphi questionnaire was mailed to the panelists, and they were asked to return the questionnaire within one week. The second and third rounds were distributed to panelists with a similar deadline date and return envelope. Panelists were assured of the confidentiality of their responses and reminded not to sign their questionnaires.

Faculty Survey

The Faculty Survey and a cover letter were delivered to all current faculty who had been identified as distance teaching instructors. A self-addressed return envelope was provided and respondents were assured of confidentiality of their responses. All data were reported in group form only and did not identify individual responses. A three-day deadline was identified for return of the survey.

Document Review

Documents to be reviewed were identified by

administrators during the interview process. The university-level administrator with primary responsibility for distance learning acknowledged support for this research project prior to initiation and offered assistance through that unit. Documents included a variety of publications, correspondence, newspaper articles, budget documents, memorandum, and other pertinent written documents that provided insight into the implementation process. Documents for inclusion focused primarily on the years 1983 to 1994. These years are considered the implementation period that encompassed the first televised course transmissions through to the establishment of the formally funded state-wide network. The legislatively endorsed network was designed to allow the University to offer baccalaureate degree programs throughout the state in partnership with the community college system.

DATA ANALYSIS PROCEDURES

Interviews

The interviews provided qualitative data by identifying individuals with significant roles in the implementation process, facilitating factors, and barriers to the implementation process. Interview data also served to confirm links between elements in the implementation process and to explain variations from predicted avenues noted in the literature on the implementation process. Data analysis of the interview transcriptions included identification and coding of common variables related to implementation (a content analysis). A master list of phrases and sentences was

organized to reflect categories of like items. Judgments about similar items were based on the variables of successful implementation from theories presented in the review of the literature.

Delphi Questionnaires

As with the interviews, data from the first Delphi round were tabulated to identify key factors identified by the panelists. The outcomes of the first round were used to design the second round of questionnaires and a similar process for the third round. Questionnaire design was reviewed with several specialists in survey research. Data from the Delphi questionnaires culminated in the design of the Faculty Survey. Organization of the data into distinct categories was anticipated based on findings from the literature review. Frequencies and ranges of responses calculated from rankings of the factors by the panelists in Delphi questionnaire: Round 2 were used for decision making in the development of the Faculty Survey. The first draft of the Faculty Survey constituted the questionnaire for the third Delphi round and content validity was established by the panel. A pilot test of the Faculty Survey was conducted to further establish content validity and clarity of the survey.

Faculty Survey

To answer the second research question regarding facilitating factors and barriers to implementation of distance learning using televised instruction, the discrete, ordinal data from the Faculty Survey was first analyzed by

frequencies, valid percentages, means, and standard deviations. Missing values were omitted from analyses. Upon examination of the results from the Faculty Survey, a secondary research question was formulated to determine if there were variables that increased the odds that a faculty member enjoyed teaching on television. This question is predicated on the supposition that if a faculty member enjoys teaching on television then there are variables that could predict enjoyment and thus, could be considered important to the implementation process. Data analysis was conducted, using logistic regression analysis in order to determine if select independent variables could predict the probability of whether a faculty member would enjoy teaching on television.

Logistic regression analysis is an appropriate statistical tool to answer a research question to predict or explain categorical variables. When the dependent variable has only two values (the occurrence/nonoccurrence of an event or the presence/absence of a condition) logistic regression analysis is an appropriate statistical tool. In this research problem, the condition of whether a faculty members enjoys teaching on television is a two value condition -- either they enjoy teaching on television or they do not. The dependent variable, enjoyment of teaching on television, has two values with the response of "yes" or "no" in the Faculty Survey. Multiple regression can not be used in this instance because the dependent variable does not meet the assumption of a normal distribution. The independent variables can be

continuous, ordinal, or categorical, and in this study they are ordinal and categorical scale variables. In the present study, the independent variables scores were recoded into dichotomous scales. If the variables do not scale then each variable will be examined individually (Portney & Watkins, 2000).

Six independent variables from the survey were identified initially: personnel support, rewards for teaching on television, experience on television, overall teaching experience, gender, and training to teach on television. Scales for the independent variables were created: personnel support using questions 4, 5, 6, 7, 10, and 13; reward using questions 20, 23, and 27; experience on television using question 29; overall teaching experience using question 26; gender using question 31; and training using question 32. The variables of support, reward, and training were selected because they are conditions that can be provided (or not provided) by the institution; therefore, can be variables worthy of examination in the implementation process and help to answer the second research question. The other three variables are demographic variables (years of experience, television teaching experience, and gender) and were useful for examination as to their effects as variables in the model.

Scales were selected for use because they can assess different aspects of the same attribute if the scales are homogeneous. In this research study, a number of different survey questions were used to ask questions regarding support

and reward. Cronbach's alpha, a reliability test, was chosen to examine the internal consistency of the items chosen for the scales. This index is appropriate for selection because it can be used for scales with items that are dichotomous as well as when there are more than two response choices, such as in an ordinal scale. For a scale to show strong internal consistency, a moderate correlation between items is suggested (between .70 and .90). This guideline was used to evaluate the internal consistency of the scales under examination in this study. Chi-square analysis was used to examine the variables in a two-by-two cross tabulation to examine relationships among the variables and determine their appropriateness for the logistic regression model. Chi-square is a non-parametric statistic used to analyze frequencies or proportions. A test of independence is useful to determine if two variables are independent of each other, and therefore examine the association between them. All analyses were examined using an alpha level of 0.05.

Document Reviews

Document reviews served to answer the first research question regarding the process of implementation by the institution. Reviewed documents were coded by type and listed using Appendix F. All documents were reviewed using the data collection instrument designed for this study and shown in Appendix G. These data were descriptive in nature and were used to create a chronology of events and to lend support to interview data. Two university-level administrators involved

with distance learning at the University reviewed the chronology of events created from information collected through the document review for accuracy.

RELIABILITY AND VALIDITY

Using multiple measures of evidence in the case study contributed to construct validity by encouraging convergent lines of inquiry. Pattern matching based on constructs from implementation theory was the mechanism to increase internal validity. The Sabatier and Mazmanian model describing six conditions for implementation was used to generalize the results from the interviews to implementation theory (1989). Such analytical generalization is the tactic identified by Yin (1988) for addressing external validity in case studies. Documentation of all procedures was recorded to contribute to reliability of the study.

The validity of the facilitating factors and barriers to implementation of televised instruction from the interviews, the Delphi procedures, and the Faculty Survey is based on the perspectives of those individuals being questioned. The viewpoints of the persons directly involved in televised instruction implementation are considered valid because these individuals are directly involved in the implementation process.

A weakness of the interview method is that administrators may limit their responses on those issues that they deem sensitive. Interviewees also may report what they believe the

investigator wants to hear in terms of a successful implementation of a distance learning initiative.

Finally, the single case design does not represent a broad coverage of the population of users of distance education using televised instruction; therefore, generalizability of the results is limited.

CHAPTER IV

RESULTS AND ANALYSIS

In the following pages, the discussion will cover the extent to which the research questions have been answered by the data. Using the implementation model developed by Sabatier and Mazmanian (1989), the case study method, and the theoretical framework for distance learning presented in Chapter II, the implementation process for the distance learning initiative using interactive television was analyzed for this discussion. The results and analyses follow the three research questions posed in this study:

1. What process was used by the institution to implement the distance learning initiative using televised courses at the University? To answer this question, the case study specifically focused on examining
 - a. key events that initiated the endeavor
 - b. key individuals involved with the implementation and their roles.
2. Are there identifiable factors that facilitated or served as barriers to the implementation of distance learning using televised courses at the University?

3. What were the responses by management to overcome barriers encountered during the implementation process of the distance learning initiative?

The following section, Document Review, is the descriptive narrative of the processes and key events involved in implementation as gleaned from the document review, which serves to answer the first research question. Refer to Appendix F for a complete listing of the documents reviewed. Following the Document Review is a discussion of the information obtained from the interviews used in answering all three research questions and presented in the context of key events, facilitating factors, barriers, and responses to overcome barriers. Results and discussion of the Delphi rounds, Faculty Survey, and statistical question using logistic regression comprise the third section and serve to answer the second research question. A summary section at the end of the chapter discusses all the findings in light of the research questions and theoretical models.

Analysis for this research study is based on the theoretical model by Sabatier and Mazmanian (1989) and the framework of distance learning implementation, which were combined for purposes of this analysis. Both are discussed in detail in Chapter 2 and are summarized as six points which include 1) clear policy objectives and support of strategy as a priority, 2) institutional-wide coordination of academic units, 3) conditions for maximization of performance, 4) leadership skills of implementing officers, 5) support of

constituency groups, and 6) priorities that are not undermined over time.

Since this analysis covers a fifteen-year period, a chronology of significant events is presented in Appendix H to assist the reader in keeping the material in perspective. Only information that has relevancy to this study is provided in the chronology. In this chapter, direct quotes, edited only for grammatical correction, are taken from the thirteen interviews conducted from April 1999 to June 1999. Respondents are not identified by name for confidentiality purposes. For ease of discussion and to protect the confidentiality of respondents, they are referred to by grouping into one of two categories: 1) university-level administrators who include Associate Vice Presidents, Vice Presidents, and the President, and 2) college-level administrators who include deans and department chairs.

DOCUMENT REVIEW

Since 1984, distance learning has been a characteristic of the University's mission and methods of educational delivery. A dramatic increase in the scope of these distance learning activities occurred with the implementation of the formally named distance learning initiative in 1994 as a partnership with institutions of the Virginia Community College System. Currently, the University offers approximately 300 live, interactive courses each year in 30 undergraduate and graduate degree programs to more than 60 sites throughout Virginia; the District of Columbia; and the

states of Arizona, Indiana, North Carolina, Maryland, Michigan, and Washington. Additionally, courses are transmitted to a U.S. Navy facility in the Bahamas as well as to Navy ships deployed in the Persian Gulf and the Mediterranean Sea. Course enrollments in academic year 1997-98 totaled 15,000 and were 16,640 in 1998-99. The following is a discussion of the development of the distance learning endeavors of the University:

1984-1988: The institution began its distance learning efforts in 1984 with the broadcast of five live graduate engineering telecourses and served as a receive site for engineering courses through the Virginia Commonwealth Graduate Engineering Program. With the establishment of its first electronic classroom on campus, the University's facilities were linked to the local, public broadcasting station, WHRO, through a fiber optics link. In 1986, the University transmitted graduate courses in mechanical, electrical, civil and engineering management to its off-campus site, the Peninsula Graduate Engineering Center in Hampton, Virginia. The University also transmitted an undergraduate course, Beginning Russian, in 1986.

1988-1992: Expansion of distance learning to deliver via satellite the Engineering Management degree through the Statewide Engineering Network was a milestone and added to the other graduate engineering courses being offered by the University. A site on the Eastern Shore of Virginia at Northampton Accomack Memorial Hospital was established to

receive undergraduate nursing courses in the spring of 1988 so that registered nurses living and working on the Eastern Shore could complete a bachelor of science in nursing degree. In partnership with the University, the local public television station built an ITFS (Instructional Television Fixed Signal) network to deliver the video signal for the course to the hospital. Two-way audio communication was achieved through a system of telephone bridges. The distance learning program was expanded to sites in Martinsville (Patrick Henry Community College), Fredericksburg (Germanna Community College), Clifton Forge (Dabney S. Lancaster Community College), and Weyer's Cave (Blue Ridge Community College) in 1991. Programs were distributed by C-Band and/or the University's Ku-Band satellite up-link (satellite dish and transmitter). This technology transmitted digital or analog signals to the various receive sites. The development of digital technology increased the University's capabilities for transmissions while concurrently making them more cost effective.

At the request of the General Assembly of Virginia, the State Council of Higher Education for Virginia (SCHEV) and the power utilities in Roanoke, Virginia, the delivery of engineering technology courses to Roanoke was initiated in the fall term of 1989. This program was expanded to Richmond, Virginia in 1990 and Danville, Virginia in 1991.

In 1992, the University was the only state university that was a member of the National Technological University (NTU) and partner in the NTU Digital Network. The University

also was the only state university involved in launching the College and University Educational Satellite System (CUESS), which is the direct educational satellite service of the American Association of State Colleges and Universities (AASCU) partnered with the Public Broadcasting System.

Course enrollments for regular university credit courses from 1988 to 1992 went from approximately 500 to 2,000, representing a 300% increase in this four year time span. Teleconferences at this time became a highly active endeavor for the institution. Several of significance were delivered at this time, including the broadcast of a six-part series of the Model United Nations Seminars. Another noteworthy teleconference was the *USA/USSR Youth Summit*, a three-part series culminating in the use of a live, international space bridge seen simultaneously in high schools and homes in the United States via the Public Broadcasting System and in the former Soviet Union on *Gosteleradio* (Soviet State Television and Radio Network). This use of two-way video and audio allowed Soviet and American students to discuss vital issues affecting both countries. The University was the first university to telecast with students in a live, unedited space bridge with the Soviet Union for television broadcast.

1992-1994: In 1992, the University was asked by the Commonwealth of Virginia to develop a proposal to utilize technology in the delivery of higher education degrees. This action was viewed as a necessary response to the forecasted

demands for higher education access in the early 21st Century without purchasing land and buildings to accommodate this influx. The following year, the proposal was accepted to establish a one-way video, two-way audio, satellite program. The purpose of the initiative was to allow students who were geographically, occupationally, or socially place-bound to complete baccalaureate programs. The program involved a partnership with the Virginia Community College system in which the students would complete the first two years of course requirements at a community college and receive the last two years of courses from the University via distance learning. This program had two additional objectives to be cost-effective and to stimulate economic development efforts.

1994-1999: The first courses were offered through the distance learning program in the fall of 1994 and totaled 80 courses transmitted to 13 community college sites for the year. Courses leading to eight baccalaureate degrees (business administration management, civil engineering, criminal justice, electrical engineering technology, interdisciplinary studies professional communications, mechanical engineering technology, health sciences, and nursing) were offered through distance learning with additional degrees proposed for the next year in counseling and education. Currently, the University offers upper division courses to students at distant sites leading to 18 bachelor's degrees in addition to graduate level courses leading to 7 master's degrees and one certificate. Since the

program was implemented, more than 1,000 distance learning students have completed their degree requirements and graduated from programs that are comparable to those offered on the main campus.

INTERVIEW RESULTS

Originally, ten administrators were identified for interview; however, individuals' names were eliminated or added for inclusion as their roles in the implementation process were revealed early in the interview process. The final number of administrators identified and interviewed totaled thirteen. Three of the six college deans were included for interview: Business, Education, and Health Sciences, while two associate deans of the Colleges of Engineering and Arts and Letters were included for interview. The deans for these two colleges were not selected for interviewing because they were relatively new to the institution and had not been involved with the process as had the associate deans of the college. The dean of the College of Science was not interviewed for the same reason as well as the fact that this college had little involvement with distance learning efforts in the early implementation stages. Other individuals interviewed included the President of the University, the Provost and Vice President of Academic Affairs, the Associate Vice President for Lifelong Learning and Academic Television Services, the Assistant Vice President for Distance Learning and Extended Education, the Telecommunications Network Supervisor, the Chair of the School

of Nursing, and the former Director of the Continuing and Public Service Division for the College of Engineering.

Interview questions for administrators matched the research questions, and were designed and analyzed in four distinct categories: key events in distance learning as viewed by the administrator, factors which facilitated the implementation of distance learning, barriers to implementation of distance learning, and actions taken to overcome barriers. Content analysis was achieved by first tabulating administrators responses to the four questions and then examining them for patterns. Interview results are displayed in Appendix I. Discussion of the results that follows is structured to answer the three research questions of the study and reflects back on the variables of the implementation model (Mazmanian & Sabatier, 1989) selected for examination in this study and described in Chapter II.

Key Events and Individuals' Roles

As might be expected, the key events perceived by individuals varied by the level of responsibility held by the person at the time of implementation. University-level administrators viewed the one-on-one discussions with the governor, General Assembly members, and legislative staff members as key events in the implementation. The role of the State Council of Higher Education for Virginia in approaching the President and asking the University to develop a proposal for a distance learning initiative was widely cited as a key

event. One university-level administrator described the situation in this way:

...the Commonwealth was just beginning to come out of a very severe recession and we had lots of funding cuts here...so Governor [last name of governor] was looking for things that would enable him to serve more students less expensively and that's the way distance learning has always been looked at by some legislators. They look upon it as a way to save money....

The existing efforts of the College of Engineering and School of Nursing in distance learning also were key events mentioned by every administrator. Having clear and consistent legislative and legal mandates is the first variable of consideration in the Mazmanian and Sabatier model (1989) and seems to be successfully addressed in the implementation process experienced by the university; the institution was asked to develop a proposal and funding was allocated by the state legislature in 1993 for planning efforts. The next year additional funding was secured for launching the statewide network to provide courses in partnership with the community college system.

The early distance learning efforts of the College of Engineering involved live courses taught by faculty who traveled to an off-campus center. The demand for courses and the availability of a student market for engineering courses seemed to be important events in using television technology to disseminate courses to distant locales. When an industry on the opposite side of the state approached the College of Engineering about offering courses to allow local engineers to

complete baccalaureate degrees, this presented a unique opportunity for this college to meet a demand for education at a distance from the main campus. A university-level administrator described the situation as follows:

The Power Company in Roanoke came forward and said to their legislators, through an Economic Development Council, what we need is not graduate engineers, we need baccalaureate trained engineering technologists. We need a trained workforce. [Name of University] was the only one that had the accredited engineering technology degree so SCHEV [state council's name] had to come to us and say, 'Would you be willing to offer Engineering Technology to Roanoke?'

The School of Nursing was similarly approached by several hospitals and a community college to offer courses to nurses who needed to complete baccalaureate degrees. The hospital location was more remote than the first off-campus center used by the College of Engineering, and telecommunications was the strategy identified to fill this demand for education. A university-level administrator put it this way, "There were two deans in two years saying through telecommunications, we can solve some of our problems regionally." No single interviewee expressed which discipline was first in transmitting courses, but it did not appear to be a relevant nor a highly significant issue to anyone. What was relevant was that two departments were successfully transmitting courses to students and served as the model for other disciplines to follow. One college-level administrator commented, "We had to kind of get away from the ivory tower concept and just say, 'Okay, here are students that need these

programs, let's adapt what we are doing to fit their needs.'" Active involvement from organized constituency groups (Condition 5 in the implementation model) in the form of community colleges and potential students seems to be supported by this finding and forms the basis for initial efforts in the implementation of distance learning which were successful for these two divisions in the University. Because industry was approaching the institution and clearly there was student demand, these represent the active constituency groups.

Demand built quickly from this point as students in the disciplines of nursing and engineering were identified at other sites across the state. The affiliation of the community colleges with the University seemed to be another key event in the implementation progression. Once the details were successfully in place for transmitting courses to the first few community colleges, then it was a relatively natural process to expand efforts. Growth of community college sites was incremental in multiples from 1 site to 4 sites to 13 sites to 23 sites and growing from there to sites outside of the state. One university-level administrator put it this way:

We knew that for something that was this large, we would need to develop processes. Processes for implementation--from the smallest detail to the largest detail--because we were going from 3 sites to 13. And every year for five years, we added another three sites.... There were so many issues--it took time--you learned from your mistakes of how to do it.

Variable 2 in the implementation model of giving individuals jurisdiction and leverage to attain goals was addressed by this finding. The fact that community colleges were connecting their institutions with the university via affiliation agreements and that new policies and procedures were being addressed to make the implementation occur successfully were the factors used to evaluate this variable. Further, the growth in demand over time supports Condition 6 in the implementation model, e.g., the priority of objectives is not undermined over time by emergence of conflicting policies or changes in socioeconomic conditions (Mazmanian & Sabatier, 1989).

Timing was mentioned by a number of administrators and in reference to several different contexts as key factors in the implementation of distance learning for the University. While timing is not an event, it more precisely reflects the coming together of a number of events that create ideal circumstances for change. One college-level administrator made the following comment about timing,

...some of the most interesting things have happened almost without planning--they just sort of popped up and when opportunity comes you jump into it. I've gone through planning stages many, many times where you do a two year plan or a five year plan and so often, nothing come out of those things. But then, all of a sudden, a good opportunity pops up and there it is.

One university-level administrator expressed that because budgets for higher education had been reduced by the General Assembly during a period of recession, the Governor was

looking for cost effective ways to deliver education to parts of the Commonwealth that were unserved and was willing to commit budget dollars to distance learning. While distance learning using televised instruction involves moderately large capital expenses, it was still less expensive than creating new campuses, buying land and investing in new buildings. At the same time, the other state institutions did not seem as interested in distance learning or possibly were not as capable. Curricular revisions during a self-study process in preparation for accreditation by one department was viewed as a component of timing along with high student demand for courses leading to completion of the bachelor's degree. The fact that industries who employed engineers and hospitals who employed nurses approached the university gave a certain weight to the need for education for these professionals that as singular individuals they might not have had as much persuasive ability. The university could play a significant role in assisting businesses by educating their employees who, in turn, would be eligible for raises and promotions and thus, impact the state's economy in a positive manner. The cost of installing an antenna and receiving a signal was relatively inexpensive and was therefore, not a cost prohibitive venture. Again, this represents the legislative role as well as constituency groups supporting the distance learning program implementation and thus fulfilling the condition of 1 and 5 (support of strategy as a priority and support of constituency

groups, respectively) in the implementation model (Mazmanian & Sabatier, 1989).

The space bridge with the Soviet Union was also a key event in terms of timing by giving the institution an international reputation which brought distinct attention to the early efforts of the University. One university-level administrator described the motivation for these efforts as follows:

We said we had better get Richmond's [state capital] attention and the way we get Richmond's attention is to develop a reputation. How can we get a reputation? Again we had some staff with expertise in developing non-credit programming to go outside of the state and we did very glitzy stuff. There was a distinct strategy to get their attention and we applied for awards and we were able to show them that we were able to get awards for quality.

Media coverage of events such as this, as well as national awards won by the institution for this and other high quality telecommunications programming, projected the University into a position of eminence with its distance learning initiatives. Many of the telecommunications programs were co-sponsored with locally based businesses which had national operations that furthered the recognition to the University, along with mention in *Forbes* magazine as one of the top "cyber" institutions in the country (see Appendix F for citation). With all of these circumstances, the distance learning initiative had good "timing" for the institution. Media attention is one of the variables in the full implementation model that appears to have served a significant role in this

institutions' implementation efforts as well (Mazmanian & Sabatier, 1989).

Factors Which Facilitated Implementation

The partnership of the University with community colleges throughout the state was one factor mentioned most frequently by the administrators who were interviewed for this study. (It is difficult to distinguish if this partnership was a key event or a facilitating factor as it was mentioned in both contexts.) The community colleges became a constituency group, which added available resources to the implementation process. Campus classrooms and personnel at distance sites were extremely important to the operational aspects at the receive sites, not to mention the colleges' efforts in attracting students who would be interested in the course offerings from the University. The formal partnerships with the community colleges played a huge role in the visibility and subsequent success of the distance learning program for the University. All the players were winners with both institutions benefitting. The community college profited by increasing student enrollments in the lower level courses and graduates of associate degrees at their institutions while the university obtained a ready market of students needing the upper level courses to complete baccalaureate degrees being transmitted via television to the community college campuses. Constituency group support, Condition 5 in the implementation model, is supported by this finding as discussed previously under key events (Mazmanian & Sabatier, 1989).

Many respondents vocalized the fact that the distance learning initiative was championed by the University's president and that the entire university community was charged to work on implementation. The importance of commitment of the President was highly recognized by faculty who had taught on television as revealed from the Faculty Survey results to be discussed later in this chapter. Another interesting factor that bolstered the President's position was his prior experience in distance learning at another institution. Because of his knowledge of how distance learning could work in higher education, he projected a very "can do" attitude that allowed him to operate from a position of confidence that contributed to his leadership skill. Possessing substantial managerial and political skill and commitment to the goal is the fourth variable in the implementation model being used in this study (Mazmanian & Sabatier, 1989), and the conditions for this variable appear to have been met from the findings in this implementation study.

Equally noted as a facilitating factor was the high demand for courses by students and industry, including the shipyard, military installations, manufacturing businesses, and hospitals. Having a ready student market meant that efforts for televising courses would have positive results in generating student credit hours for the University. Public support in the form of organized constituency groups is the fifth variable affecting implementation in the model used for this study (Mazmanian & Sabatier, 1989) and again the

conditions for this variable appear to have been met from these findings.

Almost universally, university- and college-level administrators commented on the efforts of dedicated faculty and staff who were willing to participate in distance learning and were committed to quality in their efforts. The existence of staff personnel on the campus who were knowledgeable about technological solutions in the areas of audio-visual requirements were extremely influential in initiation efforts as well although one university-level administrator expressed that this was "not their job because we weren't in the TV business." The positive attitudes and resources that faculty and professional staff persons contributed to the effort always focused on a high quality product, which certainly played a positive role and is a significant condition to meet in the implementation model. One university-level administrator commented that the faculty deserved the credit for the success of the institution's distance learning program. "It was their willingness to embrace it, their willingness to engage in all the hard work to make it successful. If they hadn't embraced it, if they hadn't said, 'We want to be good at this,' we would not have been successful." In light of the implementation model, the faculty could be viewed as a target group (Condition 3, maximization of performance) or as a constituency group (Condition 5, support of constituency groups), but considering their role in the institution, it is probably more appropriate

to consider them a target group and thus, a player within Condition 2. This variable described in the model (Mazmanian & Sabatier, 1989) is one in which implementing officials have sufficient jurisdiction over target groups to attain the desired goals. From this finding, it appears that faculty were able to perform as desired and thus stipulations for Condition 2 were met in this implementation process.

Barriers to Implementation

Conversely, it is quite interesting that the hesitancy of faculty, and in some cases the refusal of faculty, to teach on television was viewed as a barrier by both university-level administrators as well as college-level administrators. One college-level administrator described faculty attitudes and their initial resistance best by saying,

... it's a change in the way that faculty are used to teaching and traditional ways of teaching are hard to give up. And although we are not giving them up, we are moving into another area of delivery that they weren't initially comfortable with.... Some love it, they enjoy it. Some have been afraid of it, but once they tried it, it's fine.

A university-level administrator felt it was easy to convince faculty that distance learning was a good thing to do because the faculty were less traditional than at other institutions; they were "... very creative, very entrepreneurial faculty." While, frequently mentioned, the faculty's attitudes did not seem to pose a barrier that prohibited the implementation, but rather appeared to be an initial concern to be overcome. One

college-level administrator expressed the faculty issue in this manner:

People's hesitance and people's personalities who it just didn't work well for one reason or another --with a couple of people. If we hadn't had such a very strong start with [department name] we might have gotten sidelined.... So we have had to do some shifting around [to] find who is a suitable person to teach on television. I think most people who are good teachers can do just fine on television.

One university-level administrator commented that gathering faculty support was critical, but stated,

We didn't have to have all faculty members in favor of this because it is not necessary that all faculty members be [distance learning] instructors. It was necessary to get that first group of faculty members who would say, 'Yes, I will do that,' 'Yes, I am going to try that,' and 'Yes, I think that could work and it might be pretty exciting to teach students in lots of different locations and use modern technology.'

Therefore, Condition 3 in the model (performance of target groups) was not negatively influenced by the faculty's initial hesitance and faculty were able to perform as desired, thereby meeting the conditions for implementation (Mazmanian & Sabatier, 1989).

A lack of knowledge about distance learning was noted several times as a barrier. This knowledge barrier included faculty, students, legislators, and "everybody associated with higher education.... Not very many people in Virginia knew much about distance learning" (University-level administrator). Another university-level administrator described the implementation time as one in which everyone who was involved in problem solving had to pick situations apart

and look at problems from different angles to come up with solutions and to use trial and error techniques. New procedures, new policies, and new routines were needed to fit the implementation of distance learning at all levels. One college-level administrator described the situation in the following manner:

It takes more time to get things done. You have to deal with more offices. To go and show a video in your class versus showing a video to a distance learning class-it's just 10 times more difficult to do that.... The infrastructure wasn't there. People just weren't prepared for it.

Clear and consistent knowledge of problems and the criteria for solving them is the context of Condition 1 in the implementation model and by the findings in this study the conditions appear to have been adequately addressed in this implementation (Mazmanian & Sabatier, 1989).

Several university-level administrators mentioned the role of state regulatory boards, accrediting agencies, private colleges, and the state bureaucracy as huge barriers to implementation. A university-level administrator who viewed state policies as the largest barrier voiced this opinion:

I consider state policy constraints to have been the most difficult problems to overcome for us to implement instructional television. We were still considered a regional institution. They gave us 'outside the box' permission for engineering management and engineering technology as credit programs, but not for all programs.... [name of state council] wanted to prevent competition among colleges in the Commonwealth so it was not in their best interest to let us do what we wanted to do.

One university-level administrator described the situation as one in which he had "to jump through so many hoops" until

finally he was given the seal of approval. This individual believed that state agencies feel particularly threatened by distance learning because their traditional and long-standing roles are becoming irrelevant. "Change is overpowering them and they don't want to recognize it." State agencies have vested interests and giving those up means losing power. Because the institution was able to respond and meet the conditions specified by the legislative and state agencies, the findings support Condition 2 (implementing officials have sufficient jurisdiction over target groups) being met in the implementation model (Mazmanian & Sabatier, 1989).

Money was voiced as the biggest obstacle by the university-level administrators who commented that faculty were not in a position to know how large an obstacle this presented to the institution. Writing an effective proposal to the state played a key role in obtaining funding as well as having a succession of governors who supported the distance learning initiative in their budgets. Partnering with the community colleges had a tremendous impact on legislative support because most legislators were highly interested in obtaining educational opportunities for their constituencies. One college-level administrator made the following comment about resources:

I think the process that has been implemented here is about as good as you could do given the resource level that we had. You have just got to throw people into it and let them try it with the understanding that it will work--we will get you the resources. One thing I have found is if you wait until you have all of the resources in place

to do something, nothing ever gets done. So what we have had to do is say, 'Yes, we are going to do this and we are going to make it as easy on you as we can, but we are going to get out there and do it.'

The outcome of being able to obtain sufficient financial resources to implement the distance learning initiative fulfills Condition 3 (sufficient financial resources) and 4 (leaders possess managerial and political skill) in the implementation model (Mazmanian & Sabatier, 1989).

Managing how practical, clinical, and internship experiences would be offered was mentioned by several college-level administrators as a significant barrier. It was not enough that didactic courses were offered via distance learning because many degree programs also require practical course work and "hands on" experiences prior to graduation. Much experimentation occurred initially to try and meet the needs for these courses and provide the same quality of instruction and supervision as was available to students who came to the main campus. This finding supports the fulfillment of Conditions 2, 3, and 4 in the implementation model: departments had jurisdiction over finding solutions to practical course delivery and supervision, and had the support and resources from knowledgeable leaders who were committed to resolving the problems.

Responses by Administrators to Overcome Barriers

Examination of the responses by administrators and staff to the barriers that were encountered during implementation is important in demonstrating to what extent the implementation

process was being dealt with and how significant the distance learning initiative using televised teaching was to the administration.

From the start the University had the task of educating legislators and state level agencies on the value of distance learning to meet state educational goals, describing how it could be achieved and convincing them to provide the necessary resources to the University to make the initiative a reality. This response was the primary responsibility of university-level administrators and required significant and ongoing efforts by a number of individuals approaching the efforts from different sides. The President and Provost met primarily with legislators and the Governor while other administrators and the Provost approached state agencies and other colleges to deal with the regulatory aspects of the initiative. A university-level administrator described the times in this way:

We kept moving forward--we kept being aggressive and people liked the baccalaureate programs so much that the legislators were being contacted by their constituencies saying, 'We've heard that there is a an engineering technology program in Roanoke--we want it here'.

Once initial support was garnered, assembling appropriate support services and providing for students' unique needs at times and locations convenient to them was the next response taken by the administration. Both university and college-level administrators fulfilled key responsibilities for the successful implementation of student services--ranging from

admission, advising and enrollment to textbook purchasing and creating the off-campus mail system. One upper level administrator commented that hours and hours were spent with many individuals representing all the service areas across the University to anticipate the needs and plan the processes for dealing with the distance learning efforts. A university-level administrator described these "summit meetings" in this way:

... [We] got people from every different area of the University together and brought them together in one room and got them thinking about, "What do we have to do to help a student out in [name of rural community] get admitted, get registered, get financial aid, get advising, and then be successful?,".... because we thought through all of those nitty gritty, behind the scenes, non-glamorous issues, we had a 86-90% retention rate.

This individual also expressed that involving so many people from the university community gave them a sense of ownership of the initiative and created a vested interest in its success.

The University conducted surveys of a wide range of communities to determine what distance learning programs they wanted. This type of assessment was critical to the implementation of the distance learning initiative in order to meet the needs of the public the program was designed to serve. Knowing what the public was interested in allowed the University to target its efforts to these courses and more specifically, to offer courses for completion of degree programs. These surveys also turned out to be a good basis for arguments favoring the distance learning initiative. A

university-level administrator explained it in this way:

We didn't need surveys out in the community to find out what programs they wanted, but that turned out to be very important to do because we frequently got asked, 'Why are you offering this program out there?' by private schools that didn't want us to offer it. And we would say, 'Well, we've done a survey and we know there is an unmet need.'

Both university- and college-level administrators discussed efforts to gain support of the faculty and to convince them that this was a worthwhile effort. While initial hesitance was the response met by some, other administrators found faculty to be interested in teaching in the distance learning model and because the two lead departments had already been teaching successfully this way, some faculty were eager to try. Two administrators said that they simply used positive persuasion and voiced their support to the faculty. These administrators expressed to the faculty that while distance learning was new and experimental for them that they would do whatever it took to provide the support and resources the faculty needed if they would participate. One of these college-level administrators commented,

I think I need to be able to convince the faculty that this is worth doing; that the resources will be there and that I will support them in those areas that they think they can't accomplish something.

Another college-level administrator said that because other departments were aware of what Engineering and Nursing were doing in distance learning, faculty wanted to participate in this new endeavor and to experiment with delivering courses to students at a distance who had an interest in completing

baccalaureate degrees in their respective disciplines. Developing training programs for faculty was also mentioned by both university- and college-level administrators as a response in implementation to overcome barriers.

Establishing a reputation for quality programs, especially internationally, was mentioned by several university-level administrators. One said that the distance learning initiative was "...an opportunity for us to showcase our faculty and showcase our curricula for all of Virginia and all of the world to see...our chance to be famous or infamous and we had better be famous for it...." The success of distance learning "...hinged on the whole university embracing the concept and getting behind it." Spreading the university's reputation were faculty and administrators who began giving presentations on their experiences with distance learning at professional conferences and symposia. The university received a number of prestigious national awards and special recognitions for its programs and this furthered the reputation for excellence.

Other responses by management to deal with barriers encountered during implementation involved establishing committees, creating handbooks, and developing mechanisms for communication. One college created a standing committee for distance learning to deal with the unique concerns and represent all view points in problem solving. One department developed a distant student handbook so that students were introduced to the expectations of them as learners and were

provided procedures for answering their needs and concerns. This same department set up a mechanism by which students and faculty could communicate problems they were experiencing in the distance learning environment. Such a tool was a method not only to communicate problems, but also to document the nature and scope of problems. Finally, one college developed a workload policy for faculty teaching on television to ensure that non-tenured faculty would not have so many televised courses that their scholarly work would suffer from lack of attention.

Colleges that had laboratory, clinical or practical courses crucial to their disciplines devised a variety of approaches to solve the needs for these types of courses along with the distance course offerings. Videotapes for laboratory courses and summer course offerings on campus were two solutions. Engineering used a mobile van to take the labs to the distant sites. Nursing used clinical laboratories at the community colleges to offer the preparatory laboratory courses. Where there were sufficient numbers of students at a distant site, adjunct faculty who lived in that location were hired to supervise students in practical applications courses. One university-level administrator described the University's response to barriers in this manner,

I think we developed strategies to 'go around.' When we were told that we could only do credit [courses] in the region, then we did non-credit outside of the state. We wanted to create a reputation of having quality, so we put an awful lot of emphasis on quality programs when we were confronted with programs that required

laboratories. We turned problems into opportunities because it really meant that if there was a problem, the technology could provide the solution.

An analysis of the solutions to barriers that were proposed by administrators answers the third research question as to the response of management to overcome barriers. The full analysis of the interviews revealed the process used by administration as well as the steps taken by them to resolve problems in the implementation process. The findings demonstrate the level and scope of commitment that the institution had to the success of the distance learning initiative. As shared in this discussion, the steps taken by administrators covered activities ranging from simple communication mechanisms, such as a student handbook, to the development of new operating policies and procedures. The tactics shared by the administrators reveal strategies to involve as many participants as possible and the keen interest of the institution to maximize performance and attain the desired goals of the implementation of distance learning using televised instruction. A university-level administrator noted that the distance learning initiative had a ripple effect throughout the campus in which faculty created a demand for technology in the traditional classroom setting. Faculty realized that the technology helped them to be organized, and present material clearly and coherently to students; instructors wanted to be able to do this even when not teaching on television.

DELPHI RESULTS

The Delphi rounds and the Faculty Survey were the research methods used to answer the second research question: Are there identifiable factors that facilitated or served as barriers to the implementation of distance learning using televised courses at the University? Using the Delphi process to create the Faculty Survey was an important choice because while there is a plethora of literature on distance learning, there are few theoretical models on the implementation of distance learning. Opinions of the panel of experts along with theoretical constructs from the literature created a unique measuring tool to evaluate what the faculty perceived as barriers and facilitating factors in the implementation process of distance learning using televised courses. The discussion which follows is the description of the procedures for the three Delphi Rounds. More pertinent to this case analysis and answering the research question is the section that follows on the Faculty Survey results.

The three Delphi rounds occurred from January 1999 to September 1999. Delphi 1 and 2 were spaced three months apart and Delphi 3 followed 5 months later. An introductory letter and the Delphi Questionnaire: Round 1 were sent to the experts for this sample (as described previously).

The cover letter (Appendix A) that accompanied the questionnaire explained the purpose of the study, requested completion and return of the questionnaire, and stressed the confidentiality of responses. As the questionnaires were

returned, they were matched to a list of participants to check response completion. Only 3 questionnaires were returned, and several participants called with questions regarding clarification. A second cover letter was developed (Appendix J) and the questionnaire was sent by fax to all participants. The second cover letter thanked respondents who had already responded to the questionnaire and provided additional explanation to those who had not responded to the first mailing. The cover letter outlined how the faculty were selected and why, explained the Delphi technique and how it would involve several rounds, emphasized the importance of the individual's participation, and explained the intent of the research in more detail.

Of the original 12 individuals identified to participate in the Delphi process, only 9 completed the first round questionnaire. Two out of the nine participants returned a second completed questionnaire so the second questionnaire was omitted from data analysis for one person. The second person felt that they had given the second questionnaire more thought and asked that it be used for analysis instead of the first questionnaire. Of the two experts who never responded to any of the 3 rounds, one individual had to take medical leave from the university and one never responded to any of the three Delphi rounds.

Responses to round 1 of the Delphi Questionnaire ranged from three word phrases to entire paragraphs (Appendix K). While participants were asked to identify five factors for

both facilitating factors and barriers to implementation of distance learning televised instruction, responses ranged from 2 to 10 items per factor. For facilitating factors, 47 statements were generated and 45 statements were generated for barriers to implementation for a total of 92 statements.

A cover letter was developed for round 2 of the Delphi Questionnaire and explained the directions for completion, the return date, and the means for contacting the investigator (Appendix L). For this round, a two-day deadline time period was given. (Experience from the first round revealed that these respondents were busy individuals and a higher response return might be achieved with a shorter response time.)

The Delphi Questionnaire for round 2, displayed in Appendix M, included every comment made by the respondents in round 1. Comments that were repeated by multiple respondents were combined into single ideas; a total of 82 statements were created for Round 2. Distinct categories of responses from Round 1 were revealed and defined in Round 2 as follows: internal/external environment, university administration, training and assistance issues, technical services/issues, faculty incentives/issues. The 82 statements were listed under one of the five categories as suggested by the content. Items were still divided under the two major categories of facilitating factors in implementation and barriers to implementation.

In Round 2, respondents were asked to comment on the items by rating the items expressing agreement, disagreement

or clarification needed. They also were asked to identify the ten most important items they perceived as facilitating factors and the ten most important items they perceived as barriers to implementation. Respondents were to rank order the items with 1 being the most important and 10 being the least important. Nine respondents answered the questionnaire. One panel expert who responded to Round 1 did not respond to Round 2, and one panel expert who did not answer Round 1 answered Round 2. The other two non-respondents in the Delphi rounds were described previously in Delphi Round 1.

Data from the items in round 2 of the Delphi Questionnaire were tabulated and analyzed with descriptive statistics of mean, frequency counts, and minimum and maximum scores (Appendix N). No items were eliminated, but rather the data were used to re-write items for clarity. Appendix O provides the comments obtained on the questionnaire items in round 2. Items were no longer grouped into the two categories of factors facilitating implementation and factors serving as barriers to implementation, but rather every factor was written as a positive statement. Care was taken to exclude double-barreled statements and the questions were examined by several individuals to check for clarity of expression. The cover letter and round 3 of the Delphi Questionnaire are displayed in Appendices P and Q, respectively. A two-day response time was used again as it was for round 2. (This worked well for the Delphi panelists and achieved a high response rate.)

All 12 panelists were included in the distribution for round 3 of the Delphi Questionnaire; one of the expert panelists was reported to have left the University and two of the panelists had never participated. Based on a count of 10, the response rate was 70 percent. Results from Round 3 are displayed in Appendix R. Panelists were requested to rank items on a scale of 1 to 3 with 1 being of least importance for inclusion in the survey and 3 being of most importance for inclusion in the survey. Of the 47 Likert-scale items, 25 items were retained; one item (number 37) was reworded. Some changes were made in the demographic and professional data section to leave items more open-ended. Mean scores and standard deviations along with the supporting conceptual constructs from the literature based on barriers and facilitating factors in implementation served as the basis for inclusion and rewording of items.

FACULTY SURVEY

The resulting Faculty Survey is shown in Appendix S. Again, the Faculty Survey was used to answer Research Question 2, Are there identifiable factors that facilitated or served as barriers to the implementation of distance learning using televised courses at the university? This question was answered for administrators through the interview process and answered from the faculty perspective using the survey method.

The Faculty Survey was pilot tested with ten faculty members who had varying degrees of experience with teaching in the distance learning program. They were asked to provide

feedback on the cover letter, directions, and the survey items as well as to complete the survey by answering the questions. Very few evaluative comments were made by these respondents on the survey and no changes were made in the survey design as a consequence of the pilot test.

The Faculty Survey consisted of 25 closed-ended statements with a 5-point Likert scale: strongly agree, agree, neither agree nor disagree, disagree, and strongly disagree. Each rating was assigned a point from 1 to 5 with 5 corresponding to strongly agree, 4 to agree, 3 to neither agree nor disagree, 2 to disagree and 1 to strongly disagree. Two mailings of the survey were conducted to obtain a total of 138 surveys usable for analysis and representing a response rate of 68 percent (n = 204). One returned and completed survey was omitted from the analysis because the individual indicated that he/she had never taught on television.

Respondents represented all colleges, and the response rate by college was similar to the percent of the sample represented in the survey distribution (see Table 3). Response rates within colleges ranged from 50 percent (Business & Public Administration) to 100 percent (Health Sciences). The faculty respondents were 92 percent full-time and 65 percent male, which is similar to all the faculty who teach on distance learning television. The number of years of teaching experience ranged from 3 to 40 with a mean of 18 years. The number of different courses reported taught on television ranged from 1 to 7 with a mean of 2.5 courses. The

total number of times faculty reported teaching on television ranged from 1 to 18 times with a mean of 4.8 times. Of the respondents, 52 percent indicated that they had received formal training to teach on television, and 70 percent reported that they enjoyed teaching on television.

Faculty Survey items were divided into four major categories: University Administration/Internal

Table 3

Distribution of Faculty Survey Responses by College

COLLEGE	% OF SAMPLE	%RESPONSES
Arts & Letters	13.7	13.8
Business & Public Administration	22.6	16.7
Education	17.7	21.0
Engineering	24.5	20.3
Health Sciences	7.8	11.6
Sciences	13.7	15.9
Total	100.0	99.3*

*Total may not equal 100% due to missing data and rounding

Environment, Training & Assistance, Technical Services, and Faculty Issues, and so the survey results are discussed in this order. Frequencies of responses for the 25 Likert-scale items are displayed in Tables 4, 5, 6, and 7 along with the mean score and standard deviation for each item. Tables

follow with the discussion of the four major categories of the survey.

Administrative Support Category

Responses to items 1 through 3 regarding University Administration/Internal Environment, as shown in Table 4, reveal that the overwhelming majority of respondents agreed that the interest and commitment of the president, dean, and department chair were influencing factors; about 10 percent disagreed. While the dean's support is important, it is

Table 4

Faculty Survey Responses in Administrative Support Category (in percentages)

Survey Items	SA	A	N	D	SD	Mean	Std. Dev.
ADMINISTRATIVE SUPPORT							
01: The president's commitment to televised distance learning is an influencing factor.	53.4	30.1	14.3	0.8	1.5	4.33	.86
02: My dean's level of interest in pursuing televised distance learning courses is an influencing factor.	24.8	33.8	30.8	7.5	3.0	3.70	1.02
03: My department chair's level of interest in pursuing televised distance learning is an influencing factor.	36.1	32.3	21.1	6.8	3.8	3.9	1.09

SA=Strongly Agree, A= Agree, N=Neither Disagree nor Agree, D=Disagree, SD=Strongly Disagree

viewed as less so than the president's commitment, which has the highest level of agreement followed by the chair. This finding has two meanings; that the faculty view support from

administrators as important factors in the implementation process, and the commitment of the president is the most significant. Commitment and leadership skill of implementing officers is one of the conditions affecting implementation as identified in the theoretical model. The condition appears to be met in this case analysis as revealed by the opinion of the faculty and university- and college-level administrators.

Training & Assistance Category

Items 4, 5, 7, and 10 of the survey elicited similar results to each other in which faculty note agreement to the usefulness of training and professional assistance for teaching distance learning courses (see Table 5). This finding suggests that faculty view training and the support of distance learning personnel, professional staff, and distance site directors as important factors to them for the delivery of distance learning courses using television. This finding is consistent with theory on implementation of distance learning in which support and training of faculty are noted as highly significant to implementation. Support in this instance referring to the personnel who have special training in the technology and delivery of distance learning. Interestingly, when a tally was made of the faculty's comments provided at the conclusion of the Faculty Survey, the topic areas with the most comments were related to support (34 comments) followed by release time/workload issues (20 comments) (see Table R). This finding validates the faculty's concern with the issues of support in the implementation of

Table 5

Faculty Survey Responses in Training & Assistance Category
(in percentages)

Survey Items	SA	A	N	D	SD	Mean	Std. Dev.
TRAINING & ASSISTANCE							
04: Training provided by the University is useful preparation to teach on television.	19.1	52.2	11.8	11.8	5.1	3.68	1.07
05: Distance learning personnel are available to answer my questions.	24.3	47.8	17.6	6.6	3.7	3.82	1.00
06: Assistance in course design is adequate to prepare class presentations.	13.2	27.9	25.0	25.0	8.8	3.12	1.19
07: On-campus professional staff are responsive in helping the course to run smoothly.	22.1	45.6	18.4	7.4	6.6	3.69	1.10
08: Availability of secretarial support within my department is an important factor.	26.1	20.9	19.4	15.7	17.9	3.22	1.45
09: Availability of a student assistant is an important factor.	50.7	24.6	9.7	9.7	5.2	4.06	1.21
10: Distance Site Directors are responsive in helping the course to run smoothly.	25.0	39.7	22.1	9.6	3.7	3.73	1.06
11: I am aware of what office (i.e. Distance Learning & Extended Education, Computer Services, Center for Learning Technologies, etc.) To contact when I need assistance.	15.4	35.3	16.2	24.3	8.8	3.24	1.23

SA=Strongly Agree, A= Agree, N=Neither Disagree nor Agree, D=Disagree, SD=Strongly Disagree

distance learning at this University. Some of these comments are shared in the appropriate sections which follow.

Responses to Item 11 (I am aware of what office to contact when I need assistance) revealed that half of the respondents agree with this item while another third disagree. This finding indicates that while many faculty know from where they can obtain assistance on campus, too large a proportion of faculty do not. One faculty member said, "Don't know what services they have, who is in charge of what, or what exactly their role is." From a service delivery standpoint, this information suggests that offices that support television teaching need to communicate their role to the faculty more precisely. As discussed with the previous survey items on support, the theory substantiates the relevance and importance of training and support to implementation so the need for faculty to know where and how they can obtain this support is critical to successful implementation efforts.

Two items (assistance in course design to prepare class presentations and availability of secretarial support within the department) revealed a spread of responses among the choices with no single response obtaining a majority opinion. Assistance in course design had most of the responses centered around agree, neither disagree nor agree or disagree, which reveals a disparity of opinion on the importance of design assistance, and that some faculty view this as helpful while others do not. Seeking assistance from a course designer is a matter of personal choice and some faculty may be more

educated or skilled than others in preparing course materials for delivery using television and thus, not seek this assistance. The findings when examined together with the knowledge that some faculty are not aware of offices to contact for assistance (Item 11) might suggest that faculty do not know that they have the assistance of course designers available to them. With limited information from the data, any interpretation should be viewed with some caution.

While responses regarding secretarial support revealed this as an important factor to the faculty, it had a larger proportion of disagreement than any of the other items in the Training & Assistance Category. This finding suggests that secretarial assistance might be less important of a factor to the faculty than the other training and assistance issues. Faculty comments regarding secretarial assistance included, "But we don't have enough" and "not very available." Again, this finding is confirmed by distance learning implementation theory which purports the need for additional assistance to faculty who are teaching in distance learning venues (Appendix T).

A final item within the Training & Assistance Category was Item 9, which relates to the availability of a student assistant. The large majority of respondents viewed the availability of a student assistant as important. Further confirmation was noted from the faculty's comments, which expressed the need for the assignment of trained student assistants. One individual expressed the following sentiment:

If [name of university] wants this commitment (which it does) then they need to wake up to faculty and students' needs and put significant funds, well-trained personnel, and adequate resources in place. Faculty will burn out and students suffer if they don't.

Again, the emphasis here is confirmed from implementation theory on the need for adequate support for faculty to be able to perform their roles and satisfactorily meet the goal of implementation of distance learning.

Technical Services Category

The next category, Technical Services, comprised four items and results are displayed in Table 6. Item 12 (adequate computer facilities are available for students at distant

Table 6

Faculty Survey Responses in Technical Services Category (in percentages)

Survey Items	SA	A	N	D	SD	Mean	Std. Dev.
TECHNICAL SERVICES							
12: Adequate computer facilities are available for students at distant sites.	0.8	14.5	45.0	25.2	14.5	2.62	0.93
13: Individual time with the broadcast engineer in the classroom prior to first time teaching is useful.	33.3	52.2	10.1	2.9	1.4	4.13	0.82
14: Class discussions are conducted effectively.	6.7	37.0	20.7	27.4	8.1	3.07	1.11
15: Physical separation between myself and students at remote locations affects delivery of course content.	43.7	27.4	8.9	15.6	4.4	3.90	1.25

SA=Strongly Agree, A= Agree, N=Neither Disagree nor Agree, D=Disagree, SD=Strongly Disagree

sites) had the most responses in the neither agree nor disagree category (45%) followed by the disagreement responses combined (40%). While no single area garnered the majority of opinion, the higher amount of disagreement and the neutral responses combined suggest that the existing computer facilities for distance students are less than adequate. Four comments were made about computer equipment on campus and at the distance sites, and one noted them to be "unreliable and often nonfunctional." Faculty did not indicate in which location the computers were nonfunctional. Implementation theory in distance learning supports that students at distance sites need the same resources available to them as students on campus. Results from this survey item indicate that the faculty view the computer facilities as less than adequate at distant sites. More information is required to assess adequacy of computer facilities for distance students and why the faculty do not report positively on this support area.

Faculty responses to Item 13 (individual time with the broadcast engineer in the classroom prior to first time teaching) reveal that 85 percent of the respondents agree that scheduled time with the engineer is highly important to them. This finding confirms the theoretical model for implementation of distance learning, which includes the components of faculty training to use the technology and their collaboration with production technicians as important to implementation.

Responses to Item 14 (class discussions are conducted effectively) show that the largest proportion of respondents

agree with this item. This question was included in the survey to assess if faculty are able to adapt familiar teaching patterns to those needed in distance learning venues, which is a theoretical construct in the implementation model. This finding suggests that faculty are able to make changes in teaching patterns to conduct distance learning class discussions effectively. The majority of respondents also reported agreement with item 15 (physical separation between myself and students at remote locations affects delivery of course content). This finding is supported by existing theory of distance learning implementation that conveys that faculty believe the loss of face to face contact with their students impacts on course content delivery. Comments from the faculty note the challenges of conducting discussions and group work in the distance learning format. Theory suggests that the loss of eye-to-eye contact is a discouragement to some faculty; however, comments tend to be more matter of fact than an expression of the unacceptability of this situation which corroborates the item response findings.

Faculty Issues

Ten items comprise the last category in the survey dealing with Faculty Issues, and the results are displayed in Table 7. Items 16 and 17 deal with monetary compensation; responses to item 16 (monetary compensation for preparation time) reveal that 75% of the faculty agree that this is an influencing factor. This finding supports that faculty believe monetary compensation is deserved for the work

Table 7

Faculty Survey Responses in Faculty Issues Category (in percentages)

Survey Items	SA	A	N	D	SD	Mean	Std. Dev.
FACULTY ISSUES							
16: Monetary compensation for preparation time is an important factor.	46.5	27.9	7.8	10.9	7.0	3.96	1.27
17: Monetary benefit of \$25.00 per student over 60 students is an influencing factor.	30.5	23.4	21.9	10.9	13.3	3.47	1.37
18: Release time provided to prepare a course the first time teaching it on television is an important factor.	69.7	19.7	5.3	3.0	2.3	4.52	0.90
19: Release time for subsequent preparation after teaching class the first time on television is an important factor.	48.1	31.0	13.2	3.9	3.9	4.16	1.05
20: Adequate consideration is made in my overall workload assignment for teaching on television.	11.1	25.9	11.9	25.9	25.2	2.72	1.38
21: Course designers are useful in enhancing my individual teaching style.	3.7	23.7	37.8	20.0	14.8	2.81	1.07
22: I willingly participated in televised instruction.	41.5	33.3	11.1	8.9	5.2	3.97	1.17
23: Distance televised instruction is given recognition for promotion and tenure purposes.	0.8	15.8	34.6	27.8	21.1	2.47	1.02
24: Distance televised instruction is recognized in merit pay increases.	0	10.4	27.6	31.3	30.6	2.18	0.99
25: Changing course format and assignments to accommodate teaching on television is necessary.	57.8	32.6	3.7	3.7	2.2	4.4	0.90

SA=Strongly Agree, A= Agree, N=Neither Disagree nor Agree, D=Disagree, SD=Strongly Disagree

involved in developing a course or adapting an existing course for televised teaching. A number of comments further suggest that the amount of compensation is not commensurate with the task. One faculty member went so far as to say, "I do not plan to teach on television again. It is an activity that is neither recognized nor rewarded at level commensurate with its difficulty." Item 17 asked respondents if monetary benefit of \$25.00 per student over 60 students is an influencing factor. The majority of respondents strongly agree that this benefit is an important factor. The next highest response was neither agree nor disagree with a 22% response rate. Since the policy already exists for a monetary compensation to faculty teaching courses with enrollments over 60 students, it might be possible that for the faculty who are more ambivalent about monetary compensation, it is not as important a factor to them. This finding is supported in the theory of distance learning implementation that reveals that for most faculty, rewards are of a more intrinsic nature. From another perspective, the monetary compensation may not be considered a reward if the faculty member has no choice. One individual asked, "Influencing what? Are you going to say, 'No, I will not teach this unless you give me \$35/student?'" Obviously, the compensation of money for larger class sizes is not a bargaining tool. Theory on implementation of distance learning does purport that unwilling faculty should not be made to teach using distance learning. One faculty member commented on the issue of support in a positive manner saying,

"Support for and recognition of faculty who teach on television is critical. Teaching on television is worthwhile and provides individuals educational opportunities that can improve the quality of their lives." The development of adequate recognition and rewards given by the University is a consistent tenet in the implementation theory for distance learning. The largest number of comments the faculty contributed addressed issues of support and consideration in workload and release time. While this does not negate the importance of monetary rewards, it does demonstrate the higher concern the faculty have with obtaining adequate support services.

Release time for initial and subsequent preparation of a course for teaching on television comprised the content of items 18 and 19. Respondents strongly agreed (70%) that release time for preparation of a course the first time teaching it on television is an important factor. A number of faculty voiced that the time for preparation and administration of a distance learning course was 2 to 3 times the amount of time needed for a traditional course offering. One faculty member's comment summarized many of the responses regarding the issue of release time: "A media intensive interactive distance learning course requires a significant amount of prep time that is not realized by administrators."

Respondents agreed that release time for subsequent preparation after teaching a course the first time on television is an important factor. When comparing these

results to those for rewards it appears that consideration of release time in faculty members' workloads is more significant to them than the monetary compensation for student enrollments over 60 students. One faculty member aptly commented, "Faculty workload needs to be adjusted. These courses take at least 3 time as much work -- whether it's the first time or not." There were many more comments specifically directed towards workload than release time, 17 comments compared to 3. Some of these are discussed in relation to the next Faculty Survey question, item 20, regarding workload assignment.

When results of item 20 are examined (adequate consideration is made in my overall workload assignment for teaching on television), 51 percent of the faculty disagree or strongly disagree. This supports the findings from the previous two items on release time in the workload assignment, and reinforces that faculty believe release time is important and that consideration is not being made in the workload assignment for the added responsibilities associated with teaching on television. Concerns centered around the amount of time and the difficulties associated with handling large enrollment courses (several mentioned examples of 100 plus enrollments. Specific issues included time required to maintain communication with students through email and telephone correspondence, hours in preparation of course materials, sorting and distributing written materials to as many as 30 different sites, time involved in providing feedback to students in writing-intensive courses, and

keeping up with the grading of papers and tests. Two respondents' comments described this best: "...when one faculty member teaches a class of 20 on campus & another teaches 150 at 30 sites it is a vastly different workload." The second comment was as follows:

The workload is very heavy when teaching TV courses. Evaluation of remote students was lower than that of on site students even though I spent more time with remote students. A good course design is the key to the success of a TV course, since a straight forward adoption of a regular course structure leads to disasters in teaching [subject name] on TV...For teaching on TV, hard work does not guarantee good results!

Examination of the workload issue appears to be the second most important concern of the faculty after adequate support.

Item 21 queried respondents on the usefulness of course designers in enhancing individual teaching style. A small amount of agreement and disagreement was noted for this factor indicating no clear support either way. This finding might be explained by the fact that the large majority of faculty teaching on television at this institution were experienced teachers and may not have felt that they needed the assistance of a course designer. Also, a relatively large proportion of faculty did not know where and in what form they might obtain assistance (Item 11). One faculty member expressed this sentiment, "I have been here 12 years, I do not know what a 'Course designer' is." As mentioned previously, faculty need to be apprized of the support available to them. Another possible explanation is that the faculty members did not link

the training they received from formal training workshops as a component of course design assistance. Theory on the implementation of distance learning does purport that faculty need training in educational methods for distance learning and that collaboration with instructional designers is an important issue. Further inquiry is needed to make more conclusive statements about the usefulness of course designers in improving faculty teaching style.

Item 22 asked respondents if they willingly participated in teaching a course on television. Faculty respondents indicated that they agreed (75%) to willingly participate. This finding is important because both the implementation model of Mazmanian and Sabatier (1989) and the implementation model for distance learning address the significance of willing partners in new initiatives. Faculty who agree to teach courses via distance learning generally will be more interested in using the technology as well as in problem solving when challenges arise.

Faculty rewards is the topic for the next two items; Item 23 asked if distance televised instruction is given recognition for promotion and tenure purposes. The majority of responses given were neutral (35%) and disagree responses (49%). This finding suggests that teaching in the distance learning program is not given the recognition that faculty believe it should in the promotion and tenure process. As to the high response level for neither agree nor disagree, it could be hypothesized that limited recognition is given in the

promotion and tenure process. It is also possible to conjecture that if the majority of respondents were already tenured, they might not know what level of recognition is given to teaching on television in the tenure process. Many more questions are raised from this item than are answered and further inquiry is indicated to obtain more details. Implementation theory in distance learning does substantiate that recognition of distance learning in promotion and tenure policies and procedures is an important issue in success and should be addressed by the administration.

Similar responses were obtained for item 24. When asked if distance televised instruction is recognized in merit pay increases, faculty disagreement is even higher than in the previous issue of promotion and tenure. Interestingly, this is the only survey item in which not one single respondent selected strongly agree as a response. Merit raise increases in salary are evaluated and distributed annually at this institution and this finding suggests that distance teaching on television is not given any special recognition in awarding merit increases in salary. A question raised from this finding is how is distance teaching evaluated if faculty do not believe it is weighed in the merit raise evaluation? As noted in the literature, incentives have to be in place for faculty to be motivated to pursue new roles and to develop innovative approaches to teaching and these need to be addressed by the administration.

Item 25 queries faculty about whether changing course format and assignments to accommodate teaching on television is necessary. The majority of respondents indicated agreement. This item was included in the survey to provide some confirmation of the changes required by faculty in their familiar teaching patterns to accommodate distance learning formats. Support of this item by faculty suggests that they are willing to make accommodations in their teaching patterns; this is consistent with theory of implementation of distance learning.

Statistical Proposition

In light of particular findings from the survey, a statistical question was posed to identify variables that increase the odds of a faculty member enjoying teaching on television. This question is predicated on the supposition that if a faculty member enjoys teaching on television then are there variables that could predict enjoyment and affect the implementation process. A faculty member who enjoys teaching on television might have a different view of barriers or factors influencing implementation than an individual who does not enjoy teaching on television. The answer to the statistical question will help to further answer the Research Question 2 in this study; are there identifiable factors that facilitate or serve as barriers to the implementation of distance learning using televised courses at the University?

Because the issues of personnel support, training, and faculty rewards were so highly agreed upon as important

factors by the faculty, these were the variables chosen for examination in the statistical question along with three of the demographic variables: gender, overall years of teaching experience, and years of teaching experience on television. Faculty status was not examined as a predictor of enjoyment of teaching because there were so few part-time faculty in the sample.

Chapter 3 explains the rationale for use of Cronbach's alpha, chi-square and logistic regression analysis to answer the statistical question and will not be repeated here. A logistic regression analysis was identified as the appropriate statistical analysis tool to identify factors which predict enjoyment of teaching. Enjoyed teaching on television was identified as the dependent variable and the six independent variables, previously mentioned, were proposed for study.

Scale Development

In order to examine the issues of importance to faculty in another way and broader than the separate items posed by the Faculty Survey, scales from the faculty members' responses could be developed and tested for their ability to predict enjoyment of teaching. Because the variables of support and rewards were most important to the faculty, creating scales for these variables using the set of items related to these variables were tested for their internal consistency. In other words, their reliability to measure what they were intended to measure, by using Cronbach's alpha.

A scale for "Personnel Support" was examined using survey Items 4, 5, 6, 10, and 13, which deal with training, availability of distance learning personnel to answer questions, assistance in course design, responsiveness of distance site directors, and individual time with the broadcast engineer in the classroom prior to the first time teaching, respectively (see Table 8). Six surveys had scores missing on one or more of the 5 items selected for the scale. On the three surveys with only one missing item, a score was imputed for the missing score by using the average of the other 4 item scores. Cronbach's alpha revealed a low correlation of Item 13 (time with the broadcast engineer) with the other 5 items (item correlation = 0.285). This finding suggests that the item is not strongly related to the other items and that the scale is more homogeneous when the item is removed. As a scale, the other five items show an inter-item correlation to each other (alpha = 0.8269) suggesting internal consistency of items in the measurement of personnel support. From a conceptual perspective, the elimination of Item 13 from the scale seems appropriate because the other five items relate to ongoing personnel support to the faculty member over time while the item related to the broadcast engineer indicates assistance only prior to the first time teaching on television, a one time event. In summary, the scale demonstrates good reliability for the aspect of personnel support to faculty and was used in the logistic regression model.

Table 8

Determination of Internal Consistency of a Functional Scale
on Personnel Support with Six Items using Cronbach's Alpha
(n=137)

1. Inter-Item Correlation Matrix

Survey Items	04	05	06	07	10
04	1.000				
05	.5405	1.000			
06	.6340	.6250	1.000		
07	.5012	.6910	.5559	1.000	
10	.2773	.3871	.2831	.4055	1.000
13	.2108	.2067	.2635	.1804	.2307

2. Item-Total Statistics

Survey Items	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total if item deleted	Alpha if item deleted
04	18.489	13.855	.619	.764
05	18.358	13.658	.718	.743
06	19.058	12.791	.678	.748
07	18.482	13.340	.673	.750
10	18.438	15.307	.422	.808
13	18.051	17.284	.285	.827

Reliability Coefficient 6 items Alpha = 0.807

The Personnel Support scale was recoded into a dichotomous scale of 0 - 3.40 = 0 (disagreed) and 3.5 - 5.0 = 1 (agreed) and results reveal that 61% of respondents agreed that personnel support was an important factor (mean = .6131, std. dev. = .4888).

A second scale was attempted, using survey items 20, 23, 24, and related to adequate consideration in overall workload for teaching on television, recognition for promotion and tenure, and recognition in merit pay, and was titled, "Rewards". Four surveys had one item missing on the three scale items and so values were imputed by using the average of the other two scores. As displayed in Table 9, the reliability analysis for the Rewards scale did not demonstrate internal consistency ($\alpha = 0.654$). When items show a low correlation, it is possible that they are measuring different traits than those anticipated for measurement. Therefore, a scale for rewards was not included and the three items regarding rewards were examined individually for inclusion in the logistic regression model. In this way, the variables regarding rewards could still be tested for their predictability of enjoyment of teaching, but just not as a single conceptual variable.

Chi-square Analyses

Cross-tabulations were calculated for all six independent variables and the dependent variable to determine if there were significant relationships among the variables prior to using them in the logistic regression model. Pearson's

Table 9

Determination of Internal Consistency of a Functional Scale
on Rewards with Three Items using Cronbach's Alpha (n=134)

1. Inter-Item Correlation Matrix

Survey Items	20	23	24
20	1.000		
23	.2370	1.000	
24	.3481	.7030	1.000

2. Item-Total Statistics

Survey Items	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total if item deleted	Alpha if item deleted
20	4.672	3.410	.3161	.8253
23	4.896	3.809	.5228	.4956
24	5.179	3.592	.6299	.3693

Reliability Coefficient 3 items Alpha = 0.654

chi-square analysis was used to examine significant relationships at a 0.05 alpha level. While this analysis is useful to examine the variables at the bivariate level to rule out those that show no possible relationships, concepts from the theoretical model can be the basis for inclusion in logistic regression analysis even if the association is not shown to be significant in the chi-square analysis.

Results of the chi-analysis (see Table 10) reveal that the factor of Personnel Support had a highly significant relationship with "enjoyed teaching on television" ($n=129$, $df=1$, $\alpha = .001$) and was retained for inclusion in building the logistic regression model. Results of the chi-square analysis revealed that the factors involving workload, promotion and tenure, and merit were not significant in relationship to enjoyment of teaching on television; therefore, they were not retained for use in the logistic regression model.

While gender did not reveal a significant relationship, it was maintained in the model as a demographic variable of interest to see if it accounted for variance in the other variables. Years in teaching experience was not significant at the 0.05 alpha level ($p=0.063$) but was retained for use in the model for theoretical reasons. However, because there were only small differences between the upper three quartiles of experienced teachers with the greatest difference existing for newer teachers in the first quartile, the categories were

Table 10

Calculation of Chi-square for Cross Tabulation between
Factors and Enjoy Teaching on Television

	% Did not enjoy teaching on television	% Enjoy teaching on television	p-value
FACTORS			
PERSONNEL SUPPORT	N = 129, df = 1		
Did not agree that personnel support was important	47.1	52.9	
Agree that personnel support was important	20.5	79.5	.001
WORKLOAD	N = 128, df = 1		
Did not agree that consideration was made in workload was important	34.6	65.4	
Agree that consideration was made in workload was important	25.5	74.5	.288
PROMOTION & TENURE	N = 126, df = 1		
Did not agree that recognition was given for promotion and tenure was important	30.8	69.2	
Agree that recognition was given for promotion and tenure was important	36.8	63.2	.605

	% Did not enjoy teaching on television	% Enjoy teaching on television	p-value
FACTORS			
MERIT	N = 127, df = 1		
Did not agree that recognition was given in merit pay increases was important	32.5	67.5	
Agree that recognition was given in merit pay increases was important	23.1	76.9	.490
GENDER	N = 129, df = 1		
Female	34.8	65.2	
Male	27.7	72.3	.402
TEACHING EXPERIENCE	N = 131, df = 3		
0-9 years	46.9	53.1	
10-18 years	30.0	70.0	
19-25 years	16.7	83.3	
26 or more years	30.3	69.7	.063
TV TEACHING EXPERIENCE	N= 127, df = 1		
One time	56.5	43.5	
More than 1 time	24.0	76.0	.002
FORMAL TRAINING	N = 130, df = 1		
Did not receive formal training	31.7	68.3	
Did receive formal training	29.9	70.1	.815

regrouped for the logistic regression analysis into 2 categories characterized as 1-9 years of teaching and 10 or more years of teaching.

First-time teaching on television versus not first time teaching on television was associated with enjoyment of teaching and was included in the model. Formal training was retained in building the logistic regression model to examine its strength in the odds of prediction of enjoyment of teaching on television because it is a service function that can be provided by the institution.

Logistic Regression Analysis

Results of the logistic regression analysis are displayed in Table 11. In logistic regression analysis, the generated coefficients are generally more useful in interpretation as odds rather than as probability. The odds explain how much more likely it is that the individual is a member of the target group (faculty who enjoyed teaching on television) than the reference group (faculty who did not enjoy teaching on television). If the odds are 1.00, then either outcome has an equal chance of occurring. Confidence intervals can also be generated for each odds ratio and are viewed as a significant odds ratio when the null value, 1.0, is not contained within the confidence interval (Portney & Wakins, 2000). In this analysis, the variables, taught on television more than once and agree that personnel support was an important factor were

Table 11

Results of Logistic Regression Analysis: Factors Associated
with Enjoyment of Teaching on Television

FACTOR	Adjusted Odds	95% CI	B (SE)	p-value
Gender (Male=1)	1.61	0.57, 4.53	0.48 (.53)	.37
Ten or more years of experience in teaching	2.25	0.89, 5.69	0.81 (.47)	.09
Taught on television more than once	4.55	1.61, 12.84	1.52 (.53)	.004*
Had formal training to teach on television	1.35	0.49, 3.68	0.30 (.51)	.56
Agree that personnel support is important	3.42	1.41, 8.30	1.23 (.45)	.006*

*significant at the 0.05 alpha level

significant. The results reveal that faculty who taught on television more than once were four and a half times more likely to enjoy teaching on television. This finding suggests that while teaching a course for the first time on television might not be enjoyable to the faculty member, with more experience with teaching on television faculty may come to enjoy teaching in this manner.

Faculty who agreed that personnel support was important to them in the way of training, personnel to answer questions, assistance in course design, and on-campus professional staff to help the course run smoothly, were three times more likely to enjoy teaching on television than faculty who did not agree that available support was important to them. This finding further confirms the relevance of personnel support in the implementation of distance learning model and its status as a condition of successful implementation. References to needing adequate personnel support and resources were the most common comments made at the conclusion of the Faculty Survey along with mention of dealing with hundreds of email messages each week and problems in delivery of students papers and tests. These comments along with the data support the importance of personnel support and adequate resources in implementation of distance television instruction. As mentioned in the analysis of the Faculty Survey items, collaboration and support of

individuals with specialized training in distance learning technology is important in the implementation model.

Another variable that was not statistically significant, but appears worthy of discussion is ten or more years of teaching experience ($p=.09$). The odds of a faculty member with ten or more years of teaching experience enjoying teaching on television was two times that of a faculty with less than ten years of experience. This finding suggests that faculty with more teaching experience may be more comfortable with teaching in general and, therefore, are not as negatively influenced by the changes required for teaching on television. These experienced teachers may be more open to experimentation with their teaching style and varying approaches to teaching.

The last two variables, gender and formal training to teach on television, reveal no significant predictive relationship to enjoyment of teaching on television. This finding suggests that gender does not play a role in the enjoyment of teaching on television and that both male and female faculty have an equal chance of enjoying teaching on television. Formal training appeared to have little influence on the enjoyment of teaching. However, with this variable as with all the variables under investigation, the confidence interval is so wide because of the small sample size.

SUMMARY

Results from the document review, interviews of

administrators and the Faculty Survey were used collectively to answer the three research questions for this study. The document reviews and interviews provided information for answering question 1: "What process was used by the institution to implement a distance learning initiative using televised courses at the University?" The findings reveal that early distance learning initiatives had been implemented to solve some of the problems of community outreach that confronted two departments prior to the formal initiation of the distance learning program for the entire University. Demand for these early courses were from industry and hospitals. While the formal decision was a top down one in which the President decided that this was an endeavor that would be pursued by the University, campus-wide participation was structured to occur in the implementation process. Support from the Governor, the legislature, and the council that deals with higher education issues in the state were key in the initiation and financial support of distance learning from the beginning. The request by the state council director to develop a proposal for distance learning was a key turning point for the University. Partnerships with community colleges across the state became the glue that assured the participation of students and garnered wider legislative support.

The interviews of university- and college-level administrators and the Faculty Survey provided information for answering Research Question 2: "Are there identifiable factors that facilitated or served as barriers to the implementation of distance learning using televised courses at the University?" The factors which facilitated or served as barriers to the implementation varied in perspective according to the level that the administrators served. University-level administrators viewed funding, governor's role, and legislators' support as the most important facilitating factors. Community college agreements, demand for courses, leadership and prior experience of the President, and efforts of faculty and staff were most often voiced by the college-level administrators as the most important facilitating factors. Faculty also viewed the commitment of the President followed by that of the department chair and then the dean as important factors. Training and support from distance learning personnel, broadcast engineers, distance site directors, and student assistants were very important factors to the faculty. Compensation for preparation time for teaching a course the first time on distance learning television also was an important factor.

Barriers to implementation noted by the administration included initial hesitancy of the faculty, lack of knowledge about distance education, role of regulatory boards and

accrediting agencies, financial costs, and lack of resources for clinical/practical courses. Faculty were most concerned with workload issues and release time as well as recognition for teaching distance learning (through salary increases based on merit and consideration in the promotion and tenure process). The availability of adequate computer facilities for students also was noted as a problem. Workload issues centered around factors dealing with the time needed to communicate with students at remote sites, preparation of course materials, distribution of materials to sites, and grading papers and tests.

The interviews provided the information to answer Research Question 3: "What were the responses by management to overcome barriers encountered during the implementation process of the distance learning initiative?" Educating legislators and state-level agency personnel about how distance learning could be implemented and how it could solve problems in access to higher education for citizens was an initial responsibility of upper-level administrators. Creating access to support services both on and off campus for students and faculty was a demanding task requiring a large number of university personnel to establish policies and procedures. Conducting surveys of many communities, establishing training programs for faculty, and establishing a reputation for excellence were some of the early responses

needed to implement the distance learning initiative. Second wave responses included establishing procedures that were specific to select colleges or departments and included creating a workload policy, standing committees, communication mechanisms, and student handbooks. Lastly, a way to offer clinical and practical experience courses was needed so that students could fulfill certain baccalaureate degree requirements.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

STRENGTHS AND WEAKNESSES OF THE THEORETICAL FRAMEWORK

After using Sabatier's and Mazmanian's theoretical model as well as the framework for implementation of distance learning from the literature to analyze the implementation in an actual setting, conclusions may be drawn from this case analysis. Strengths represent those features of the framework that had been applied in the implementation under investigation in this research study. A review of the weaknesses includes those components of the framework that did not explain the implementation process. This discussion should reinforce the applicability of the theoretical implementation framework of distance learning in higher education and further address the development of new theory.

Theoretical Model

The six conditions of the theoretical model of implementation by Sabatier and Mazmanian (1989) and the framework of distance learning implementation from the literature were integrated into a single model because most of the constructs from distance learning fit into Sabatier's and

Mazmanian's Condition 3 (conditions for maximization of performance). Support of distance learning as a priority of the university and acceptance by faculty as an educational tool also fit within the implementation model (Conditions 1 and 5, respectively). This integrated model is summarized as follows:

1. Clear policy objectives and support of the implementation of the distance learning strategy as a priority of the University (from distance learning framework)
2. Jurisdiction over target groups and institutional-wide coordination of academic units
3. Conditions for maximization of performance by implementing officials and target groups, including sufficient financial resources. From the distance learning framework implementation conditions include training, degree to which faculty are skilled in using technology, collaboration with personnel who have expertise in the technology, consideration in release time/workload, rewards for use of technology in teaching, recognition for promotion and tenure, comfort level in participation, and adequate services for students at remote sites
4. Commitment and leadership skill of implementing officers;
5. Support of constituency groups and a few key legislators or chief executive; acceptance by faculty as an

educational tool (from the distance learning framework) and

6. Priorities are not undermined over time by emergence of conflicting policies or changes in socioeconomic conditions

Each of the conditions affecting implementation as identified in the blended theoretical model were all encountered in the implementation of the distance learning initiative at the University as revealed by the opinion of the faculty as well as from the findings of the interviews of university- and college-level administrators and the document review.

Results from this case study serve to validate and support the six conditions for implementation as constructs of the implementation process as identified by Sabatier and Mazmanian (1989). Further, results of the study contribute to the understanding of the many dimensions of implementation involved in distance learning using televised courses. Interestingly, some conditions appear to be more important than others in this implementation study. For example, the leadership of the president and his past experiences with distance learning at another institution seemed of greater value in the implementation (Condition 4) than clarity of the objective (Condition 1). While the overriding purpose, simply stated, was to implement distance learning using televised courses, even upper level administrators were not entirely

certain of how this would be accomplished. The fact that the distance learning initiative using televised courses was championed by the President clearly communicated to the entire university community that this would be done and it was up to the faculty and administrators to figure out how.

The condition of maximization of performance (Condition 3) was analyzed through multiple interpretations of the factors that facilitated or served as barriers to the implementation of distance learning using televised courses. This analysis was the primary method by which concepts of distance learning using televised instruction identified in the literature review were examined in the case study. Results revealed that all of the constructs were reflected as issues of concern expressed by the faculty and administrators in this institution. Depending on the scope and depth to which the issues had been addressed in the implementation, the constructs may have been defined as barriers or factors which facilitated the implementation at this University. For example, while lack of training can be a barrier, the availability of training can be a facilitating factor. All of the barriers and facilitating factors to implementation were described in the preceding chapter. As expected, the results reveal that some conditions were more important than others. The institution had made training available because almost all of the faculty had formal training in distance learning for

televised courses. Results also reveal that faculty agreed that class discussions were conducted effectively and that changing course formats and assignments to accommodate teaching on television was necessary. This finding supports that faculty accept distance learning using televised courses as an educational tool and are able to make adaptations in their familiar teaching patterns. This further suggests that the training received by the faculty has appropriate content and is valuable in helping them to make the necessary adaptations for teaching on television.

One finding not explained by the literature was that the more experience the faculty had with teaching using televised methods, the more they enjoyed the television courses. This finding suggests that if faculty do not enjoy teaching televised courses the first time they teach in this delivery mode, they may come to enjoy teaching televised courses with more experience. Faculty enjoyment of teaching on television seemed dependent on if the faculty member had taught on television more than one time and was in agreement that personnel support was an important factor.

Finally, the distance learning initiative was supported by constituency groups, legislators, and the Governor throughout the implementation process (Condition 5) and was not undermined over time by the emergence of conflicting

initiatives or changes in socioeconomic conditions (Condition 6).

IMPLICATIONS FOR POLICY

Results from this case study of the implementation of a distance learning initiative using televised courses provides other educational institutions with a useful model of implementation. Further, the study defines some of the factors of importance to administrators and faculty that contribute to a positive implementation as well as barriers to implementation. This information may prove valuable to institutions considering the implementation of distance learning using television or other similar initiatives. Since administrators may be better prepared to structure the implementation, this may lead to improved efficiency of implementation of distance learning initiatives and reduced costs of trial and error efforts.

Results of the study reveal the importance of providing resources to faculty teaching on television in the form of personnel support to answer questions, individuals who are readily available to the faculty both on campus and at the distant sites, trained graduate assistants or professional staff, secretarial assistance, and assistance with distribution of materials and handling communications with students.

Institutional leaders should investigate mechanisms appropriate to their settings to encourage faculty teaching courses on television for the first time. Activities such as lunch-time information sessions and the use of peer mentors may prove to be helpful resources to new distance learning teachers as well as to contribute to their enjoyment of teaching on television. These services would be applicable to educators who have not previously taught on television regardless of their years of teaching experience.

Institutional leaders need to consider mechanisms for release time and workload compensation for faculty teaching in a distance learning delivery system. This consideration needs to encompass preparatory time, extra time needed to deliver a course on television for the first time, as well as for subsequent times of television course delivery. Workload compensation that covers only the first time teaching a course on television does not compensate for large student enrollments, writing-intensive courses, grading and distribution of students' papers, and the volume of communications activities with distance students.

Special recognition of distance learning teaching in the promotion and tenure process was viewed as important to faculty as a reward for the time and efforts involved in planning and delivering distance learning courses. Recognition of teaching on television in the evaluation of

faculty and allocation of salary raises based on merit are other important policy and procedure issues to consider in the implementation of distance learning using televised courses.

IMPLICATIONS FOR FUTURE RESEARCH

While this case analysis has been useful in examining the implementation of a distance learning initiative in one university, it would be helpful to explore distance learning implementation issues further with a larger sample size by including other institutions. This would provide a basis to validate the findings from this study as well as to compare and contrast experiences across institutions.

Further analysis of some of the findings of this study might contribute additional detail to the distance learning implementation process. For example, to explore in what ways faculty believe course delivery is affected by televised instruction or the issue of equitable student access to comparable computer resources at distance sites. Further study of faculty rewards for teaching on television also would contribute useful information to the body of knowledge involving implementation of distance learning in higher education. A profile of practices used at other institutions and how they are viewed by the faculty might provide necessary information to reduce barriers to implementation regarding faculty rewards. Findings to these questions may offer further insight into the implementation process and to define

the factors which facilitate or serve as barriers to the implementation of distance learning using televised courses.

It would be important to explore methods for training faculty in the use of technology to deliver course at a distance. Studies are suggested that search for "best practices" in faculty training so that implementation of distance learning could be effective. For example, to answer the question, "Are certain types of training more useful to the faculty in the delivery of distance learning with televised courses?"

A larger sample may reveal other predictive variables of enjoyment of teaching. Further study is recommended to determine other variables of interest as well as to substantiate the variables found to be important in this study. How faculty respond to teaching courses in the distance learning milieu is important to a successful implementation of such endeavors and warrants further investigation.

Lastly, further study of the implementation of distance learning endeavors using the blended model of implementation examined in this study will add to the theoretical foundation of distance learning using televised courses. This type of theory-testing research is essential to the development of sound theoretical models which at present is limited in the distance learning literature.

BIBLIOGRAPHY

Bardach, E. (1977). The implementation game. Cambridge, MA: M.I.T. Press.

Barker, R. T., & Holley, C. L. (1996). Interactive distance learning: Perspective and thoughts. Business Communication Quarterly, 59 (4), 88-97.

Beaudoin, M. (1990). The instructor's changing role in distance education. The American Journal of Distance Education, 4 (2), 21-29.

Berman, P. (1978). The study of macro- and micro-implementation. Public Policy, 26, (2), 157-184.

Betts, K. (1998). Why do faculty participate in distance education? Horizons [On-line], October. Available: <http://horizon.unc.edu/TS/cases>.

Beyer, J. M., Stevens, J. M., & Trice, H. M. (1983). The implementing organization: Exploring the black box in research in public policy. In R. H. Hall, & R. E. Quinn (Eds.), Organizational theory and public policy (pp. 227-243). Beverly Hills, CA: Sage Publications.

Black, E. J. (1993). Faculty support for distance education in a conventional university (Doctoral dissertation, The University of British Columbia, 1992). Dissertation Abstracts International, 54, 490.

Black, S. (1998). Teacher in the sky. The American School Board Journal, 185 (7), 30-33.

Blakely, R. J. (1974). The use of instructional television in adult education: A review of some recent developments. Publications in Continuing Education and ERIC Clearinghouse on Adult Education. Syracuse, NY.

Blanchard, W. (1989). Telecourse effectiveness: A research-review update. (November). Washington State Board for Community College Education. (ERIC Document Reproduction Service No. ED 320 554)

Brock, D. (1987). And six to grow on. The American Journal of Distance Education, 1(2), 34-43.

Bruder, I. (1989). Distance learning: What's holding back this boundless delivery system? Electronic Learning, 8(6), 30-35.

Bruder, I. (1991). Distance learning: Bridging education gaps with technology. Electronic Learning, November/December, 20-23, 26-28.

Cahill, A. G., & Overman, E. S. (1996). The cyberschool vision: Living on plant PA. Journal of Public Administration, 2, 67-75.

Chu, G. C., & Schramm, W. (1979). Learning from television: What the research says. Washington, DC: National Association of Educational Broadcasters.

Clark, T. (1993). Attitudes of higher education faculty toward distance education: A national survey. The American Journal of Distance Education, 7 (2), 19-33.

Collis, B., Veen, W., & De Vries, P. (January, 1993) Preparing for an interconnected future: Policy options for telecommunications in education. Educational Technology. 33(1), 17-24.

Connick, G. P. (1997). Issues and trends to take us into the twenty-first century. In T. E. Cyrs (Ed.). Teaching and learning at a distance: What it takes to effectively design, deliver, and evaluate programs (pp. 7-12). New Directions for Teaching and Learning, no. 71. San Francisco, CA: Jossey-Bass Publishers.

Converse, J. M., & Presser, S. (1986). Survey questions: Handcrafting the standardized questionnaire. Newbury Park, CA: SAGE Publications, Inc.

Cyrs, T. E. (1997). Competence in teaching at a distance. In T. E. Cyrs (Ed.). Teaching and learning at a distance: What it takes to effectively design, deliver, and evaluate programs (pp. 15-18). New Directions for Teaching and Learning, no. 71. San Francisco, CA: Jossey-Bass Publishers.

Delbecq, A. L., Van de Ven, A. H., & Gustafson, D. H. (1975). Group techniques for program planning: A guide to

nominal group and Delphi processes. Glenview, IL: Scott, Foresman and Company.

Derthick, M. (1972). New towns in-town. Washington, D.C.: Urban Institute.

Digital Technology Task Force (1989). The impact of technology on the classroom environment (Task Force Report, January 1989). Blacksburg, Virginia: Virginia Polytechnic Institute and State University.

Dillon, C. (1989). Faculty rewards and instructional telecommunications: A view from the telecourse faculty. The American Journal of Distance Education, 3(2), 35-43.

Dillon, C. L., & Walsh, S. M. (1992). Faculty: The neglected resource in distance education. The American Journal of Distance Education, 6 (3), 5-21.

Douglas, S. G. (1993). Digital soup: The new ABCs of distance learning. EDCOM, 28(4), 22-25, 28-30.

Egan, M. W. (1988). Two-way interactive television instruction: Comparative studies of instructional effectiveness in three rural/remote special education courses. (ERIC Document Reproduction Service No. 29669, October)

Eggen, D. (2000, April 7). Logging on to college. The Washington Post. pp. B1.

Elmore, R. F. (1979). Organizational models of social program implementation. Public Policy, 26(2), 185-228.

Evans, R. L. (1982). Resistance to innovations in information technology in higher education: A social

psychological perspective. San Francisco, CA: Jossey-Bass.

Fink, A., Kosecoff, J., Chassin, M., & Brooks, R. H. (1991). Consensus methods: Characteristics and guidelines for use. Santa Monica, CA: RAND.

Gaff, J. G. (1978). Overcoming faculty resistance. In J. G. Gaff, (Ed.). Institutional renewal through the improvement of teaching (pp. 43-57). New Directions for Higher Education, no. 24. San Francisco, CA: Jossey-Bass Publisher.

Jewett, F. (Ed.). (1997). TELETECHNET - Old Dominion University and "Two plus two" programs at community colleges in Virginia: A case study in the benefits and costs of an intercampus instructional television network. U.S. Dept. of Education, California State University, The National Learning Infrastructure Initiative of EDUCAUSE, and the State Higher Education Executive Officers. (Grant Award Number R309f60088).

Jurasek, K. A. (1993). Distance education via compressed video: An evaluation of the attitudes and perceptions of students and instructors. Unpublished master's thesis, Iowa State University, Ames, Iowa.

Kline, J. P. (1996). Managing change for a distance learning initiative: An evaluation (Doctoral dissertation, The College of William and Mary in Virginia, 1996). Dissertation Abstracts International, 57-08A, 3341.

Koontz, F. R. (1989). Critical barriers to the adoption of instructional television in higher education. Educational

Technology, April, 45-48.

Kovel-Jarboe, P. (1990). Organization and technology issues related to distance education. Educational Technology, December, 58-59.

Kwentuss, S., Boze, S., & Rettie, L. (1992). Distance learning for rural health care providers: The Tidewater experience. ITCA Teleconferencing Yearbook, 180-185.

Lindquist, J. (1978). Strategies for change. Berkeley, CA: Pacific Soundings Press.

Major, H., & Levenburg, N. (1997). Critical issues in interactive television delivery: Instructional quality, faculty development and faculty compensation. Battle Creek, MI: Distance Learning Dynamics. (ERIC Document Reproduction Service No. ED 413 867)

Mazmanian, D. A., & Sabatier, P. A. (Eds.). (1981). Effective policy implementation. Lexington, MA: Lexington Books.

Mazmanian, D. A., & Sabatier, P. A. (1989). Implementation and public policy, with a new postscript. New York: University Press of America.

McLaughlin, M. (1976). Implementation as mutual adaptation. In W. Williams, & R. Elmore, (Eds.). Social program implementation (pp. 167-180). New York, NY: Academic Press.

Meathenia, P. (1998). Wired for learning: lessons from a distance learning partnership. T.H.E. Journal 25, 22A-24A.

Miller, C. D. (1992). Technology-based distance learning: Case studies of business and higher education. (Doctoral dissertation, Vanderbilt University, Nashville, TN) Dissertation Abstracts International, 53, 1011.

Mohanty, D. Q. (1990). Preserving tradition; embracing change: Innovation in a system of higher education. (Doctoral dissertation, Oklahoma State University, 1991) Dissertation Abstracts International, 51, 3340.

Morgan, R.F., & Griffin, E.L. (1981). Delphi technique modified for use in reading. Reading Improvement, 18 (3), 270-274.

Murphy, D. L., Pirk, S., Dadian, T., & Wallace, N. (1999, March). The art and science of survey design: Asking questions that make sense. Workshop presented at the annual session of the American Association of Dental School, Vancouver, B.C.

Nakamura, R. T., & Smallwood, F. (1980). The politics of policy implementation. New York, NY: St. Martin's Press.

Olcott, D., Jr. (1997). Renewing the vision: Past perspectives and future imperatives for distance education. The Journal of Continuing Higher Education, 45 (3), 2-13.

Omotoso, A. A. (1987). Distance education: University guidelines for Nigeria. (Doctoral dissertation, Columbia University Teachers College, 1986) Dissertation Abstract International, 47, 3946.

Ostendorf, V. A. (1997). Teaching by television. New Directions for Teaching and Learning, 71, 51-58.

Portney, L. G., & Watkins, M. P. (2000). Foundations of Clinical Research: Applications to Practice. Upper Saddle River, NJ: Prentice Hall Health.

Pressman, J. L., & Wildavsky, A. (1973). Implementation: How great expectations in Washington are dashed in Oakland. Berkely, CA: University of California Press.

Pressman, J. L., & Wildavsky, A. (1984). Implementation: How great expectations in Washington are dashed in Oakland. (3rd ed.). Berkeley, CA: University of California Press.

Primary Research Group. (1997). The survey of distance learning programs in higher education. New York: NY: Author.

Radin, B. A. (1977). Implementation, change, and the federal bureaucracy. New York, NY: Teachers College Press, Columbia University.

Reilly, K. P., & Gulliver, K. M. (1992). Interstate authorization of distance higher education via telecommunications: The developing national consensus in policy and practice. The American Journal of Distance Education, 6 (2), 3-16.

Rein, M., & Rabinovitz, F. F. (1978). Implementation: A theoretical perspective. In W. D. Burnham, & and M. W. Weinberg, (Eds.), American politics and public policy (pp. 307-335). Cambridge, MA: M.I.T. Press.

Richmond R., & Leavitt, W. (1995) A preliminary assessment of distance education and the M.P.A. Proceedings from Teaching Public Administration National Conference.

Seattle, Washington, March 1995.

Sabatier, P., & Mazmanian, D. (1979). The conditions of effective implementation: A guide to accomplishing policy objectives. Policy Analysis, 5(4), 481-504.

Sabatier, P., & Mazmanian, D. (1980). The implementation of public policy: A framework of analysis. Policy Studies Journal, 8(4), 538-560.

Schlosser, C. A., & Anderson, M. L. (1994). Distance education: Review of the literature [monograph]. Washington, D.C.: Association for Educational Communications and Technology.

Schramm, W. (1962). Learning from instructional television. Review of Educational Research, 32(2), 156-167.

Simonson, M. R. (1997). Evaluating teaching and learning at a distance. In T. E. Cyrs (Ed.). Teaching and learning at a distance: What it takes to effectively design, deliver, and evaluate programs (pp. 87-94). New Directions for Teaching and Learning, no. 71. San Francisco, CA: Jossey-Bass Publishers.

Steele, R. L. (1993). Distance learning delivery systems: Instructional options. Media & Methods, 29(4), 12, 14.

Smith, G., & Debenham, J. (1993). Automating university teaching by the year 2000. T.H.E. Journal, August, 71-75.

Thomson, J. M. (1995). Combining TQM and distance learning techniques in MPA coursework. Proceedings of the Teaching Public Administration National Conference. Seattle,

Washington, 6D, 2, 1-11.

Tremblay, R. W. (1992). Telecourse utilization at American research universities: Current status and potential. (Doctoral dissertation, University of Pittsburgh, 1991) Dissertation Abstracts International, 53, 474.

U.S. Congress. Office of Technology Assessment (1989). Linking for learning: A new course for education. OTA-SET-430, Washington, DC: U.S. Government Printing Office. ERIC No. ED 295 677.

Van Meter, D. S. & Van Horn, C. E. (1975). The policy implementation process: A conceptual framework. Administration and Society. 6(4), 447.

Verduin, R.J., & Clark, T. (1991). Distance education: The Foundation of Effective Practice. San Francisco: Jossey-Bass.

Wagner, E. D. (1993). Variables affecting distance educational program success. Educational Technology, 33(4), 28-32.

Wallach, K. M. (1993). Perceptions of and interactions in a professional development school: The first semester. (Doctoral dissertation, University of Houston, 1992) Dissertation Abstracts International, 53, 3877.

Weber, M. In H. H. Garth, & C. Wright Mills, C. (1946). From Max Weber. Essays in sociology. New York, NY: Oxford University Press.

Williams, W. (1980). The implementation perspective. Berkeley, CA: University of California Press.

Williams, W., & Elmore, R. F., (Eds.). (1976). Social program implementation. New York: Academic Press.

Williams, W., Elmore, R. F., Hall, J. S., Jung, R., Kirst, M., MacManus, S. A., Narver, B. J., Nathan, R. P., & Yin, R. K. (1982). Studying implementation. Chatham, NJ: Chatham House.

Wolcott, L. L. (1997). Tenure, promotion, and distance teaching: A study of faculty rewards and incentives (ERIC Document Reproduction Service No. ED 413861)

Wright, S. W. (1998). The distance learning explosion. Community College Week, June 1.

Yin, R. K. (1988). Case study research: Design and Methods. Newbury Park, CA: SAGE Publications, Inc.

APPENDICES

APPENDIX A
LETTER TO ADMINISTRATORS

April 12, 1999

Dear (Name):

I am a doctoral candidate in Urban Services - Management Concentration and in the process of completing my research work. I would like to ask your assistance by participating in the case study I have planned for my research.

I have a keen interest in televised instruction and have identified implementation theory as my focus. I would like to interview you as an administrator in the institution and gain your insight into the process of implementation of instructional television on this campus. The information you provide will assist others in planning strategies for implementation of similar innovations.

Any information I obtain from you will be used for research purposes only and you will not be identified by your individual comments in this work. The interview will take approximately 1 hour and will be scheduled at your convenience. I do ask your permission for taping the interview to help me tabulate the highlights of the many conversations in the most accurate way.

I will be calling within the next week to verify your willingness to participate and schedule a convenient meeting time.

Sincerely,

Deanne Shuman, BSDH, MS
Doctoral Candidate
Old Dominion University

Enclosures: 2

APPENDIX B

INTERVIEW FORMAT AND QUESTIONS GUIDE

Explain Purpose

"The purpose of this interview is to determine the implementation process that this institution experienced in the development of instructional television on campus to reach distant learners."

Obtain Consent

"As we discussed, the interview will be taped to help me to tabulate the highlights of the many conversations in the most accurate way. Is that agreeable to you?"

Introduction

"As an individual holding an administrative position, you know the people and events that initiated instructional television on campus. Let me ask you some broad questions about this process."

Questions

"Please describe what you perceive were the key events which initiated instructional television at the university?"

"What do you believe contributed most to the success of the development of instructional television in the university?"

"What do you believe made it difficult to implement instructional television in the university?"

(In response to identified barriers, the next question will be asked as a follow-up)

"When you encountered obstacles (identify by name), what did you do to overcome these?"

"Is there anything that seems to be important to the implementation process that we haven't touched on?"

Debrief

"Thank you so much for your time and expertise. You have provided valuable information that should be of assistance in this study. A final report will be available in the spring of 1999 if you are interested."

APPENDIX C

INFORMED CONSENT DOCUMENT FOR INTERVIEWS

Informed Consent

Title: Instructional Television: A Case Study of Implementation in an Urban University

Investigator: Ms. Deanne Shuman, BSDH, MS

Faculty Advisor: Dr. Wolfgang Pindur

Purpose: As an individual with an administrative role, you are in a unique position to know the people and events that initiated instructional television on this campus. To gain your insights into the process of implementation of instructional television on this campus, this research study requests your participation in an individual interview. You will be asked several broad questions about this process (see attached Interview Questions Guide). Interviews of administrators is only one piece of the data collection for this project; a Delphi Questionnaire and Faculty Survey also will be used for data collection.

Confidentiality Procedures: Any information you provide will be used for research purposes only and all efforts will be made so as not to identify you by your individual comments. Interviewees will be coded by an alphabetic letter and by date and time of interview. Only the investigator will have access to notes and tapes. All items will be kept in a locked file cabinet and will be destroyed on completion of the project.

Voluntary Consent: Your participation is voluntary and you may discontinue your participation at any time during the interview with no penalties. Please address any questions to the investigator, Ms. Shuman 683-3338, or Faculty Advisor, Dr. Pindur, 683-3961.

You will receive a copy of this signed consent form.

Subject's Signature

Date

Investigator's Signature

Date

APPENDIX D
LETTER TO DELPHI PARTICIPANTS

January 11, 1999

Dear Faculty Member:

I am a doctoral candidate in Urban Services - Management Concentration and in the process of completing my research work. I would like to ask your assistance by participating in the case study I have planned.

I have a keen interest in televised instruction and have identified implementation theory as my focus. I would like you to complete a survey with other faculty who are involved in the use of instructional television on the campus and gain your insight into the facilitating factors and barriers in this implementation. The information you provide will assist others in planning implementation strategies in their institutions.

Any information I obtain from you will be used for research purposes; however, you will not be identified by your individual comments in this work. The survey will take approximately 20 minutes and a self-addressed envelope is provided for your convenience.

Thank you for your assistance in this project.

Sincerely,

Deanne Shuman, BSDH, MS
Doctoral Candidate
Old Dominion University

APPENDIX E

DELPHI QUESTIONNAIRE: ROUND 1

Directions: I am attempting to determine the facilitating factors and barriers to the implementation of instructional television of your own teaching on this campus. Please note responses directly on this paper; you may use additional paper, if necessary. There are 2 questions; one on each page.

Question 1. Please list at least five of the factors you believe facilitated the implementation of instructional television on this campus and give a brief example. Provide details about any aspects you think are especially important.

[SEE NEXT PAGE]

Question 2. Please list at least five of the barriers to implementation of instructional television on this campus and give a brief example. Provide details about any aspects you think are especially important.

Please return this to me by Friday, February 5th. An addressed envelope is enclosed or you may fax to 683-5239. It is not necessary to sign this sheet or identify yourself unless you feel that it is desirable to do so. Thank you.

Deanne Shuman
School of Dental Hygiene
Old Dominion University
Rm 244-E, Tech. Bldg.

APPENDIX F

LIST OF DOCUMENTS REVIEWED

DOCUMENT TYPE	DESCRIPTION
Newspaper/Magazine Article	
	There are hundreds of newspaper articles from many different newspapers both in Virginia and across the nation. Only a few are mentioned here.
	Geroux, B. (1999, April 18). TV becomes teacher: Teletechnet effort sets ODU apart. <u>Richmond Times Dispatch</u> .
	Gubernick, L., & Ebeling, A. (1997). I got my degree through e-mail. Forbes Magazine, June 16, 1997.
	Oldenburg, D. (1996, April 2). Going the distance: Old Dominion's burgeoning electronic university program. <u>The Washington Post</u> .
	Technology quickly becoming the latest big man on campus. (1995, July 24). <u>Blade</u> , Toledo, Ohio.
Informational Report	
	Dunn, F. (1999). <u>TELETECHNET: A model outstanding, comprehensive distance learning program</u> (September 1). Norfolk, Virginia: Old Dominion University, Office of Associate Vice President for Lifelong Learning and Academic Television Services.
	Gora, J.A. (1993). <u>Questions/Answers about TELETECHNET</u> (July 23). Norfolk, Virginia: Old Dominion University, Office of Academic Affairs.
	Old Dominion University (1992). <u>Old Dominion University technology network for higher education in 21st century: TeleTech Net</u> . Proposal submitted to State Council of Higher Education in Virginia. Norfolk, Virginia: Old Dominion University, Office of the President.

DOCUMENT TYPE	DESCRIPTION
	<u>Virginia Tidewater Consortium presents teleconferences for 1993-1994.</u> (1993). Norfolk, Virginia: Old Dominion University, Academic Television Services.
Technical Report	
	Digital Technology Task Force (1989). <u>The impact of technology on the classroom environment.</u> (Task Force Report, January, 1989). Blacksburg, Virginia: Virginia Polytechnic Institute and State University.
	Ellison, J. G. (1998). <u>A needs assessment for distance education baccalaureate degree completion program for associate degree level dental hygienists.</u> Unpublished master's thesis, Old Dominion University, Norfolk, Virginia.
	Nichols, B. (1999). <u>School of Nursing accreditation self-study.</u> (Communication, May 27). Norfolk, Virginia: Old Dominion University, School of Nursing.
	<u>Old Dominion University: A national leader in telecommunications.</u> (1992). Norfolk, Virginia: Old Dominion University, Office of Associate Vice President for Lifelong Learning and Academic Television Services.
	Smith, E. D. <u>TELETECHNET: Distance learning at Old Dominion University.</u> (1997). California State University-EDUCOM Cost-Benefit study of mediated instruction and distributed learning. U.S. Dept. of Education Grant #R309f60088), July.
	Zvacek, S.M. (1994). <u>Distance education: An annotated bibliography on selected issues.</u> Norfolk, Virginia: Old Dominion University, The Center for Learning Technology.
Published Journal Articles	
	Brydges, M. Technology update: Learning . . . About the future. (1995). <u>Virginia Review</u> , July/August, 32-36.

DOCUMENT TYPE	DESCRIPTION
	Kwentuss, S., Boze, S., & Rettie, L. (1992). Distance learning for rural health care providers: The Tidewater experience. <u>ITCA Teleconferencing Yearbook</u> , 180-185.
	Savage, A. R. (1999). Assuring quality distance learning programmes: the emergence of a new faculty. <u>Higher Education in Europe</u> , XXIV (2), 209-211.
Presentation	
	Savage, A., Stanley, W., & Swart, W. (1998). <u>A ten year perspective on delivering undergraduate engineering technology programs via distance learning at Old Dominion University</u> . Paper presented at the meeting of the Accredited Board for Engineering and Technology, Seattle, Washington, October 29, 1998.
Correspondence	
	A. R. Savage, Nursing as TV pioneer, email to B. Nichols, February 8, 1999.
	A. R. Savage, On-line course component survey, memorandum, December 3, 1998.
	A. R. Savage, TELETECHNET Luncheon, outcomes of faculty discussion, memorandum, April 7, 1999.
	A. R. Savage, update on asynchronous activities, letter, February 1, 1999.

APPENDIX G

DATA COLLECTION INSTRUMENT FOR DOCUMENTS

Document type: _____

Year of document: _____

Document description: _____

Description of contents: _____

Persons involved: _____

Other variables affecting item: _____

APPENDIX H
CHRONOLOGY OF EVENTS

1983

Pilot program based in Richmond, Virginia, in which courseware by University of Virginia (UVA) and Virginia Polytechnical Institute (VPI) was televised by microwave (Old Dominion University did not participate).

1984

During summer term, equipped first electronic classroom on campus.

State funding received for Virginia Cooperative Graduate Engineering Program. Courses transmitted from UVA and VPI by microwave and received by ODU for the fall term included mechanical, electrical, nuclear, and chemical engineering. Received 2 courses/semester, 4 courses/year.

1986

Local televised delivery of 39 hours graduate instruction (mechanical, electrical, civil, and engineering management). Cooperative Engineering Program used C-band satellite for televised courses and ODU was a receive site.

Model United Nations Seminars, six-part series, offered as a teleconference.

USA/USSR Youth Summit, three-part series, live, interactive space bridge between U.S. and former Soviet Union.

1987

College of Education, College of Health Sciences and College of Arts and Letters transmitted courses.

1988

For spring term, a transmit site on the Eastern Shore of Virginia was established for B.S. in Nursing courses using ITS (microwave). Program was expanded to Martinsville, Fredericksburg, Clifton Forge and Weyer's Cave in 1991.

For the fall term, the University became a transmission site via satellite of graduate engineering courses (M.S. in Engineering Management) across the state through the Statewide Engineering Network.

1989

In the spring term, purchased and installed Ku-band satellite uplink (satellite disk and transmitter).

In the fall term, Engineering Technology courses were transmitted to Roanoke, Virginia. Expansion to Richmond in 1990 and Danville in 1991.

1990

Name of Center for Instructional Development changed to Academic Television Services

Received membership in National Technological University (NTU) and NTU Digital Network. Only state university that is a member.

Only state university involved in launching the College and University Educational Satellite System (CUESS), which is the direct education satellite service of the American Association of State Colleges and Universities (AASCU) in partnership with PBS.

Transmitted courses towards B.S. in Nursing and M.S. in Engineering Management for the first time out-of-state (West Virginia) during fall term.

1991

More than 100 courses offered with 2,000 undergraduate and graduate registrations.

University offered two freshman level courses during the 1991/92 school year to Hampton Roads public and private high schools. Endorsed by the State Department of Education.

1992

One of the earliest journal publications on the university's experiences: Kwentuss S., Boze S., & Rettie, L. (1992). Distance learning for rural health care providers: the Tidewater experience. ITCA Teleconferencing Yearbook, 180-185.

Commonwealth of Virginia asked the University to develop a proposal to use technology in delivery of higher education degrees.

1993

Proposal was accepted to establish formal distance learning program as one-way video, two-way audio, satellite delivered program.

University's legislative priorities included enhancement of its statewide satellite television higher education network. University received \$60,000 in planning money from state legislature.

1994

University requested appropriation for \$8.6 million transmission facility and \$11.3 million to establish receive sites at 12 of the 23 community college campuses in 1994-95. Plans were to increase this number to 18 by the end of the biennium. State Council of Higher Education in Virginia (SCHEV) endorsed this request.

University created Center for Learning Technologies as a support center for distance learning and to bring together all of the faculty development and service programs within Academic Television Services.

Secured funding to expand statewide network to provide baccalaureate degrees from ODU in partnership with the Virginia Community College System. Formal distance learning program was implemented, offering first courses in fall term. Offered 80 courses at 13 community colleges sites during the year. Six baccalaureate degrees were offered with 20 proposed for upcoming year.

1996

At the request of the Governor, site at the Library of Virginia in Richmond was established.

1997

As part of original proposal, University developed schedule to initiate sites at each of 23 Virginia community colleges by 1998. Due to rapid enrollment growth, legislature provided funding to accelerate schedule by a full year.

Demonstration project with U.S. Navy and now an on-going endeavor as a partner in the Program for Afloat College Education (PACE). Through a live, fully interactive two-way video format, graduate courses are offered to sailors deployed on ships around the globe.

1998

Opened a full-service distance site in the state of Washington located at Olympic College in Bremerton, WA.

1999

In January 1999, an international site was added at the Navy facility at Andros Island in the Bahamas.

Opened full service distance site in state of Arizona at Yavapai College in Prescott, AZ.

2000

University hired a Vice President for Distance Learning; believed to be only one in nation.

APPENDIX I

TABULAR SUMMARY OF INTERVIEW RESULTS

KEY EVENTS	FACILITATING FACTORS	BARRIERS	STEPS TAKEN TO OVERCOME BARRIERS
ADMINISTRATOR A			
Developing a proposal for distance learning that made sense	Making a decision based on what the future (student) market appeared to be demanding	Inertia - of faculty, students, legislators, everyone associated with higher education	Gathering faculty support
Gaining support of SCHEV and its Director for proposal	Timing- just coming out of a recession - attempt to serve more students less expensively	Lack of knowledge - not many people knew about distance learning	Training of faculty
Governor's support (in his budget)	Personal experiences with distance learning in another state	Concern with selling idea to General Assembly	Assembling appropriate support services

KEY EVENTS	FACILITATING FACTORS	BARRIERS	STEPS TAKEN TO OVERCOME BARRIERS
ADMINISTRATOR B			
When Director of SCHEV approached the President and suggested a proposal to broaden scale of distance learning	Recognition of leadership role that the institution already had taken	Money	Recognizing early on that success depended on support of all service areas (summit meetings held)
	Readable and persuasive proposal	Equipment is expensive	Educating legislators about offering their constituents choices and inexpensive education (compared to private schools)
	Selling proposal on one-on-one basis to legislators and staff members in [state capital's name] and counterparts across the state	Training faculty is expensive	Educating legislators about offering their constituents choices and inexpensive education (compared to private schools)

KEY EVENTS	FACILITATING FACTORS	BARRIERS	STEPS TAKEN TO OVERCOME BARRIERS
	Faculty get the credit for the success of [name of distance learning program]; willingness to embrace it	For personnel - engineers-expensive production	Surveying community to determine what programs they wanted.
	Wasn't new to faculty since Nursing and Engineering Technology already had a start in partnering with community colleges all over the state turned every legislator into an ally	Private schools threatened by [name of distance learning program] offering university degree at lower cost than them	

KEY EVENTS	FACILITATING FACTORS	BARRIERS	STEPS TAKEN TO OVERCOME BARRIERS
		Regional accrediting agencies feel threatened - they become irrelevant-erecting barriers for institution	
		State regulatory boards (out-of-state)	
ADMINISTRATOR C			
Formation of university-wide committee that looked at how distance learning could be implemented in response to SCHEV's request for a proposal	Everyone "bought into" distance learning because they were all involved; felt empowered	Lots of meetings; trying to pick things apart; look at things from different angles	Involving lots of different people to discuss problem solving
Hiring the right people - self starters-as site directors	Good people on campus	Coming up with policies and procedures	Learning from your mistakes

KEY EVENTS	FACILITATING FACTORS	BARRIERS	STEPS TAKEN TO OVERCOME BARRIERS
	Initiative was at the heart and soul of the university- not at the fringes- was an initiative of the President's	Changing existing policies and procedures to fit the implementation of [name of distance learning program]	Existing personnel on campus are dedicated
	National recognition and visibility	Establishment of articulation agreements with every community college site	
	Partnership with community colleges		
ADMINISTRATOR D			
Not being allowed to be a "player" in the statewide engineering project; couldn't be a full partner	Two deans who see how telecommunications can solve some of their problems regionally	State policy restrictions on telecommunications	Thinking outside the box to come up with strategies to make the institution look "pretty"

KEY EVENTS	FACILITATING FACTORS	BARRIERS	STEPS TAKEN TO OVERCOME BARRIERS
Spacebridge with former Soviet Union (now had an international reputation)	Staff on campus who were knowledgeable about technological solutions-audio, video	Difficulties in purchase of the uplink that would allow access to our programs-State offices acting as gatekeepers	Out thinking those who were not allowing full partnership
Power company in Roanoke came forward with need for baccalaureate trained workforce	Can a Center for Instructional Services	Money for the technology	Coming up with new courses and created a reputation through continuing education courses
	Leadership and vision of Academic Affairs and the deans		
Programs no one else could offer	There were no policy constraints on what to do with continuing education in distance learning		Developing an international reputation
	Having ability to be flexible		

KEY EVENTS	FACILITATING FACTORS	BARRIERS	STEPS TAKEN TO OVERCOME BARRIERS
ADMINISTRATOR E			
Engineering already using distance learning courses via ITF system	Only \$100 to become a receive site to put up an antenna and receive the signal.	Quality of broadcast-the talking head- not too much of a barrier-some faculty very good in delivery	Realizing that students took elective courses at [university' name] that they could not get elsewhere
Idea that broadcasting courses would increase productivity-more students could be served	Community colleges also had sites at naval base, various military installations, shipyard, all on a "local" basis	Notion of faculty that receiving courses transmitted from another institution, would cause loss of student credit hours; lose ability to justify faculty	Training opportunities for faculty
A student market with a demand for courses			
SCHEV request for a proposal			

KEY EVENTS	FACILITATING FACTORS	BARRIERS	STEPS TAKEN TO OVERCOME BARRIERS
ADMINISTRATOR F			
Interest of nursing students on the Eastern Shore of Virginia	Personalities of people-there were people who really wanted distance learning	Faculty's desire to teach on television or not teach on television	Having good site people
Early Engineering program	Nursing gave us a strong start	Distribution of paperwork (students' tests, etc)	
	University willing to take the risks	People's hesitance and personalities	
ADMINISTRATOR G			
University commitment (President) to transmitting programs	A lot of variety in upper level courses existed so finding faculty to teach on television was not difficult	No individual department received credit for it (less ownership and less control)	Once programs/courses were identified and committed, giving chairs responsibility to find someone to teach the course.

KEY EVENTS	FACILITATING FACTORS	BARRIERS	STEPS TAKEN TO OVERCOME BARRIERS
Student market		Some faculty did not want to teach on television- more work involved than traditional classroom teaching	Trying to resolve problems the faculty encountered.
		Lack of infrastructure	Student feedback-once a course was taught, faculty realizing that students were responsive and grateful for having degree program available to them
		Uncertainty about quality of students	Faculty recognizing that they had a more mature student

KEY EVENTS	FACILITATING FACTORS	BARRIERS	STEPS TAKEN TO OVERCOME BARRIERS
			Emphasizing quality of program - had to be the same as on-campus
ADMINISTRATOR H			
President's pursuit of distance learning endeavor	Student demand	Training needed for delivery of television	Convincing faculty that distance learning is worth doing
Nursing needed courses from other colleges transmitted for degree-seeking distance students	Tie with community colleges	Change required in traditional way of teaching-hard for faculty to give up	Facilitating role of dean; expressing support; hiring faculty
			Recognizing that students need to be nurtured.
			Not penalizing faculty when they get lower teaching evaluations

KEY EVENTS	FACILITATING FACTORS	BARRIERS	STEPS TAKEN TO OVERCOME BARRIERS
			Working with [administrator's name] and staff to overcome scheduling and logistical problems
ADMINISTRATOR I			
College of Health Sciences already teaching on television	Student demand for courses	Internships were needed in addition to lecture courses	Hiring faculty at distant sites to serve as supervisors
Responded to RFP and obtained grant support of a specific program offering	Enthusiasm of faculty to participate	Technical issues of keeping communication going; giving materials back and forth; equipment issues	Establishing workload policy in the School
		Support faculty need to teach a course; more preparation ; managing volume of enrollment (200-250)	Instituting college committee to examine issues in television teaching

KEY EVENTS	FACILITATING FACTORS	BARRIERS	STEPS TAKEN TO OVERCOME BARRIERS
ADMINISTRATOR J			
Regular courses taught at off-campus center	Cooperative efforts among institutions	Lab courses	Offering summer lab on campus; having mobile truck with lab stations
High student demand for courses	High tech activities already occurring in vicinity of off-campus site	Reluctance of faculty to give up established patterns of teaching; getting used to teaching on television	Encouraging experimentation
	Strong leadership of University President	Overcome inhibitions of being on camera - projecting ones self	
	Institution young and open to change	Time investment in preparation of classroom materials	
		Capital investment in equipment, satellite time	

KEY EVENTS	FACILITATING FACTORS	BARRIERS	STEPS TAKEN TO OVERCOME BARRIERS
ADMINISTRATOR K			
Students' demands for courses to complete baccalaureate degree	Curricular revisions occurring about same time	Students had to travel to main campus for clinical courses	Hiring faculty to teach clinical pieces at distance sites
Timing	Faculty accepted teaching on television as a given	Costs to transmit courses	Creating a distance student handbook
University President's leadership		Large class sizes (200+)	Establishing communications mechanism for students and faculty to report if something was going wrong
		Materials mailed out by faculty and received from students was a problem and continues to be	Visiting distance sites and seeing first hand what was happening - this was useful for problem solving

KEY EVENTS	FACILITATING FACTORS	BARRIERS	STEPS TAKEN TO OVERCOME BARRIERS
ADMINISTRATOR L			
Approached by industries and community college to start an off-campus program for them	Market demand by industry for more highly trained personnel (could advance from associate degree to baccalaureate degree	Laboratory courses	Using videotapes; progressing to include computer simulations
	Sensitivity to meet the needs of people, flexibility, hard work, and determination of faculty	Selling the faculty on idea of teaching on television at first	Using persuasion was all that was needed (faculty were hard working and supportive individuals)
		Faculty workload	Offering monetary benefits to faculty
		Logistical problems of grading papers, sorting, sending back to sites	

APPENDIX J

SECOND LETTER TO DELPHI PARTICIPANTS

January 27, 1999

Dear Professor [last name]:

I am a doctoral candidate in Urban Services - Management Concentration and pursuing my research work. A few weeks ago I sent you a survey for your completion. If you have already returned the survey, I thank you for your participation and you may ignore this second request. I realize that you may require some additional explanation of the study in order to participate and hope that I can answer your concerns.

You were selected from a list of faculty who have experience teaching on television to participate as an expert in the Delphi technique which I have chosen for data collection. Based on several rounds your input will be used to design a faculty survey on implementation of instructional television. Your assistance is critical to the success of my research as only 12 individuals were selected as "experts".

I am asking for your viewpoints as a faculty member on barriers and factors which facilitate the implementation of instructional television on this campus. This is from your personal experiences as a faculty member teaching on television. I am not addressing [name of distance learning program] per se because I am looking at televised instruction from its beginnings on this campus and also because televised instruction occurs that is not a part of [name of distance learning program] in the strictest definition. I have selected implementation theory as it relates to televised instruction as the theoretical basis for my study.

Any information I obtain from you will be used for research purposes only, and you will not be identified by your individual comments in this work. The survey will take approximately 20 minutes and a self-addressed envelope is provided for your convenience. Your also may fax your response if you choose. Your return by Friday, February 5th is requested.

Again, your assistance is critical to the success of this project and I thank you in advance for participating. If you have any questions, please feel free to contact me at my work number, School of Dental Hygiene, 683-3338.

Sincerely,

Deanne Shuman, BSDH, MS
Doctoral Candidate

[contact information here]

APPENDIX K

RESULTS FROM DELPHI QUESTIONNAIRE: ROUND 1

Question 1. Please list at least five of the factors you believe facilitated the implementation of instructional television on this campus and give a brief example. Provide details about any aspects you think are especially important.

Respondent #1

1. Prioritization of university resources
2. Personal assistance (one-on-one) by some of the distance learning staff
3. Site director's cooperation

Respondent #2

1. A very aggressive administration that saw we could go in this direction. They had a vision.
2. Old Dominion not being a "tradition bound" school. We've gotten very big in TV teaching, and this could not have happened, I think, at a more traditional school like William and Mary. The youth of our University and the fact that we are not bound by traditions helped us to go heavily into TV teaching and TV markets.
3. Encouragement of the Commonwealth. The State of Virginia encouraged Universities to go into TV teaching. They saw the need to service rural areas where traditional colleges were unable, or for other reasons wouldn't go.
4. [Person's name]. She was absolutely a tower of strength in pushing ODU to go into the televised teaching market. She was backed at times by other administration with vision (see no. 1 above) but she had the courage and fortitude to follow through on our commitment.
5. The time was ripe. Like women's basketball, we got into televised teaching in its infancy when there was no where to go but expand.

Respondent #3

1. Workshop- A week long workshop offered by the University designed for people new to teaching on television was very helpful. Helps to actually mock-teach in the studio, then review the video tape and critique performance.
2. Support from Dean- Dean asked me to redesign my course for TV. Brought a digital keyboard to be used for the class.
3. Chairman- Provided release time (1st x only). Purchase PowerPoint and laptop computer for TV.
4. Phone call privileges to call back any students from home with no charge.

5. Teaching Assistant appointed each time I teach on TV.
Great help!!

Respondent #4

1. Prior to the distance learning program expanding, even though I was already teaching in distance learning but limited sites and #s of students, the office of distance learning offered a series of workshop some 4-5 years ago re: syllabi development, teaching strategies and other very important topics to teaching on "TV"...I found this MOST helpful and it is really helped in re-doing my syllabi as it helped to formulate a more thorough and complete document that would help generate a least amount of questions..meaning, fewer phone calls and e ails
2. Some monies for faculty development were offered for those faculty teaching on TV and I did take advantage of this program and it was also very helpful as it gave me extra time to seek out resources to make my teaching and syllabi much more complete and "user friendly" for the students...this was also extremely helpful in my development for teaching on TV
3. Distance learning folks being available for questions and also having various resources, ie: computer individuals to help with learning power point, etc. was extremely beneficial
4. Having colleagues who have been teaching on TV as helpful..for ideas, networking, other teaching strategies, reviews of materials, suggestions, etc. has also been quite valuable
5. Student evaluations have also been quite beneficial to my progress and growth and development in teaching on TV as they tell you very honestly about what works and what doesn't ... the student qualitative and quantitative evaluations are really very helpful in guiding me in things I need to do to improve in the syllabus, on TV, in lecture delivery etc....They really do provide much guidance

Respondent #5

1. First time there was a monetary reward. Later this was dropped.
2. Good engineers.
3. Computer program I developed to aid my presentations
4. Not a new course for me
5. Pressure on department to participate
6. My students could all use the web to retrieve materials. I did not have to prepare umpteen packages each week
7. Beyond #3, the ability to hook up a laptop
8. The networked computer in the classroom allowed me to access our system to demonstrate how certain software worked

Respondent #6

1. Commitment of ODU President
2. Funding support from state
3. Deans' fearful of voicing objections of faculty to administration
4. Lack of 4-year universities in the state
5. State's desire to cut educational funding

Respondent #7

1. Willingness of some faculty to participate initially
2. Need supported by industries in areas remote to ODU. Many companies in Roanoke area supported ODU
3. Moderate development of [name of distance learning program] student base. It didn't happen overnight. First classes were smaller.
4. Presidential support of getting ODU's message out and support of the [name of distance learning program] program (financial)
5. State recognition and financial support
6. Early experiences of Nursing and Engineering Technology provided early do's & don't's
7. Generally good service from courier services.

Respondent #8

1. Center for Learning Technologies
-Extremely helpful in the "nuts and bolts" of setting up a televised course-they were very helpful in providing guidelines for syllabi, handouts and day to day course maintenance.
2. The [name of distance learning program] Office Staff-Mail Room
-The folks in the mail room are outstanding. I have never lost a single exam, handout or sheet of paper over the last 2 years
3. The [name of distance learning program] Office Staff-Assistants
-These individuals made sure my syllabi got to the sites, they made sure my proctors were ready, made my course run much more smoothly.
4. Dr. [name of doctor]
-I took her course on Distance Education (ED795/895) and it covered a wealth of theoretical as well as practical issues in Dist. Ed.
5. 25.00 per student over 60!
You can't beat \$ as an incentive! Certainly this was not the primarily reason distance televised courses have been successful, but in a system which often does not reward or compensate extra effort-this was a welcome bonus.
6. The Technical Staff
The producers are wonderful-they have virtually all been "top-notch" they keep up and make the instructors "look

- good."
7. The [name of distance learning center] "Panel of Experts" Sessions
I attended one and have subsequently been on many of there sessions intended to assist "new comers" to the TV teaching world. I think it is essential to alleviating fears, providing hints and assistance to "newcomers"

Respondent #9

1. 1 course release time to prep a new course the 1st time teaching it on TV
2. Availability of a computer & printer in my office
3. WordPerfect Presentations software on my office computer
4. Distance learning teaching assistant (grad student)
5. individual time w/engineer in the classroom prior to 1st time teaching; the engineer videotaped me & walked me through the equipment & how/where to look in camera; seeing the videotape as I talked through where I was looking, standing, what doing etc was very useful
6. Televised teaching personnel who were to take responsibility for getting copyright permissions to show videos-however, I've had to do lots of following w/these people to make certain they do their part
7. Training is a good idea but with the exception of point 5, the training when I started was poorly organized & almost totally useless
8. Some great & responsive, competent & professional staff both on campus Distance learning & Distance learning Site Directors & engineers
9. Distance learning pays \$25/person over 60 I negotiated for course release (instead of \$) when classes go over 100-120 in accordance w/our dept. policy for regular on-campus classes.
10. e-mail with ODU staff, Distance learning Site Directors & many students (in my office capabilities)

Question 2. Please list at least five of the barriers to implementation of instructional television on this campus and give a brief example. Provide details about any aspects you think are especially important.

Respondent #1

1. Transmission/reception problems
2. Lack of two-way video
3. "Pushing" new technology with minimum attention to how it might enhance individual (different) teaching styles.

Respondent #2

1. College deans and administrators who were that much interested. In the College of Education, Deans and administrators looked upon televised teaching as an unwanted stepchild at first, and with much bemusement. We were one of the last schools to go (kicking and screaming) into televised teaching.
2. Department chairpersons and lower level administrators who saw no use for it. Some department chairpersons didn't feel comfortable themselves with the new technology and wouldn't schedule good faculty to teach on television.
3. No incentives for faculty. I'm still "smarting" that I taught a 3 graduate hour televised courses for 450 teachers throughout the state that bought in millions of dollars in tuition. I was given 2 course released time plus an overload of 3000, no one ever wrote me from the President's Office to the Deans office thanking me for such a gigantic undertaking-have you tried grading papers for 450 teachers? There are little incentives. It makes faculty want to give up any such endeavors.
4. Technical Problems. When classes did start, there were at first always major technical difficulties-no voice, no picture, no transmission at certain cites-that seemed so small in importance but really are very distracting to quality teaching. Again, it makes good faculty want to give up and not teach in this medium.
5. Champagne Taste on a Beer Budget ODU has always wanted to do "big things" but has not always followed up with money and resources to support faculty in the endeavors. An example is the new "virtual classroom". Instead of getting the \$100,000 package that would have done things correctly, ODU bought a \$35,000 "virtual classroom" technology package which does not work to optimum efficiency. Trust me, I know because I am teaching on it now.

Respondent #3

1. Lack of release time grants after 1st x. This causes me to only teach on TV during the summer.
2. Problems with getting rights to show certain videos.

Copyright permission was a hassle.

3. I use a Macintosh; computer is slow and out dated in the studio.

Respondent #4

1. No teaching assistants granted for the school of [name of school] for the courses that I have been responsible for so that the amount of time spent with "paperwork" and other "mindless" activities takes away from preparation time and "creativity" time for changes in courses and teaching strategies
2. Lack of technology in the beginning was very limiting and was barriers!
3. Limited resources still remain as barriers such as I could use different software packages at home or a laptop for use that I could take home and work on lectures with power points etc at home which would help me extremely
4. VERY LIMITED staff support within the school of [name of school] we have to continue to separate papers ...do a lot of secretarial work that a faculty member should not be doing...my time should be spent enhancing teaching learning strategies, syllabi, lecture development, updating etc. It is definitely a barrier to my effectiveness in implementation of instruction.
5. Not getting specific assistance when different methods of delivery or course syllabi preparation (ie: web based syllabi) When changes are brought about...I recently was REQUIRED to place my syllabi on the web and no instruction on this which places me in a situation of having no control of many aspects of my preparation of course syllabi and subsequent implementation of instruction!

Respondent #5

1. 3 hour format tiresome for students and faculty
2. 3 hour format promotes over preparation and reduces spontaneity
3. Resentment of time slots (Friday pm) by students and faculty
4. Inability to see remote students
5. Physical separation between instructor and live (as opposed to remote, not dead) students
6. Delay in receiving paper assignments/tests prevented quick grading
7. Weather forced cancellation of classes. Because of 3hr format this was a loss of a full week of class

Respondent #6

1. Lack of technological support
2. Lack of compensation for increased preparation
3. Lack of compensation for larger # of students per class
4. lack of recognition of [name of distance learning

- program] for promotion & tenure
5. Lack of computer facilities for students (especially at distant sites)
 6. Administration unwilling to acknowledge problems
 7. Forcing teachers to teach on [name of distance learning program]
 8. Due to increased enrollment: 1) having to change format from discussion to lecture only; 2) having to use more objective test questions; 3) having to reduce # of writing assignments.

Respondent #7

1. Distance learning mail room became extremely crowded and overworked, which hopefully be alleviated in new building
2. Some faculty had to be prodded toward teaching on TV
3. Early on, the integration of the computer into presentations was not good. It has improved greatly.

Respondent #8

1. No release time to create and implement a televised course. Release time seems to be unequally apportioned and for me personally, I created and taught a TV course on top of my regular workload.
2. Unclear hierarchy in Distance Ed.
-A few times it was difficult to find out "who is in charge" to get answers. Sometimes [name of computer center, name of distance learning office] Distance Ed all had someone involved and I didn't know who to call (computer questions)
3. Lack of up to date technology
-The computers were really outdated at first (they have since upgraded....but access to the network is still cumbersome)
4. -Lack of quality voice microphones. I think the "Daromes" stink.

Respondent #9

1. Poor quality training with exception of time with engineer (individual time)
2. No organized training of Distance learning teaching assistants (grad. students)
3. Some very poor quality staff on campus Distance learning/Dist Learning
4. The "ra-ra ain't this the greatest thing ever" attitude of administrators. I understand the need to speak like that out-of-house with public and legislators but it is a major problem to speak like that in-house too. Our concerns are not taken seriously.
5. extraordinarily large class sizes of 120+. While the Distance learning TA does the running of paperwork, it is still the professor who must grade all the work & deal with many student issues

6. generally lack of respect for faculty (& learning) shown by some administrators
7. It is simply not much fun to teach on TV. In order to look in camera so monitor looks like I'm looking at students, I must look above students in front of me who are physically present. Thus, I don't "see" anyone even though I am seen by everyone. It's very exhausting being under the studio lights & juggling so many things (sites, technology, computers, student names, my own notes). Class discussion is very tilted because only 1 person can speak at a time, trying to distribute time among sites & students. In general, it is a whole lot more work & hassle a whole lot less fun. I've made my peace with it. It benefits some students.
8. Distance learning is perhaps hurting our on campus majors. Students on campus do not like the Distance learning courses even when they're in front of the professor.

APPENDIX L

LETTER TO PARTICIPANTS - DELPHI QUESTIONNAIRE: ROUND 2

April 21, 1999

Dear Professor [Name]:

Enclosed is the instrument for Round 2 of the Delphi technique I am using to collect data for my doctoral dissertation on the implementation of televised instruction. Your comments from the first round were used to create the statements for this round.

Please indicate whether you agree or disagree with each statement, provide clarification where needed, and then select and rank order 10 statements for the factors which facilitated your television teaching implementation and 10 factors which posed as barriers to your television teaching implementation.

This survey should take about 20 minutes to complete. I would like to receive your responses in the next 2 days so I will be asking you when I may pick it up from your office.

Many thanks again for your participation in this research study. I appreciate the time you are taking to assist in this endeavor. Please do not hesitate to contact me if you have any questions.

Sincerely,

Deanne Shuman, BSDH, MS
Doctoral Candidate

School of Dental Hygiene
Old Dominion University
Rm 244, Technology Building
Phone: 683-3338
Fax : 683-5239
email: dshuman@odu.edu

Enclosure: 1

APPENDIX M

DELPHI QUESTIONNAIRE: ROUND 2

Instructions: Please review each of the following items identified in Questionnaire I as important factors which facilitated instructional television implementation for your personally or factors which posed as barriers to implementation. Comment on each item expressing agreement, disagreement, or clarification as needed concerning an item; please do so in the space provided. Also feel free to add items. Finally, rank order the ten (10) most important items as you perceive them at this time (Select 10 facilitating factors and 10 barriers to rank).

**FACTORS WHICH FACILITATED IMPLEMENTATION
OF INSTRUCTIONAL TELEVISION**

Priority Vote	Items from Questionnaire #1	Comments on Items [agree, disagree, clarify]
------------------	-----------------------------	---

Internal/External Environment

_____ The youth of the university and the fact that faculty/administrators were not bound by tradition helped to implement televised instruction.

_____ Early experiences of Nursing and Engineering Technology Departments provided models to follow.

_____ First classes were small and generated a student base for later expansion.

University's Administration

_____ The dean approached faculty to redesign courses for televised instruction.

_____ The dean purchased computer equipment/software for faculty use.

_____ Chair purchased computer equipment/software for faculty use.

Priority Vote	Items from Questionnaire #1	Comments on Items [agree, disagree, clarify]
_____	Administration applied pressure on department to participate.	
_____	University President was committed to televised instruction.	
	<u>Training & Assistance Issues</u>	
_____	A week long workshop offered by the University and designed for people new to teaching on television was very helpful.	
_____	Presentations by "panel of experts" assisted in alleviating fears and providing helpful hints.	
_____	Formal course work (ED 795/895) in Distance Education provided theoretical and practical background.	
_____	Distance learning staff were available for questions.	
_____	Specialized staff were available to help with one-on-one learning of PowerPoint, developing syllabi, handouts, etc.	
_____	Site directors were competent and cooperative.	
_____	On- and off-campus professional staff were competent and responsive.	
_____	Teaching Assistant was appointed each semester.	
_____	Networking with colleagues who teach on television was valuable.	

Priority Vote	Items from Questionnaire #1	Comments on Items [agree, disagree, clarify]
--------------------------	------------------------------------	---

Technical Services

- | | | |
|-------|--|--|
| _____ | Phone call privileges were provided to call back students from home with no charge. | |
| _____ | Computer program I developed aided presentations. | |
| _____ | Students could use the web to retrieve materials; faculty did not have to prepare multiple packages each week | |
| _____ | The capability to hook up a laptop was available. | |
| _____ | The networked computer in the classroom allowed use of certain software for demonstration purposes. | |
| _____ | Computer equipment/software were available in my office. | |
| _____ | E-mail capabilities were available in my office. | |
| _____ | Good service provided from courier services. | |
| _____ | Mail room staff were efficient; papers were not lost. | |
| _____ | Office staff members made certain that syllabi got to the sites, proctors were ready for exams, and the course ran smoothly. | |
| _____ | Technical engineers provided exceptional services. | |
| _____ | Individual time with the engineer in the classroom prior to first time teaching proved useful to me. | |

Priority Vote	Items from Questionnaire #1	Comments on Items [agree, disagree, clarify]
------------------	-----------------------------	---

_____ Personnel were available for obtaining copyright permission for showing videotapes.

Faculty Incentives/Issues

_____ Faculty development funds were available.

_____ Release time was provided to prepare a course the first time teaching it on television.

_____ Monetary benefit of \$25.00 per student over 60 students was a welcome bonus.

_____ Student evaluations provided guidance about what worked and what did not work.

_____ The class I was teaching was not new for me.

_____ I was willing to participate in televised instruction.

FACTORS WHICH POSED AS BARRIERS TO IMPLEMENTATION OF INSTRUCTIONAL TELEVISION

Priority Vote	Items from Questionnaire #1	Comments on Items [agree, disagree, clarify]
------------------	-----------------------------	---

University' Administration

- | | | |
|-------|--|--|
| _____ | The university did not provide adequate money and resources to support faculty. | |
| _____ | Minimal attention was given to enhancement of individual teaching styles. | |
| _____ | Some college deans and administrators were not interested in pursuing televised teaching. | |
| _____ | Some department chairpersons saw no use for televised instruction and would not schedule good faculty to teach on television. | |
| _____ | Department chairpersons were not comfortable with the technology. | |
| _____ | Administration was unwilling to acknowledge problems. | |
| _____ | Administration forced faculty to teach on television. | |
| _____ | Unclear hierarchy in distance education office made it difficult to find answers. For example, distance education office, computer center, center for learning technology were all involved in some capacity in televised instruction. | |
| _____ | Faculty concerns were not taken seriously. | |

Priority Vote	Items from Questionnaire #1	Comments on Items [agree, disagree, clarify]
_____	There was a general lack of respect for faculty (and learning) shown by some administrators.	
	<u>Training and Assistance Issues</u>	
_____	Poor quality training was provided.	
_____	Limited staff support existed within my department to help with mundane tasks.	
_____	Lack of assistance was available to train faculty with new delivery system.	
_____	Technological support was lacking.	
_____	No teaching assistants were available to faculty.	
_____	No organized training was provided to teaching assistants assigned to work with television instructors.	
_____	There were some poor quality staff on campus.	
	<u>Technical Services/Issues</u>	
_____	There were transmission/reception problems (no voice, no picture, etc.).	
_____	Quality was lacking in voice microphones.	
_____	An inability to see students at sites via 2-way video was a problem.	
_____	Limited computer software resources were available to use at home or on a laptop to prepare for television classes.	

Priority Vote	Items from Questionnaire #1	Comments on Items [agree, disagree, clarify]
_____	The computers were outdated in the studio classrooms.	
_____	Early on the integration of the computer into presentations was not good.	
_____	Computer facilities were not available for students at distant sites.	
_____	Three (3) hour format was tiresome for students and faculty.	
_____	Three (3) hour format promoted over preparation and reduced spontaneity in teaching.	
_____	Time slots (particularly Friday p.m.) were resented by students and faculty.	
_____	Physical separation between instructor and students at remote locations was a problem.	
_____	Delay in receiving paper assignments/tests did not allow for appropriate turn around time.	
_____	Bad weather interfered with transmission and forced cancellation of class. Because of 3 hour format this was a loss of a full week of class.	
_____	Mail room became extremely crowded and overworked.	
_____	Obtaining copyright permission for showing videotapes was a hassle.	
_____	Students on campus did not like televised courses even when they were in front of the professor.	

Priority Vote	Items from Questionnaire #1	Comments on Items [agree, disagree, clarify]
_____	Class discussion were tilted because only 1 person could speak at a time,	
_____	Distribute time among sites and students for discussion was very trying.	
	<u>Faculty Incentives/Issues</u>	
_____	Some faculty had to be prodded toward teaching on television.	
_____	Insufficient release time was provided for teaching large class size.	
_____	Release time was not provided for preparation after teaching class the first time on television..	
_____	Compensation was not provided for increased preparation time.	
_____	Monetary compensation was not provided for larger number of students per class.	
_____	Recognition of televised instruction was not considered for faculty promotion and tenure.	
_____	Due to increased enrollment, the following were problems: 1) having to change format from discussion to lecture only; 2) having to use more objective test questions; 3) having to reduce number of writing assignments.	
_____	In order to appear like I'm looking at students, I had to look above students in front of me who were physically present. Thus, I didn't "see" anyone even though I was seen by everyone.	

Priority Vote	Items from Questionnaire #1	Comments on Items [agree, disagree, clarify]
_____	It was very exhausting being under the studio lights and juggling so many things (sites, technology, computers, student names, my own notes).	
_____	Extraordinarily large class sizes (120+) were a burden to the professor who must grade all the work and deal with many student issues.	
_____	It was less fun and more work and hassle to teach on television.	

APPENDIX N

RESULTS FROM DELPHI QUESTIONNAIRE: ROUND 2

Facilitating Factors to Implementation						
ITEM #	MEAN	SD	COUNT	SUM	MINIMUM	MAXIMUM
1	9	0	1	9	9	9
2	6	4.24	2	12	3	9
3	2	0	1	2	2	2
4	-	0	0	0	0	0
5	-	0	0	0	0	0
6	8	0	1	8	8	8
7	9.5	.70	2	19	9	10
8	6.25	3.86	4	25	1	10
9	5.5	3.11	4	22	3	10
10	1	0	1	1	1	1
11	8	0	1	8	8	8
12	3.67	3.79	3	11	1	8
13	-	0	0	0	0	0
14	6.5	.71	2	13	6	7
15	3	0	1	3	3	3
16	7.67	1.52	3	23	6	9
17	3.5	2.12	2	7	2	5
18	9	0	1	9	9	9
19	5.25	3.86	4	21	1	9
20	7.5	.70	2	15	7	8
21	8	2.82	2	16	6	10
22	6.75	2.06	4	27	4	9
23	4.33	4.16	3	13	1	9
24	5	2.74	5	25	1	8

Facilitating Factors to Implementation						
ITEM #	MEAN	SD	COUNT	SUM	MINIMUM	MAXIMUM
25	7	0	1	7	7	7
26	4	2	3	12	2	6
27	5	0	1	5	5	5
28	3.4	1.95	5	17	2	6
29	4	1	3	12	3	5
30	2	0	1	2	2	2
31	4	3	3	12	1	7
32	5.71	2.56	7	40	3	10
33	3.75	2.06	4	15	1	6
34	5	0	1	5	5	5
35	6.3	2.42	6	38	3	10
36	6.71	3.99	7	47	1	10

Barriers to Implementation						
ITEM #	MEAN	SD	COUNT	SUM	MINIMUM	MAXIMUM
37	8.75	1.5	4	35	3	7
38	4	0	1	4	4	4
39	9	0	2	18	9	9
40	8	0	1	8	8	8
41	1	0	1	1	1	1
42	6.25	3.5	4	25	2	10
43	-	0	0	0	0	0
44	5.2	3.56	5	26	1	9
45	6	2.65	3	18	3	8
46	5	0	1	5	5	5
47	7	0	1	7	7	7

Barriers to Implementation						
ITEM #	MEAN	SD	COUNT	SUM	MINIMUM	MAXIMUM
48	2	0	1	2	2	2
49	-	0	0	0	0	0
50	4	2.83	2	8	2	6
51	7	0	1	7	7	7
52	4	1.73	3	12	2	5
53	-	0	0	0	0	0
54	6.5	.71	2	13	6	7
55	4.5	1.29	4	18	3	6
56	5	0	1	5	5	5
57	-	0	0	0	0	0
58	10	0	1	10	10	10
59	10	0	1	10	10	10
60	4	0	2	8	4	4
61	8	2.65	3	24	5	10
62	6	1.41	2	12	5	7
63	3.33	4.04	3	10	1	8
64	4	2.83	2	8	2	6
65	8	0	1	8	8	8
66	3	0	1	3	3	3
67	3	0	1	3	3	3
68	4	4.24	2	8	1	7
69	3.5	3.54	2	7	1	6
70	4.33	.58	3	13	4	5
71	-	0	0	0	0	0
72	4.5	2.12	2	9	3	6
73	6.4	2.19	5	32	3	9
74	7.3	3.06	3	22	4	10

Barriers to Implementation						
ITEM #	MEAN	SD	COUNT	SUM	MINIMUM	MAXIMUM
75	3.33	2.52	3	10	1	6
76	4	0	1	4	4	4
77	7.33	2.89	3	22	4	9
78	6.67	4.93	3	20	1	10
79	2	0	1	2	2	2
80	8	0	1	8	8	8
81	6.5	4.95	2	13	3	10
82	5.5	4.95	2	11	2	9

APPENDIX O

COMMENTS FROM DELPHI QUESTIONNAIRE: ROUND 2

<u>ITEM #</u>	<u>COMMENT</u>
2	Not applicable
3	Disagree - my 1 st class was 110!
6	Agree. Laptop and software purchased by dept. X classes very large; Y classes small
7	Not really. Requested participation
8	Forced it to happen
9	Somewhat
10	I was one of the panel members Part of workshop Somewhat
11	N/A No knowledge of course
12	Somewhat
13	I worked on my own
14	with one notable exception Weekend & evening personnel not competent
16	Even if s/he was not great, was useful Yes! Very helpful Yes, but not very useful
17	I didn't network much
19	N/A I created my own PowerPoint presentations
20	N/A I post material on my self-created and

- maintained web site
- More recently, not at first
- Not necessary
- 21 Yes. Had some problems getting my laptop picture to project properly in old buildings
- 22 N/A
- When it worked
- Yes, PowerPoint
- 23 older software versions until recently
- Had to get a grant to purchase proper software
- 25 Needed extra lead time for weekend classes.
- Not practical for collecting & returning homework
- 26 1 project lost for 3 weeks
- 27 Generally
- Generally
- 28 most
- Quality of engineers varied significantly
- 29 This was the only training that had any real, lasting value
- 30 N/A
- 31 Yes, but should always be available
- Very little
- 33 I negotiated time rather than \$
- But really didn't make any difference (of course \$ are welcome)
- No. Taught graduate XXX course with 62 students, extra \$50 not worth teaching 20 students more than face-to-face course.
- 34 most of the time

I did not receive any until the last time. Had to request them.

Somewhat. Many complaints beyond my control. I was unfairly penalized.

35 In first instance

Yes, but major revisions for format

I have taught 3 different courses on [name of distance learning program]. 1 old prep (taught once before) and 2 new preps

36 No, I willingly participated

37 in most ways

39 My Dean & Dept head are in favor of [name of distance learning program], but some other dept. heads in my college don't like it

40 not in my dept., but I've seen others, mostly because faculty didn't want it

41 Chairs themselves not good with technology

42 in some cases; better in recent times

43 not to my knowledge (at least explicitly)

44 on occasion

Initially

45 until they reached critical mass

46 by some, on occasion

Somewhat

47 at least it was available

50 disagree--but it's an awfully broad statement

52 I had a freshman each time!

53 define in what capacity; statement needs to be clarified

54 sometimes

For me

Spring 99 has been the worst semester-2 full class periods satellite was down. ¼ class period without satellite. Audio problems throughout semester.

55 they are the worst

Sometimes

56 but it would likely be beneficial

57 it was a problem but is changing

58 was a problem, but is changing

Before, but not now

59 True

60 or at least there [unreadable word] wasn't an equitable distribution

Very poor facilities

61 A - for students; D - for faculty

62 perhaps - I hadn't thought this, but it's possible

63 Part-time students generally like evenings & Saturdays, but Friday night is unpopular

64 Usually not

65 still a continuing problem

66 only for certain sites on several occasions

For me

Forced to tape 2 classes; could not cancel due to course content. Sites uncooperative with making extra copies of tapes

67 no knowledge of this

68 remains one!

Very much so-really limits some classes

N/A (other faculty say yes)

69 all things being equal
Grad students don't mind
70 for the most part
Somewhat
71 clarify "distribute"
72 I was one!
73 What release time?
74 What release time?
75 Release time noted above for 1st time classes
76 but it wasn't worth the \$
Initially
78 by far the biggest problem
80 it's fun!
Not usually. Only when things went wrong
81 A-although I didn't have a class this large
I had 100 students, an exam every week...no
problems....
N/A
82 A - somewhat, although there was benefits to
it as well
Yes/No. Great when all runs smoothly.
I love it.

APPENDIX P

LETTER TO PARTICIPANTS - DELPHI QUESTIONNAIRE: ROUND 3

September 13, 1999

Dear Professor [Name]:

Enclosed is the Faculty Survey which was constructed from the outcomes of Delphi Questionnaire: Round 2. This is the last round of questionnaires in the Delphi Process. As with the other questionnaires, your responses will remain confidential. If you did not answer any of the previous questionnaires, your responses are still welcomed on this last round.

Please review each survey item for appropriateness and clarity. Indicate on a scale of 1 to 3 whether you believe the item should be included in the final survey with **3 being the highest agreement and 1 being the lowest agreement**. You are not agreeing or disagreeing with the statements personally, but rather, whether the items are of significance for inclusion in the final survey design.

If you have any other comments or concerns, please feel free to write them directly on the survey. If you need additional paper, use the back of the pages. **I will collect your questionnaires in 2 days (on Wednesday, September 15th).**

Thank you for your continued cooperation and input on this research project. Any questions or concerns you have regarding this research project can be directed to me at the address below.

Sincerely,

Deanne Shuman, BSDH, MS
Doctoral Candidate

School of Dental Hygiene
Old Dominion University
Rm 244, Technology Building
Phone: 683-3338
Fax : 683-5239
email: dshuman@odu.edu

Enclosure: 1

APPENDIX Q

DELPHI QUESTIONNAIRE: ROUND 3

**FACULTY'S OPINIONS ON TELEVISED DISTANCE LEARNING
PROGRAM IMPLEMENTATION**

DIRECTIONS: Please review each of the following statements regarding factors which have facilitated or hindered your ability to teach a course using televised distance learning technology. Indicate your level of agreement or disagreement with each item by checking the appropriate response to each item.

		Agree Strongly	Agree Moderately	Agree Slightly	Disagree	Disagree Moderately	Disagree Strongly
<u>University's Administration</u>							
1.	The President's commitment to televised distance learning was an influencing factor.	6	5	4	3	2	1
2.	My dean's level of interest in pursuing televised distance learning courses was an influencing factor..	6	5	4	3	2	1
3.	My department chair's attitude towards televised distance learning was an influencing factor.	6	5	4	3	2	1
4.	My department chair's comfort with the technology influenced my teaching success.	6	5	4	3	2	1

Agree Strongly	Agree Moderately	Agree Slightly	Disagree	Disagree Moderately	Disagree Strongly
-------------------	---------------------	-------------------	----------	------------------------	----------------------

Internal Environment

- | | | | | | | | |
|----|---|---|---|---|---|---|---|
| 5. | The absence of long tradition in the university was a positive factor in efforts to implement distance learning television. | 6 | 5 | 4 | 3 | 2 | 1 |
| 6. | Early experiences of the Nursing and Engineering Technology Departments provided models to follow. | 6 | 5 | 4 | 3 | 2 | 1 |

Training & Assistance

- | | | | | | | | |
|-----|---|---|---|---|---|---|---|
| 7. | Training provided by the University was useful preparation to teach on television. | 6 | 5 | 4 | 3 | 2 | 1 |
| 8. | Distance learning personnel were available to answer my questions. | 6 | 5 | 4 | 3 | 2 | 1 |
| 9. | Assistance in course design was adequate to prepare class presentations. | 6 | 5 | 4 | 3 | 2 | 1 |
| 10. | On-campus professional staff were responsive in helping the course to run smoothly. | 6 | 5 | 4 | 3 | 2 | 1 |
| 11. | Availability of secretarial support within my department was an essential element. | 6 | 5 | 4 | 3 | 2 | 1 |
| 12. | Availability of a teaching assistant was an important factor. | 6 | 5 | 4 | 3 | 2 | 1 |

		Agree Strongly	Agree Moderately	Agree Slightly	Disagree	Disagree Moderately	Disagree Strongly
13.	Teaching assistants received adequate training.	6	5	4	3	2	1
14.	Distance Site Directors were responsive in helping the course to run smoothly.	6	5	4	3	2	1
15.	Networking with colleagues who teach on television was a valuable resource.	6	5	4	3	2	1
16.	Clear roles were communicated for the offices involved with televised distance learning, eg., distance learning, computer center, center for learning technology, regional programs, etc.	6	5	4	3	2	1
<u>Technical Services</u>							
17.	Free phone calls to students from home was an essential factor.	6	5	4	3	2	1
18.	The ability for students to use the web to retrieve course materials was an important factor.	6	5	4	3	2	1
19.	The capability to hook up a laptop in the classroom was valuable.	6	5	4	3	2	1
20.	The capability to demonstrate computer software programs was a significant factor.	6	5	4	3	2	1

		Agree Strongly	Agree Moderately	Agree Slightly	Disagree	Disagree Moderately	Disagree Strongly
21.	Up-to-date computers were available in the broadcast studio classroom.	6	5	4	3	2	1
22.	The availability of computer equipment in my office was crucial.	6	5	4	3	2	1
23.	Adequate computer facilities were available for students at distant sites.	6	5	4	3	2	1
24.	E-mail capability from my office was an important factor.	6	5	4	3	2	1
25.	Individual time with the broadcast engineer in the classroom prior to first time teaching was useful.	6	5	4	3	2	1
26.	The quality of services provided by the broadcast engineer was essential.	6	5	4	3	2	1
27.	Voice and/or visual transmissions were adequate for course delivery.	6	5	4	3	2	1
28.	Class discussions were conducted out effectively.	6	5	4	3	2	1
29.	Time slots for classes were adequate.	6	5	4	3	2	1
30.	Physical separation between myself and students at remote locations was an issue in delivering course content.	6	5	4	3	2	1

		Agree Strongly	Agree Moderately	Agree Slightly	Disagree	Disagree Moderately	Disagree Strongly
31.	Turn around time for receiving written assignments or tests was timely.	6	5	4	3	2	1
32.	Obtaining copyright permission for showing videotapes was accomplished in an efficient manner.	6	5	4	3	2	1
<u>Faculty Issues</u>							
33.	Monetary compensation for preparation time was an important factor for me.	6	5	4	3	2	1
34.	Monetary benefit of \$25.00 per student over 60 students was an influencing factor.	6	5	4	3	2	1
35.	Release time provided to prepare a course the <u>first time</u> teaching it on television was an important factor.	6	5	4	3	2	1
36.	Release time for subsequent preparation after teaching class the first time on television was necessary.	6	5	4	3	2	1
37.	Adequate release time was provided for teaching large class sizes.	6	5	4	3	2	1

		Agree Strongly	Agree Moderately	Agree Slightly	Disagree	Disagree Moderately	Disagree Strongly
38.	Course designers gave attention to enhancement of my individual teaching style.	6	5	4	3	2	1
39.	I was willing to participate in televised instruction.	6	5	4	3	2	1
40.	Recognition of distance televised instruction was given for promotion and tenure purposes.	6	5	4	3	2	1
41.	I had taught this class prior to teaching it on television.	6	5	4	3	2	1
42.	Changing course format and assignments to accommodate increased class size was effectively accomplished.	6	5	4	3	2	1
43.	Large class sizes (100+) presented no challenges out of the ordinary for grading or dealing with student issues.	6	5	4	3	2	1
44.	Distributing time among sites and students for discussion was effectively accomplished.	6	5	4	3	2	1
45.	The three (3) hour format was effective for teaching purposes.	6	5	4	3	2	1
46.	Spontaneity in teaching was unaffected by the three (3) hour format.	6	5	4	3	2	1

	Agree Strongly	Agree Moderately	Agree Slightly	Disagree	Disagree Moderately	Disagree Strongly
47. Student evaluations provided guidance about what worked and what did not work.	6	5	4	3	2	1

CONTINUE TO NEXT PAGE

Demographic and Professional Data

Please indicate the number of years you have in teaching experience?

- ☐ 1 to 5 years
- ☐ 6 to 10 years
- ☐ 11 to 15 years
- ☐ 16 to 20 years
- ☐ 21 years or more

Did you teach on television before coming to Old Dominion University?

☐ Yes ☐ No

Please indicate the number of semesters have you taught on television?

- ☐ 1 to 3 semesters
- ☐ 4 to 6 semester
- ☐ 7 to 9 semesters
- ☐ 10 to 12 semester
- ☐ 13 semesters or more

Please indicate your age to the nearest birthday?

- ☐ 22 - 29 years
- ☐ 30 - 39 years
- ☐ 40 - 49 years
- ☐ 50 - 59 years
- ☐ 60 years or older

Please indicate your gender?

☐ Male ☐ Female

Is English your native language? ☐ Yes

☐ No

Please indicate your terminal degree?

☐ Masters degree

☐ Doctoral degree

Did you receive formal training to teach on television?

☐ Yes

☐ No

Do you enjoy teaching on television?

☐ Yes

☐ No

THANK YOU for your contribution to this research project. If you have any questions or comments about this survey, please contact the researcher at this address:

Deanne Shuman
School of Dental Hygiene
Old Dominion University
Norfolk, VA 23529-0499
e-mail: dshuman@odu.edu
phone: 683-3338

APPENDIX R

RESULTS FROM DELPHI QUESTIONNAIRE: ROUND 3:
1-3 RANKING OF IMPORTANCE FOR INCLUSION (n=7)

ITEM #	MEAN	SD	MINIMUM	MAXIMUM
1	2.71	.49	2	3
2	2.71	.76	1	3
3	3	0	3	3
4	1.71	.95	1	3
5	1.29	.76	1	3
6	2.29	.76	1	3
7	2.86	.38	2	3
8	2.85	.38	2	3
9	3	0	3	3
10	2.71	.76	1	3
11	2.57	.53	2	3
12	2.86	.38	2	3
13	2.29	.76	1	3
14	3	0	3	3
15	2.57	.79	1	3
16	2.57	.79	1	3
17	2.43	.53	2	3
18	2.57	.79	1	3
19	2.71	.76	1	3
20	2.86	.38	2	3
21	2.71	.76	1	3
22	2.86	.38	2	3

ITEM #	MEAN	SD	MINIMUM	MAXIMUM
23	2.86	.38	2	3
24	3	0	3	3
25	2.71	.49	2	3
26	2.71	.49	2	3
27	2.43	.79	1	3
28	2.67	.79	2	3
29	2.29	.95	1	3
30	2.86	.38	2	3
31	2.86	.38	2	3
32	2.71	.76	1	3
33	3	0	3	3
34	3	0	3	3
35	3	0	3	3
36	2.71	.76	1	3
37	2.86	.38	2	3
38	2.57	.79	1	3
39	2.71	.76	1	3
40	2.86	.38	2	3
41	2	.82	1	3
42	2.86	.38	2	3
43	3	0	3	3
44	2.71	.76	1	3
45	2.43	.79	1	3
46	2.43	.79	1	3
47	2.86	.38	2	3

APPENDIX S

FACULTY SURVEY

**FACULTY'S OPINIONS ON TELEVISED DISTANCE EDUCATION
PROGRAM IMPLEMENTATION**

Dear Faculty Member,

You were selected to participate in this survey on distance education implementation because you teach or have taught on television at Old Dominion University. This survey is being conducted as a portion of a doctoral dissertation on implementation of distance education and your participation is highly valued for your insights into this process. I am a doctoral candidate in the Urban Services - Management Concentration program here at Old Dominion University.

There are 25 questions in this survey; please read each one carefully and select the response which most closely corresponds to your personal experiences with televised teaching. All responses will be reported in group form only and your answers will not be identified with you in any way. Return of a completed questionnaire constitutes your informed consent to serve as a subject in this research.

Please return your completed survey in the enclosed envelope within 3 days of receipt. A faculty member from your college or myself will be following up with you in order to obtain a satisfactory return rate.

THANK YOU for your cooperation and input on this research project.

Any questions or concerns you have regarding this research project can be directed to me at the address below or to my advisor, Dr. Wolfgang Pindur, ext 3-3961.

Sincerely,

Deanne Shuman

Deanne Shuman, Doctoral Candidate

School of Dental Hygiene
Old Dominion University
Norfolk, VA 23529-0499
e-mail: dshuman@odu.edu
phone: 683-3338
FAX: 683-5239

FACULTY'S OPINIONS ON TELEVISED DISTANCE LEARNING PROGRAM IMPLEMENTATION

DIRECTIONS: Please review each of the following statements regarding factors which facilitate or hinder your ability or willingness to teach a televised distance learning course. Indicate your level of agreement or disagreement with each item by circling the appropriate response to each item. Do not leave any items blank.

		Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
	<u>University's Administration/ Internal Environment</u>					
1.	The President's commitment to televised distance learning is an influencing factor.	5	4	3	2	1
2.	My dean's level of interest in pursuing televised distance learning courses is an influencing factor..	5	4	3	2	1
3.	My department chair's level of interest in pursuing televised distance learning is an influencing factor.	5	4	3	2	1

Continue to the next page

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
<u>Training & Assistance</u>					
4. Training provided by the University is useful preparation to teach on television.	5	4	3	2	1
5. Distance learning personnel are available to answer my questions.	5	4	3	2	1
6. Assistance in course design is adequate to prepare class presentations.	5	4	3	2	1
7. On-campus professional staff are responsive in helping the course to run smoothly.	5	4	3	2	1
8. Availability of secretarial support within my department is an important factor.	5	4	3	2	1
9. Availability of a student assistant is an important factor.	5	4	3	2	1
10. Distance Site Directors are responsive in helping the course to run smoothly.	5	4	3	2	1
11. I am aware of what office (ie. Distance Learning & Extended Education, Computer Services, Center for Learning Technologies, etc.) to contact when I need assistance.	5	4	3	2	1

Continue to the next page

		Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
	<u>Technical Services</u>					
12.	Adequate computer facilities are available for students at distant sites.	5	4	3	2	1
13.	Individual time with the broadcast engineer in the classroom prior to first time teaching is useful.	5	4	3	2	1
14.	Class discussions are conducted effectively.	5	4	3	2	1
15.	Physical separation between myself and students at remote locations affects delivery of course content.	5	4	3	2	1
	<u>Faculty Issues</u>					
16.	Monetary compensation for preparation time is an important factor.	5	4	3	2	1
17.	Monetary benefit of \$25.00 per student over 60 students is an influencing factor.	5	4	3	2	1
18.	Release time provided to prepare a course the <u>first time</u> teaching it on television is an important factor.	5	4	3	2	1

Continue to the next page

		Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
19.	Release time for subsequent preparation after teaching class the first time on television is an important factor.	5	4	3	2	1
20.	Adequate consideration is made in my overall workload assignment for teaching on television.	5	4	3	2	1
21.	Course designers are useful in enhancing my individual teaching style.	5	4	3	2	1
22.	I willingly participated in televised instruction.	5	4	3	2	1
23.	Distance televised instruction is given recognition for promotion and tenure purposes.	5	4	3	2	1
24.	Distance televised instruction is recognized in merit pay increases.	5	4	3	2	1
25.	Changing course format and assignments to accommodate teaching on television is necessary.	5	4	3	2	1

Continue to the next page

Demographic and Professional Data

26. Please indicate the number of years you have in teaching experience? _____
27. Please indicate your college. _____
28. Please indicate the number of different courses you have taught on television. _____
29. Please indicate the total number of times you have taught courses on television. _____
30. Please indicate your faculty status. ☐ Full-time ☐ Adjunct (Part-time)
31. Please indicate your gender? ☐ Male ☐ Female
32. Did you receive formal training to teach on television? ☐ Yes ☐ No
33. Do you enjoy teaching on television? ☐ Yes ☐ No

If you have comments about additional barriers or factors relating to implementation of distance learning, please provide them here.

THANK YOU for your contribution to this research project. If you have any questions or comments about this survey, please contact the researcher at this address:

**Deanne Shuman
School of Dental Hygiene
Old Dominion University
Norfolk, VA 23529-0499
e-mail: dshuman@odu.edu
phone: 683-3338
FAX: 683-5239**

APPENDIX T

COMMENTS FROM FACULTY SURVEY

Items 1, 2, 3

Does not make any sense. Of course these are influencing factors but they are outside of me. I don't understand these. Influence to do what? Teach the class? Have curriculum on TV? Do not understand questions - influencing factor in what? e.g., my willingness to teach on [name of distance learning program], the frequency with which courses are scheduled, the amount of effort that faculty put in, the quality of instruction, the resources that the univ/coll/dept deploys for [name of distance learning program].

Item 2

Should be 5 - but actually lukewarm

Item 4

Not when I went to the workshop. I understand that it has improved.

Item 6

Not enough designers.

Not when I went to the workshop. I understand that it has improved.

I'm very much into PowerPoint presentations which is part of my primary job.

Items 7, 8

Texts, course paks, exams seem to never arrive on time. Papers picked up in the Ed. Bldg because tests are given priority in mailing.

Item 8

Not very available

But we don't have enough

Adequate secretarial support not available

But lousy support

Items 8, 9

Do not understand questions. Both sec. support & GA support inadequate

Item 9

More time needed

I've had 3 great ones.

Item 10

Are often absent in the evening or leave early.

Item 11

Web Page sucks! Starting w/ [university's name] Web Page.....

Don't know what services they have; who is in charge of what, or what exactly their role is

Item 12

NOT last year, no complaints this year

Not on weekends!

I Don't know

Don't know

Don't know

Don't know

Item 15

negatively

Items 16, 17, 18

Influencing what? Are you going to say "No I will not teach this unless you give me \$35/student?"

Do not understand questions. Neither monetary compensation nor release time is adequate re: writing intensive course with 50+ enrollments

Item 16

Never got it until I taught it....

Not enough!!!

What compensation?

There is none

Item 17

Do not receive

Influencing what? Are you going to say, "No, I will not teach this unless you give me \$35/student?"

I like the \$

Influencing what? Circled both 5 and 3

Should always have course reduction

Don't understand. Influencing in what way?

Totally inadequate

Writing intensive courses should not have large #s of students!

Item 18

Very important

Doesn't happen

I did my 1st one as course overload

N/A - Adjunct - expected

Item 19

This would be a good idea.

Doesn't exist!

Not available.

Doesn't exist.

NA

Does not exist.

Doesn't happen.

N/A - Adjunct.

Item 20

Consideration needs to be given for writing assignments and size of class.

A course is a course.

Not considered.

No additional support goes to department!

Item 21

I have been here 12 years, I do not know what a "Course designer" is.

Never used

When you can get one.

Doesn't exist!

Should be actually [arrow pointing to 2]

Item 23

Only if the results are favorable

Not applicable

Why should it be—are we a correspondence school

Do not know

Don't know

N/A --Adjunct

Item 24

Do not know

Don't know

N/A - Adjunct

Item 29

Different semesters either as course coord. or guest lecturer in a course.

Item 32

But not at [university's name] - got in 1970's

Workshop & assistance with Web Page

A little

3 day workshop

A one week session was provided

Item 32 Cont.'

Although weak training!
 Attended all workshops

Item 33

Would be better if more support
 On a scale of 1 to 10 maybe a 6
 Sometimes [yes or no not marked]
 Neutral [yes or no not marked]

COMMENTS SECTION

I enjoyed it better when I did it in the 1970's because there was institutional and technical support

- Distribution Center is too slow
- Textbooks are not ordered and in on time
- Too few course Paks are copied – students must come back and wait for a course pak
- Secretarial help is needed in typing Power point presentations
- The additional work of mailing tests/answer sheets/makeup tests/email should make the workload count as twice the credit of an on-campus course

I would need additional continuing “coaching” for stimulating discussion and preparation of graphic and demonstration materials to better take advantage of the electronic medium.

Consideration must be given to student enrollment numbers. Enrollment caps must be established in order to continue quality instruction.

[Name of distance learning program] technology has been bypassed. Now there is available cost effective frame relay technology to put fully interactive Net based video conferencing in all classes.

Equipment/Formats where faculty can develop concepts on a media similar to the traditional chalkboard (rather than a writing pad with overhead camera) would be an improvement, overall.

Reductions should be given every semester and for each class w/50 or students in them.

It is my and many others' impression that distant students have more life problems that make completing courses problematic and is an extra burden for faculty.

Although faculty are encouraged to teach on TV, no real workload adjustment or help given to my school (No TA or Grad Assistant, need better on-site/office computer support) No recognition given for real amount of hours of prep and student contact needed.

Compensation is inadequate. Release time for needed prep. Not given after first time teaching. It is very difficult to have students do research papers or extensive writing assignments- particularly

in the summer classes. Things may improve now that we have opened a building dedicated to [name of distance learning program] and hired some additional instructional designers.

Responses to #28 and 29 based on [university's name] experience only. Taught numerous courses as grad student, on ETV at University of [School name].

As one adopts a "format" to deal w/the technology of distance learning—it has (in my case) negative impacts on teaching in regular classroom. Structure that inhibits spontaneity—[name of distance learning program] class gets to "over controlled" which is almost a necessity for [name of distance learning program] given the numbers of students one deals with!

But it will never replace classroom interaction as far as I am concerned. There is no eye contact! I much prefer the regular classroom.

The amount of time needed to meet the needs of every large group of students in a [distance learning program] class is overwhelming. With most classes in our dept average 100+ students, it is not just about getting papers graded and returned in a timely manner. But, also, responding to repeated phone calls and e-mails—because students feel the need to connect with faculty outside of class—Workload needs to be doubled, because it truly is!!

Why focus so much at [university's name] on TV classes—If we are to gain a reputation need leadership RE: RESEARCH. Teach load here too high. Why do so many resources go here vs. hiring additional faculty? Our on-campus students do NOT like this mode of teaching.

There is no "community" between instructors and students. (2 bad) If anything happens, students always blame the instructor on Teaching Evaluation, which is 1 point lower in average when compared to on-sites.

Many faculty do not encourage interaction among students in [name of distance learning program] courses and so it has earned a bad reputation (especially with undergraduates!)

Being able to "move around" the classroom has improved interaction—but it's still less than in non-televised classes. My impression is that the students are more concerned about "appearing foolish" on camera.

There are inadequate support services for weekend classes. The Administration of distance learning is top-down with almost no faculty input.

I enjoy TV classes when things go well i.e., students have syllabus & books at distance sites, papers come back and forth successfully, etc.

1. Lack of software at sites limits technology used.
2. No computer lab in [name of building housing distance learning].
3. [Name of distance learning program] staff promise more than they can deliver when

negotiating w/departments to offer degree programs on [name of distance learning program].

I had some difficulty understanding what you were asking. The comment, "is an important factor" is confusing. Important in terms of what? - whether I like televised, can function well, or do it? Basically, I don't like televised classes. I think the qual of educ is affected and is lower. I believe student to student and student to fac interaction is critical. Sitting at a site w/2 other students watching a screen is tough. It is hard to have participation and to keep track of who is speaking. Never seeing the students' faces is hard and makes it harder to connect. However, I understand this is the way of the world and the future—significant adaption is need to keep the qual of ed high. There is no where near the compensation provided to do televised courses. Faculty workload needs to be adjusted. These courses take at least 3 times as much work—whether it's the first time or not. The emails, telemail etc are very consuming. It is very necessary to keep w/hundreds of emails on a weekly basis because it is the only connection students have w/faculty. Ancillary support and resources are not nearly good enough either. The [computer center's name] and Tele/Distance offices are not very helpful. If [university's name] wants this commitment (which it does) then they need to wake up to faculty & student needs and put significant funds, well-trained personnel and adeq resources in place. Faculty will burn out and students suffer if they don't. Thanks

More tools for synchronous group work while in class (i.e., Internet phones w/computers would enable me to link student groups together). Tools to allow group work should not be cumbersome.

Turnover time for papers/tests to be sent out/returned/sent out again with a grade is TOO SLOW! There has to be a better way. Also, not all the Univ student evaluations were received on time to be submitted for data!

More opportunities to meet site directors to discuss site facilities and ways students can connect to each other sites for group work outside of class time.

Need more times off, more support, more recognition, etc.

Support is very weak, some [name of technology support office] personnel are not cooperative, technical support is extremely poor and computer equipment on campus and at distant sites are unreliable and often nonfunctional

- Inadequate infrastructure support (assignment collection, distribution, multi-media, etc.
- Little accountability or performance measurement for assessment of technology (audio, video, site admin.)
- Overemphasis on technology versus new/different teaching models
- Large classes are 2 times as much work as a live class.
- Faculty time for prep, admin, and delivery are a minimum of 2 to 2/12 times live class requirements.

The deadlines that are imposed are nearly impossible to meet. Course Pak must be submitted 3

months before the class, while the Research Foundation has made my course paks available to the bookstore on Monday when I only got it to them on the previous Friday.

Focus on improving services provided by site directors. Also, reward teachers who excel on [name of distance learning program] with more \$.

Using e-mail effectively has not been possible (up to present). Mail room is overworked and things get misplaced. Distribution of tapes shown on air to individuals not taking course live has not worked well. Department is happy for the FTE's but financial rewards are not given.

Keeping up with grading. Keeping up with student email. No cooperation for the extra advising with distance learning students. No extra allowances made for writing intensive courses.

The need for a trained assistant is ESSENTIAL. It would help if there were a central office where you could drop off a test or handout & this office would Xerox it, sort it, & mail it. That alone would help ease the load. Overall Distance Learning Office is doing a very good job!!

I have truly enjoyed the experience.

Unacceptable Problems Encountered:

1. Number of times & length of not being "connected" to remote sites
2. Unreliable graduate assistants. [Name of distance learning program] instructors should receive more incentive compensation for TV courses.
3. Unreasonable delays in returning tests and papers from some sites.

The support of the dean is influential – I did not have that support.

Good for nondegree training, but not for degree.

[Name of technology support office] needs to provide feedback to faculty on how a class went - i.e. like peer eval.

I was never able to determine if students at remote sites were actually present.

The additional work of mailing tests/answer sheets/makeup test/email should make the workload count as twice the credit of an on campus course

1. Administration does not recognize the operational challenges a faculty member encounters in distance education. In fact, the [administrator's title] recently commented that it's all part of faculty role - so, in essence stop whining. However, when one faculty member teaches a class of 20 on campus & another teaches 150 at 30 sites it is a vastly different workload. No one answers those phone calls and emails for us.
2. Support is especially critical since we have very needy students.

It would be useful to be told more about the backgrounds of the (invisible) off-site students; it would also be useful to meet the off-site directors once per teaching season.

One large barrier lies in [person's name] of [name of technology support office]. She is difficult to work with. Need more course release/compensation... especially for V-Tel/Virtual Classroom courses.

Provide pictures of the students for instructors (not just TV images If they talk)

The university needs to invest more time & resources in "on-line" courses & components as well as television formats

All of these responses must be QUALIFIED by the time period; taught F97-; understand things have improved much in 3+ years

Some technicians at broadcast sites are not responsible, they leave the room take long breaks when you need to zoom in they're not there. I prefer myself controlling these things, so I don't have to wait for them.

In the statements regarding faculty issues, it should be noted disagree responses indicate that no consideration has been given. For example, with respect to question #18, no release time has ever been offered to prepare for televised courses

Are we a distance ed university? The "univ of distance ed" What quality

Distance learning classrooms are poorly designed for dynamic tv instruction. At best they are "talking head" studios. A media intensive interactive distance learning course requires a significant amount of prep time that is not realized by administrators.

1. Material content is a major factor in the learning process in the televised medium.
2. The degree to which student interaction is important (to the learning process) is a major factor in teaching effectiveness in the DL environment. P.S. I began teaching on TV in 1989 (before [name of distance learning program]) when there was limited support for TV course development.

My willingness to teach on TV is strongly influenced by the inflexibility of scheduling, e.g. I am NOT willing to teach Saturday afternoons for 14 weeks in the summer. The [distance learning building name] staff should seek more college input in scheduling.

Support for and recognition of faculty who teach on television is critical. Teaching on television is worthwhile and provides individuals educational opportunities that can improve the quality of their lives.

The courier service is insufficiently frequent and rapid for adapting to pedagogical opportunities.

- weak support services
- inconsistent quality of technology use (audio/video)
- lack of recognition in promotion & tenure review
- inconsistent consideration in workload assignment
- poor training → focused on technology not teaching effectiveness

Time—there is a significant increase in time dedicated to a [name of distance learning program] course over a regular course. The email traffic is a real time consumer. Also, each time you teach a course requires updating and modification.

New factors are distinguish TV based distance learning from web based distance learning. This questionnaire might be extended to a useful tool to address these differing environments and associated support mechanisms.

Not being able to receive non-verbal communication is a/the biggest barrier to effective learning/teaching!!

Need more money for departments!!! to support [name of distance learning program].

I enjoy the challenge of TV teaching. I believe my drama classes in high school help.

The permitting of [name of distance learning program] students to fulfill course equivalents by watching most or all of the course on videotape (by some colleges) creates a university-wide problem. This is a sleazy practice and needs fixing. The College of [college's name] does not (formally) permit this, but often (in practice) it happens.

Questions/answers based on coordination and supervision of at least 12 courses per year for the last 3 ½ years as [title given]

The workload is very heavy when teaching TV courses. Evaluation of remote students was lower than that of on site students even though I spend more time with remote students. A good course design is the key to the success of a TV course, since a straight forward adoption of a regular course structure leads to disasters in teaching [subject name] on TV. I have a colleague who was very happy to take over the TV course I designed (that is the reason I am not teaching it anymore; but he was discouraged recently by negative responses he got for two new TV courses he offered. It could be very frustrating for a faculty who spent a lot of time to design a course for TV, but the students did not like it. For teaching on TV, hard work does not guarantee good results!

- Barriers – inability to make eye contact with students
- limited interaction between students
 - medium tends to force a more structured presentation
 - student/prof ratio is high (especially for core courses)

I do not plan to teach on television again. It is an activity that is neither recognized nor rewarded at level commensurate with its difficulty.

1. Inadequacy of technical assistance in Dept.
2. 0 orientation for distance students prior to class
3. Piecemeal course set up
4. Redundant problems
5. Lip service given to importance of [name of distance learning program], yet 0 consideration for workload seriously given

Technical problems caused some challenges—especially the 1st virtual classroom experience I taught. Getting web sites designed, updated and up & running have provided additional challenges. Finally establishing a “community” of unified learners was and is difficult when many continue to have “microphone” phobias. The size of the class also makes it difficult.

Long distance learning is not the best way for effective education in [subject area]

Lack of advising that enforces prerequisites.

Slow delivery of materials to/from sites

Late registration so students miss 1st week

Attitude that class attendance is optional because [name of distance learning program] is marketed as “flexible” in fitting into students’ schedules

Writing intensive, discussion, group work, ed courses present special challenges to distance ed environment & affect adequacy of response to student

Any written material requires too much time for transmission - both to & from

If I were younger or if I could teach my favorite courses on [name of distance learning program], I would feel very differently (more positive) about distance learning. Because I have to change (restrict) my normal teaching style so dramatically, if I am not totally excited about the course material, I don’t present as effectively in this medium.

VITA

Deanne Shuman

Birth place: Manhattan, Kansas

Education: B.S. in Dental Hygiene, Old Dominion University, Norfolk, Virginia, December 1974;
M.S. in Biology, Old Dominion University, Norfolk, Virginia, August 1976

Publications:

Shuman, Deanne. "AIDS: Implications for dental hygienists." Seminars in Dental Hygiene. Yardley, PA: Professional Audience Communications, Vol 1. no. 4, 1989.

Tolle-Watts SL and Shuman D. "A model for integrating student and faculty research." Journal of Dental Hygiene 65(4): 194, 1991.

Campbell PR, Shuman D. and Bauman DEBBIE BALDWIN. "ADHA graduate student/faculty research project: Health history." Journal of Dental Hygiene 67(7): 378, 1993.

Loiacono C, Shuman D, Darby ML, Luton JG. "Lasers in Dentistry" General Dentistry , 41(5): 378, 1993.

Campbell, P.R., Shuman, D., and Bauman D.B. "ADHA Graduate Student/Faculty Research Project: Health History." Journal of Dental Hygiene 67(7):378-386, 1993.

Eshenaur Spolarich A, Peterson-Mansfield S, Shuman D, and Davis CC. "The ADHA National Research Agenda: White Paper by the ADHA 1993-94 Council on Research." Journal of Dental Hygiene 68(1):26-29, 1994.

Shuman, Deanne. "Computer Applications in Dental Hygiene," Chapter 38 in Darby ML and Walsh MM. Dental Hygiene Theory and Practice. Philadelphia: W.B. Saunders Co., 1994.

Nathe, C.N., Bauman, D.B., Darby, M., and Shuman, D. "Too few resumes?" RDH 17 (11): 18, 22, 23, 24, 29, 1997.

Designed a dental instrument, ODU 11-12 Explorer, Manufactured by HuFriedy Manufacturing Company.

Appointments:

1976-81	Assistant Professor, Department of Dental Hygiene and Dental Assisting, Old Dominion University
1982-89	Associate Professor
1984-89	Graduate Program Director
1989-present	Professor and Chair