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I am submitting herewith a dissertation written by Julie Kim Little entitled "The Distance Learning Classroom: Identifying a Process for Facilitating Interaction." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Education, with a major in Curriculum and Instruction.

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THE DISTANCE LEARNING CLASSROOM:

IDENTIFYING A PROCESS FOR FACILITATING INTERACTION

A Dissertation

Presented for the

Doctor of Education Degree

The University of Tennessee, Knoxville

Julie Kim Little

August 1995

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"I am not a teacher;
only a fellow-traveller
of whom you asked the way.
I pointed ahead -
ahead of myself as well as of you."

Bernard Shaw

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ABSTRACT

Distance education is a concept born from the sophisticated technologies permitting interactive modes of communication between teacher and learner and transmission of information at a distance. Due to steady developments, it is predicted to be a major growth area for education in the future. As institutions continue to invest in distance learning systems, student enrollment and faculty recruitment increases. This trend is accompanied by a growth in issues of faculty and learner satisfaction. Although the potential of distance education is powerful, it is possible this trend could fail to reach its full potential if interactive opportunities are not facilitated in these classrooms.

Understanding interaction in the distance learning context is essential. However, before teaching paradigms can be identified, the process of facilitating interaction must be examined. Therefore, the research problem was to clarify and conceptualize a process of facilitating interaction in the distance learning classroom.

Data were collected from five faculty members who had traditional and two-way audio/video tele-classroom teaching experience. The phenomenological-based Action-Reason-Thematic Technique (ARTT), provided an interview-analyze-interview cycle for examining the extent to which they went about enhancing interaction

in their tele-classrooms.

The major finding of this study indicated there is a basic process for facilitating interaction in the distance learning classroom that must be implemented from the first class meeting and nurtured throughout the tele-course. There are three phases to this process: Phase 1) Establishing Basic Premises, Phase 2) Fostering Involvement, and Phase 3) Integrating Elements of Real-Time Queries. Fostering involvement is the primary vehicle that drives the continuous nature of the interactive process.

Additional findings directly related to the research problem focused on tele-techniques and previous experience with technology. No specific tele-technique for facilitating interaction was identified. However specific groups of tele-techniques were identified that focused on planning, presentation and instruction. Previous experience using technology in the traditional classroom reduced the learning curve for implementing technologies in the tele-classroom.

Potentially related findings included the identification of obstacles to successful teaching and the role of experience in examining classroom practices. The specific problems faculty members encountered during their tele-classroom experience created frustrating obstacles to successful teaching. The knowledge gained from traditional and tele-classroom experience helped the faculty members to examine their overall classroom practices.

TABLE OF CONTENTS

CHAPTER	PAGE
I. INTRODUCTION.	1
Defining Distance Education	1
Correspondence Education	
"Distance" Education	
Organizational Model	
Communication Model	
Fundamental Characteristic of Both Models	
Trends and Issues in Distance Education . . .	7
Background of the Problem	9
The Educational Process	
Teaching Processes	
Effective Teaching at a Distance	
Models of Instruction	
Conclusion	
Statement of the Problem	15
Significance of the Study	16
Assumptions of the Study.	17
Limitations of the Study.	18
Definition of Terms	18
Organization of the Study	21
II. LITERATURE REVIEW.	23
Introduction.	23
Research on Distance Education Faculty. . . .	24
Research on Effective Teaching at a Distance.	25
Instructor Competencies for Distance Teaching	
Instructor Competencies for Traditional Teaching	
Interaction: The Crucial Characteristic	
Need for the Research	30
International Priorities	
Personal Challenges	
Electronic Forum Discussion	
Obstacles to Effective Teaching at a Distance	
Conclusion.	34
Chapter Summary	35

III. RESEARCH DESIGN AND METHODOLOGY. 37

Development of the Study. 37
Type of Research. 38
Participant Selection 39
Interview Procedure 40
Data Collection 42
First Interview
Second Interview
Data Analysis 45
Chapter Summary 46

IV. FINDINGS 48

Introduction. 48
Participant Profile 49
First Thoughts about Tele-classroom Teaching 50
Restructuring the Traditional Lecture
Using Drama and Humor
Problems in Tele-classroom Teaching 53
Initial Resistance to Change
Amount of Planning Time
Logistical and Administrative Issues
Flow of Communications
Technical Difficulties
The Role of Experience. 60
Tele-techniques 64
Planning Techniques
Presentation Techniques
Location
Visuals
Tele-presence
Instructional Techniques
Front-end Activities
Questioning Activities
Individual and Group Activities
Interaction Defined 90
Faculty Definitions of Interaction
Instructor Role During Interaction
Student Role During Interaction
A Process for Facilitating Interaction. . . . 94
Phase One: Establishing Basic Premises
Phase Two: Fostering Involvement
Phase Three: Identifying Elements for Real-Time Queries
Chapter Summary 106

V. DISCUSSION, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS. 108

Introduction 108
Findings and Discussion. 109
Directly Related
Potentially Related
Conclusions and Implications 129
Recommendations. 132

BIBLIOGRAPHY. 134

APPENDIXES. 144

APPENDIX A. THE ACTION-REASON-THEMATIC TECHNIQUE 145
APPENDIX B. PARTICIPANT CONSENT FORM 146
APPENDIX C. TELE-TECHNIQUES. 147
APPENDIX D. A PROCESS FOR FACILITATING INTERACTION 148

VITA. 149

LIST OF FIGURES

FIGURE PAGE

1. Planning Tele-techniques. 65

2. Presentation Tele-techniques. 69

3. Instructional Tele-techniques 77

4. Phase One: Establishing Basic Premises 96

5. Phase Two: Fostering Involvement. 100

6. Phase Three: Integrating Elements of Real-Time Queries. 105

CHAPTER I

INTRODUCTION

Defining Distance Education

Distance education is a concept born from the sophisticated technologies permitting interactive modes of communication between teacher and learner and transmission of information at a distance. The emergence of such technologies has fostered the growth of distance education systems worldwide. Identifying notable distance education systems is easy; however defining distance education is a difficult exercise requiring a combination of historical origins, evolving technologies, and concepts of teaching and learning.

Correspondence Education

Early education at a distance appeared in the form of correspondence courses. References to the idea of correspondence education can be found as early as the 1720s, and by the late 1800's an identifiable organized system was in place (Battenberg, 1971; Bratt, 1977; Holmberg, 1986; Niemi & Gooler, 1987; Holmberg, 1989; Moore & Thompson, 1990; Willis, 1992). It was a system

of self-instructional texts combined with written correspondence between students and tutors provided by a supporting organization (Holmberg, 1986; Holmberg, 1989). In 1881, William Rainey Harper organized the first Correspondence School of Hebrew; and during his tenure as president of the University of Chicago in the 1890's, he established the first university correspondence program (MacKenzie, et al., 1968). Harper's far-reaching initiatives not only earned him the title 'Father of Correspondence Education" (MacKenzie & Christensen, 1971), but established the foundation for distance education.

The growth of correspondence education was in direct response to societal changes. As the United States moved from an agrarian to urban society at the turn of this century, correspondence education provided opportunities for people to improve their socioeconomic position. The pattern developed during World War I, the Depression, and post-World War II years (Harris & Williams, 1977). Similarly the transition from an industrial to an information society played a large part in the growth of distance education in the 1970's and 80's.

With a few notable exceptions, correspondence education began to lose its prestige by the late 1960s (Garrison, 1989). In 1969, the Open University of the United Kingdom became a positive influence for advancing

the concept of distance education when they adopted the use of educational technologies, both hardware and design processes, in their correspondence courses. According to Schütze (van Enckevort, Harry, Morin, & Schütze, 1986), that combination of expanding telecommunication and information technologies with the educational process caused a turning point in the development of distance education. Enhanced credibility from innovations at the Open University caused an increased interest in studying this new educational delivery system.

"Distance" Education

The inclusion of technology in correspondence education led to a change in terminology and the term "distance" appeared. Borrowed from the German *Fernunterricht,* the French *Télé-enseignement*, and the Spanish *Educacion a Distancia*, "distance education" was first seen in the inaugural issue of the British Open University journal, Teaching at a Distance (1974), the Australian journal, Distance Education, and the United States journal, American Journal of Distance Education (Holmberg, 1989). To reflect a move towards positive and innovative distance education methods, the International Council for Correspondence Education (ICCE) changed its name to the International Council for Dis-

tance Education (ICDE) in 1982 (Faith, 1988; Holmberg, 1989; Moore & Thompson, 1990).

Although the term 'distance education' has become widely accepted, differences arise in efforts to determine its exact meaning and scope. Fundamentally, distance education refers to the separation of teacher and student, regardless of the technologies or delivery systems used. Therefore, non-contiguity is the foundation for defining distance education.

Organizational Model

The infusion of other elements shifts the focus of this fundamental idea and creates the variety of perspectives for viewing distance education. For example, Holmberg (1977) focuses on the organization that delivers the course, a component embedded in the traditional idea of correspondence courses. He defines distance education to "cover the various forms of study at all levels which are not under the continuous, immediate supervision of tutors present with their students in lecture rooms or on the same premises but which, nevertheless, benefit from the planning, guidance and teaching of a supporting organization" (p.3). His idea is strongly influenced by Delling (1966) and is widely accepted by Keegan (1980,1986), Baath (1981), Peters

(1983) and others who support the industrial model of distance education. In essence, they believe that planning, guidance, and teaching are functions of an organization, not the teacher.

Communication Model

Another perspective of distance education emerges when the focus is placed on elements of interaction (communication) between student and teacher. Moore (1973) adopts this perspective by defining distance education "as the family of instructional methods in which the teaching behaviors are executed apart from the learning behaviors, including those that in a contiguous situation would be performed in the learner's presence, so that communication between the teacher and the learner must be facilitated by print, electronic, mechanical or other devices" (p.664). For Holmberg, the organization is central to the noncontiguous teaching/learning process; for Moore, teacher and learner communication is the key.

This exclusion of the organization and inclusion of interaction is clearly evident in The Pennsylvania State University's 1993 Report of the Task Force on Distance Learning. This major research institution and home of The American Center for the Study of Distance Education assembled the Task Force to examine the role of distance

education at the university. Although agreeing distance education can be defined in a number of ways, the Task Force views it "as a very specific term that applies only to situations involving geographical separation, a teacher, a learner or learners, interactive communication, and the acquisition of knowledge, skills, and understanding" (Moore & Thompson, 1993). Like Moore, the Task Force definition focuses on the interaction that exists between the teacher and learner(s). Garrison (1989) adds, "while distance education is an administratively meaningful designation, the important problems associated with this concept are concerned with the educational transaction: that is, with the process of two-way communication between teacher and student" (p.8).

Fundamental Characteristic of Both Models

While Sewart (1982) agrees there are differences in emphasis, he clearly points to the fundamental characteristic that must be considered in all definitions of distance education: the non-contiguity of teacher and student. For purposes of this study, the educational process and interaction between noncontiguous teachers and students will serve as the chief attributes of distance education. However, accepting this perspective does not exclude the importance of the organization; for

it has the responsibility for providing the institutional support services (i.e. faculty training, dissemination of materials, technical assistance, and technological infrastructure).

Trends and Issues in Distance Education

Since the early 1970s, British influence has dominated interactive distance education systems, with England, Canada and Australia playing critical international leadership roles (Willis, 1992). While the Open University system was flourishing during the early 1970's, program development in the U.S. was sluggish. However, by 1979 the U.S. began the aggressive, but fragmented, use of technology for distance education delivery in Alaska (Willis, 1992). Up to that point, most 'distance learning' in the United States had occurred for military, corporate and university continuing education sectors via correspondence courses based upon communication by written text and/or exchange of video taped lectures from a classroom. Although these traditional correspondence mediums continue to survive, research shows the isolation of the learner from interaction with the instructor or other students limits the learning process (Lauzon, 1991). An obvious reaction

was to find ways to bring the teacher and learners face-to-face.

To date, fifty-eight percent of higher education institutions are involved in or have plans to be involved in interactive video and/or audio distance learning (*Syllabus*, 1995). Current membership in the National University Teleconference Network has grown to more than two hundred and sixty organizations providing or receiving a range of over one hundred programs by satellite. In addition, more than forty percent of Fortune 500 companies are using video conferencing for professional development programs and hundreds of continuing education programs are offered by The Public Service Satellite Consortium whose membership includes The American Hospital Association, The American Law Institute, American Bar Association Committee on Continuing Professional Education, The National Education Association, The AFL-CIO, and the U.S. Chamber of Commerce. Although Moore and Thompson (1990) document this growth, they conclude there is still a gap between the potential of distance education and its application in the United States: "There is opportunity in distance education (in the United States) that is not being taken advantage of...it is time to move on from the period of small scale...it is time for the large scale" (Moore & Thomp-

son, 1990, p.45).

Lack of state, interstate, and national policy making and planning is a main contributor to the sporadic growth of U.S. distance education programs and worthy of a separate study. Regardless, there are programs that have emerged, grown, and survived. Their success is largely due to demand from, and participation by, adults in higher education or professional development programs who are committed to lifelong learning. According to Graham (1992) adults are currently the fastest growing segment of the continuing education population. Interactive courses delivered at a distance allow for continued academic growth and professional development without creating isolated feelings some text-based correspondence courses provide or disrupting a person's lifestyle. Issues of life-style might include geographic obstacles, work schedule, and/or family obligations that often prevent adults from obtaining further education or training (Niemi & Gooler, 1987; Gray & Sullins, 1988; Baird & Monson, 1992; Duning, et.al., 1993).

Background of the Problem

Due to advances in technology, the growth of distance learning facilities, and a desire to provide edu-

cational services to adult learners, an increasing number of institutions of higher education in the U.S. are offering courses via two-way interactive teaching (Niemi & Gooler,1987). In light of the increase in distance education enrollments, Beaudoin (1990) says faculty face fundamental questions about their contributions to the educational process as they are requested to teach more distance learning courses.

The Educational Process

The educational process, traditional or distant, clearly involves a teacher and a learner in a collaborative relationship (Shulman, 1986). Salomon (1981) suggests that "education depends upon acts of communication" (p.35). In their studies of the relationship between models of communication and models of instruction, Wood and Wylie (1977) state, "communication is education and education is communication" (p.11). Simpson and Galbo (1986) state interaction "is communication in its most inclusive sense" (p.38). Furthermore, they describe it as "reciprocity in actions and responses in an infinite variety of relationships: verbal and nonverbal, conscious and non-conscious, enduring and casual" (p.38).

For the educational process at a distance, the

challenge is finding the appropriate and effective processes of supporting collaboration and communication in a classroom where contact between teachers and learners is noncontiguous.

Teaching Processes

Based on Gage (1963), Dunkin (1986) defines teaching processes as "behaviors engaged in for the purposes of promoting learning in others" (p.754). In the traditional classroom, teaching processes can be thought of as teaching methods, i.e. lecturing, leading discussions and demonstrations; or teaching behaviors, i.e. types of questioning or reactions to student behaviors. In the distance education classroom, they include asking questions, encouraging student presentations, and facilitating student interactions. And according to Dunkin, teaching processes are observable when learning by students is being guided, whether the teacher is present or absent.

Beaudoin (1990) states the teaching process does not become obsolete in distance education, only transformed. In addition to being adept at their content, faculty have to monitor, adjust, and evaluate the work of learners - as in the traditional classroom - that are geographically distant. New approaches to instruction

have to be considered as faculty, for example, reconfigure a course designed as an intimate round-table seminar of a dozen to include, perhaps, a hundred students who may never meet the instructor or other students in person.

How are teaching processes (methods, strategies, behaviors) transformed in the distance education classroom? One answer to this question comes from examining the tele-classroom teacher's practice. "Work-in-place," the essence of practice, comes from teachers working to fit tool and method to specific needs of specific people and places (Yinger, 1990). In distance education, examining this "fit" is crucial to understanding the process of interaction in the tele-classroom. Without direct inquiry into the nature and conditions of practice, Yinger adds, "the achievement of healthy, effective teaching may continue to elude us" (p.81).

Effective Teaching at a Distance

Having determined the parallel existence of the educational process and teaching processes in the traditional and distance classrooms, does the need for effective teaching follow suit? According to Shaw & Taylor (1984), if the essence of all educational systems is teaching and learning, there exists a common need for

effective teaching.

Models of Instruction

In Smith's (1991) Systems Approach to Teaching Model (SAT), student involvement is at the center. It is based on the premise that students learn by interacting with the instructor, other students, and a variety of media. Teaching methods are the communication techniques instructors use to facilitate student learning (p.125).

If interaction is key to effective teaching in the distance learning classroom, then teaching methods that foster interaction must be developed. Bates (1991) strongly advocates a need to find new models for interactive instruction in the distance learning classroom.

> "I believe then that it will not be from technologies based on relaying lectures that the main advance in distance education will come, but rather on those that provide for increased interaction for the learner" (p.14).

Traditional models of teaching offer some guidance for designing instructional strategies for two-way interactive distance learning classrooms, but to deliver *effective* instruction, new approaches must be examined. "Instructional designs must address the complex interrelationships between learning task, media attributes, and

the learner's cognitive processes" (Gunawardena, 1992, p.61). Collectively, Sewart, Keegan, and Holmberg (1983); Boot and Hodgson (1987); and Burge (1988) believe broader frameworks must be created that speak to more humanistic, interactive qualities and experiences.

This does not mean that distance educators should ignore those models of instruction that drive effective teaching in the traditional classroom. By investigating traditional and distant teaching experiences, a new paradigm for all interactive instruction - traditional and distant - may emerge. According to Dillon and Walsh (1992), studies on effective teaching at a distance find that faculty who shift from faculty-centered instruction to student-centered instruction in their tele-classrooms are more successful distance teachers and traditional classroom teachers.

Conclusion

Growth has been steady in the development of distance education. It is predicted to be a major growth area for education in the future (Spikes, 1990). As institutions continue to invest in distance learning systems, student enrollment and faculty recruitment increases. This trend is accompanied by a growth in issues of faculty and learner satisfaction. Although the

potential of distance education is powerful, it is possible this trend could fail to reach its full potential if interactive opportunities are not facilitated in these classrooms. Understanding interaction in the distance learning context is essential. A statement of the problem of this study follows.

Statement of the Problem

Assuming the following statements to be true -

- education is communication;
- communication is education;
- interaction is communication in its most inclusive sense;
- distance education is a subset of education;
- the distinctive characteristic of distance education is the non-contiguity of teachers and students;
- teaching processes are observable;
- one source of information comes from examining practice;
- the need for effective teaching exists in all educational systems; and
- interaction is a crucial element for effective teaching in distance education;

there remains the need to understand how interaction is made possible in the tele-classroom. However, before we can begin to identify teaching paradigms which influence effective interaction in the distance learning classroom, the process of interaction must be examined.

Therefore, the research problem is to clarify and conceptualize the process of facilitating interaction in the distance learning classroom and to examine the extent to which five distance education instructors went about enhancing this process.

Purpose of the Study

Identifying skills, defining roles, and examining teaching practices are a major part of distance education faculty training programs worldwide. But where do the sources of information regarding these skills, roles, and teaching practices exist?

One source lies in the experiences of distance education practitioners. However, Beaudoin (1995) summarizes current reporting of these experiences in journal articles and conference presentations as "tedious 'show and tell' accounts of the history, statistics, and accomplishments of the particular program they are currently associated with" (p.1); a frank observation of the lack of systematic reflection on practice. He continues by noting a key challenge for distance educators is "to optimize the results of past distance education efforts in ways that will influence future practice" (p.2).

In light of this challenge, the purpose of the research is to critically examine the process of facilitating interaction by identifying and describing the tele-classroom experiences of a select group of distance education practitioners. The results will add to the scant basis from which the concept of interaction in the distance learning classroom is currently understood. Furthermore, what we learn from ongoing research in the distance learning classroom may provide insight into changes teaching professionals should consider - how interaction, student involvement, and dialogue could be fostered in all classrooms.

Assumptions of the Study

The researcher assumes 1) interaction is a key element for effective tele-teaching, 2) conceptual clarification of interaction is necessary for making better informed decisions in the tele-classroom, and 3) examining the perceptions of faculty with three or more years of university teaching experience will provide richer data than those with less university teaching experience.

Limitations of the Study

Data collection was limited to select events that occurred during the participant's tele-teaching experience. As with any research, data analysis and conclusions are limited to the interpretations of the research data by the researcher.

The study is limited to one geographical area - University of Tennessee, Knoxville. Availability of participants interviewed is limited to those who meet the specifications and were willing to participate in the study. At the time of data collection, the interactive distance learning program at the University of Tennessee-Knoxville was less than a year old, therefore, the selection of participants was limited to those who taught in the tele-classrooms during Fall 1993 or Spring 1994.

Definition of Terms

Further clarification of the terms audiographics, distance education, two-way interactive classrooms, Industrial Model of Distance Education, interactivity in learning, experienced faculty, tele-classroom, and tele-teaching follows.

- Audiographics: The term "refers to a range of systems used to produce and send graphical information over a narrowband transmission channel...customarily using the standard telephone network. Types of equipment falling under the audiographics umbrella are: electronic pens, tablets, and boards for telewriting; freeze frame video systems for transmitting still images; computer based and integrated systems for computer graphics; or computer conferencing for exchanging textual information." (Portway, P.S. & Lane, C. 1992. *Technical Guide to Teleconferencing and Distance Learning.*)
- Distance education: "Situations involving geographical separation, a teacher, a learner or learners, interactive communication, and the acquisition of knowledge, skills, and understanding." (Penn State Task Force on Distance Education)
- Two-way interactive classrooms: Classrooms equipped with monitors, speakers, video cameras, microphones, and fax that use CODEC (digitally compressed video sent worldwide via telephone lines and satellite) equipment at specific locations; an on-site classroom (point of origination

for instruction) is linked to remote-site classroom(s) where real-time interaction can occur between instructors and students in the on-site and remote-site classrooms (*UTK Vol Teleclass Faculty Guide*)

- Industrial Model of Distance Education: This is characterized by one-way media (print, broadcasting, cassettes) with two-way communication provided by correspondence tutors or face-to-face tutorials. (A.W. Bates, 1991, *Research in Distance Education*)
- Interaction: "Is reciprocity in actions and responses in an infinite variety of relationships: verbal and nonverbal, conscious and non-conscious, enduring and casual. Interaction is seen as a continually emerging process, as communication in its most inclusive sense." (Simpson & Galbo, 1986)
- Interactivity in learning: *Individual:* private activity between the learner and the learning material, i.e. a sand-tray for a pre-schooler or a computer-assisted instructional program for a university student. *Social:* activity between the learner and a teacher, tutor, or other learners.

- Experienced faculty: Faculty with three or more years of university teaching experience.
- Tele-classroom: an two-way interactive, distance learning classroom
- Tele-teaching: teaching in a tele-classroom

Organization of the Study

Chapter I introduced the evolution of distance learning as an educational delivery system; the two perspectives, organizational and communication, from which it can be examined; and trends and issues accompanying this evolution. The background of the problem was stated, including the relationship between the educational process, teaching processes, effective teaching, and models of instruction in the traditional and distance classroom. Conclusions were drawn concerning the evolution of distance learning and the background of the problem, and a statement of the problem was given. The significance, assumptions and limitations of the study were clarified, followed by a list of definitions specific to the study.

Chapter II presents a literature review of competencies for effective teaching - both traditional and distant, as well as a brief literature review of re-

search on interaction as a critical competency. In addition, literature in support of this study is presented.

Chapter III gives an explanation of the development of the study, particularly concerning the area related to inquiry into the nature and conditions of practice. Also included is a description of the type of research, descriptive framework, method of data collection, the participants, methods of data analysis, and chronology of research procedures.

In Chapter IV, the research findings are presented. Chapter V consists of a discussion of the findings, conclusions, and recommendations for further research.

CHAPTER II

LITERATURE REVIEW

Introduction

The review of literature was accomplished through a computer search of the following databases: 1) International Council on Distance Education (ICDL) Distance Learning Resources; 2) Dissertation Abstracts International; 3) Educational Resources Informational Center (ERIC); and 4) The Institute for Academic Technology's Information Resource Guide on Distance Education. All databases were available through telnet services at the Hodges Library of The University of Tennessee, Knoxville.

Archives from The American Center for Study of Distance Education's on-line discussion list, International Discussion Forum for Distance Learning (DEOS-L), and electronic journal, *The Distance Education Online Symposium (DEOS-NEWS)*, were accessed via electronic subscriptions. Additional electronic resources included *The Online Journal of Distance Education and Communication (DISTED)* and *The Interpersonal Computing and Technology Journal (IPCT-J)*. Use was also made of the online cata-

log at the Hodges Library. The interlibrary loan program at The University of Tennessee was used as needed.

Due to advances in telecommunications technologies, interest in distance education is increasing among K-12 schools, colleges and universities, industry, and businesses in the United States (Dillon & Walsh, 1992); but growth continues to remain slow (McNeil, 1990; Gunawardena, 1990; Heinich, 1984). According to McNeil (1990), most of the research is focused on "attitudinal issues" - how people perceive and react to these technologies, rather than their concern with structural or technical obstacles that influence its use. Studies conducted by Dillon and Walsh (1992) reveal the dominant theme of research on distance education to be the learner; "research has focused primarily upon learning outcomes, learner characteristics, and learner attitudes" (p.5).

Research on Distance Education Faculty

There is a limited body of research on "attitudes" of distance education faculty. It is primarily focused on their positive and negative perceptions of teaching in distance learning classrooms. When asked to respond to the benefits of distance teaching, faculty include

the ability to reach new populations of learners, the opportunity to work with better prepared and more motivated students, flexibility in work schedules, and pedagogical advantages such as the need for more efficient organization and the ability to use a broad range of media-bases resources (Taylor & White, 1991; Dillon, Hengst, & Zoller, 1991; Johnson & Silvernail, 1990; Clark, Soliman, & Sungaila, 1985).

Generally, logistical and administrative concerns topped the list of barriers cited by distance learning faculty (Dillon & Walsh, 1992). However, specific barriers frequently cited include additional work load, lack of time, reduced student interaction, less spontaneity, technical and administrative problems such as those caused by poor audio quality and the distribution of course materials, and lack of recognition and reward (Clark, Soliman, & Sungaila, 1985; Siaciwena, 1989; Scriven, 1986; Dillon, Hengst, & Zoller, 1991; Parer, 1988; Johnson & Silvernail, 1990; McNeil, 1990; Gunawardena, 1992).

Research on Effective Teaching at a Distance

Instructor Competencies for Distance Teaching

Beyond the studies of logistical and administrative

concerns and specific barriers to distance teaching, lies a small body of research on effective teaching at a distance. Existing within this literature are studies that identify specific instructor competencies that encourage interaction in the distance learning classroom. According to Maloy and Perry (1991), the "critical instructor competency" for encouraging interaction is communications style. When asked to respond to perceived instructor competencies, students include good voice quality, animated body language, use of eye contact, knowledge of and interest in the material, clear presentation, technical competence, enthusiasm, interest in the student, ability to personalize the experience, and ability to modify pacing according to student needs (Collins & Murphy, 1987b). Similarly, faculty include personalizing instruction and developing an empathizing rapport with students in both verbal and printed communications (Dillon, 1989; Johnson & Silvernail, 1990; Parer, 1988).

Thach and Murphy (1995) identified ten competencies for effective distance educators, to include, *interpersonal communication, planning skills, collaboration/ teamwork skills, English proficiency, writing skills, organizational skills, feedback skills, knowledge of distance education field, basic technology knowledge,*

and technology access knowledge. In their examination of classroom interaction, Burge and Howard (1991) identified specific instructor competencies that encourage interactive experiences. These include *using silence to encourage reflection, personalizing interaction, developing a prearranged response sequence, using directed questioning techniques, providing positive feedback, clarifying and summarizing student responses to confirm understanding,* and *carefully planning the activities.* This reinforced Chute, Balthazar and Poston's (1988) study on expert instructors using audiographics systems which identified *knowledge of basic learning theory, skill with the organization and management of materials and the learning environment, effective verbal and nonverbal presentation methods, use of questioning techniques, effective coordination of group activities, expertise in the subject, responding to students as individuals,* and *teamwork and tele-training skills* as competencies contributing to effective instruction in the distance learning classroom.

For Beaudoin (1990), this literature is based on the assumption that teaching at a distance requires different skills than those needed in traditional classrooms. Dillon and Walsh (1992) concur by noting discussions on effective teaching at a distance often focus on specific strategies for fostering student interaction

which suggests that successful distance teaching depends on using a set of student-centered skills that are different from those used in traditional teaching (p.12). They are, however, quick to note the student-centered teaching skills acquired in the distant classroom can benefit teaching in the traditional classroom.

Instructor Competencies for Traditional Teaching

Research on effective teaching in traditional classrooms reveals competencies similar to those identified above (Reed & Bergemann, 1992). Effective teachers *understand their subject at a high level* (Manatt, 1981; Rubin, 1985; Bennett, 1986; Futrell, 1989); *have a clear instructional focus* (Rubin, 1985; Kauchak & Eggen, 1989); *know how to question* (Soars & Soars, 1978; Brophy & Evertson, 1976; Manatt, 1981; Kauchak & Eggen, 1989); *have clarity of communication* (Gage, et al., 1968; Good & Grouws, 1975; Walberg, et al., 1979; Sizer, 1984; Rubin, 1985; Brophy & Good, 1986; Futrell, 1989; Kauchak & Eggen, 1989); *are organized* (Kauchak & Eggen, 1989); *select and direct activities, not students* (Manatt, 1981); *are empathizing and warm* (Sizer, 1984; Kauchak & Eggen, 1989); and *are enthusiastic about teaching* (Reinhartz & VanCleaf, 1986; Kauchak & Eggen, 1989).

Interaction: The Crucial Characteristic

Similarities and differences do exist in the traditional and distant classrooms. However, the importance of this study is not to compare and contrast the two environments. Interaction is the focus. It has been labeled as a crucial characteristic for effective distance teaching and studied to identify those competencies that encourage its existence; but little research has been conducted to identify the processes that drive interaction in the distance learning classroom.

As Dillon and Walsh (1992) emphasize, "a common theme emerging from all the studies is the need for faculty to understand about student learning and motivation" (p.12). Their statement confirms Scriven (1986), Mani (1988), Gehlauf, Shatz and Frye (1991), and Smith (1991) as they identify the appropriate use of media, interaction, feedback and assessment, the problems and possibilities of distance teaching, training in the use of productive interactive techniques, and the availability of faculty support services as primary faculty development needs.

Need for the Research

From international research priorities to the challenges identified from an individual distance educator's experience, there is a need to understand the process of facilitating interaction in designing effective instruction for two-way interactive telecommunications technologies. A strong argument for conducting research from instructor experiences rests in the development of effective distance learning instructor training workshops and programs.

International Priorities

In November 1993, a paper, *A Distance Education Research Agenda: A Survey of Expert Opinions from Developed and Developing Countries* was presented at the ICDE World Conference in Bangkok, Thailand. Identified as the "highest priority research attention" needs for distance learning were: 1) areas of evaluation, 2) systems for the provision of feedback to students, 3) design and development of study materials, 4) cost benefit analysis, and 5) management and planning (Scriven, Lundin, & Ryan, 1993). The element of interaction is entwined in evaluation; feedback to students; designing and developing class materials; and management/planning - for interactive

telecourses are a limited resource and must be facilitated by effective instructors.

Personal Challenges

Reflecting on her teaching experiences in the distance learning classroom, Charlotte Gunawardena (1992) identified significant challenges, rewards, and frustrations to teaching at a distance. Admittedly, her greatest challenge (and frustration) was the facilitation and support of collaborative group work at a distance. However, her (as well as her students) first challenge was to move toward a more learner-controlled instructional system. Naturally she was concerned with covering the material and the students expected her to deliver knowledge and direct learning. Gradually she taught herself to "let go" as she became more satisfied with the quality of student-controlled interaction and discussion. She believes her emphasis on the process of learning and interaction led students to begin interacting with the content on their own. The role change she experienced in the distance teaching context "enabled (her) to become a more effective and reflective teacher" in general (p.64).

Electronic Forum Discussion

In February 1995, a member of the Distance Education Online Symposium posted a request for other participants to identify the top ten (or less) issues in distance education. Although the responses varied from the need to develop financing models to identifying the role of the course secretary, there was an overwhelming consensus on the importance of understanding the educational process in distance education. Responses included:

> "Let the teachers pay more attention to the learning process in Distance Education Pedagogy (tutoring, reflective, summaries) in different mediums (sound, text, video, computer)" (Schefstad, 1995).
>
> "...replacement of old instructional and teaching models students operate within with approaches in corporating technological advances in communication" (Dettrick, 1995).
>
> "We need to address opportunities for interaction between students and between staff and students and encourage a deep approach to learning" (Hudson, 1995).
>
> "A critical challenge for teachers - classroom methods that equalize opportunities for distant site students" (Bensusan, 1995).
>
> "Overcoming the sense of distance (not necessarily related to interaction, though obviously related)" (Kirby, 1995).

Obstacles to Effective Teaching at a Distance

Since most university systems are structured to support traditional face-to-face instruction (Heinich, 1984), faculty are most familiar with this type of teaching. So familiar, as Sprecher and Chambers (1980) report, they are reluctant to adopt technologies and strategies which separate them from their students and potentially hinder the social process they perceive as important for learning to be internalized. In suggesting components for faculty development programs, Carl (1986) notes that faculty require skills and knowledge so they will be able to understand how the technology (the hardware and software used in distance learning classrooms) affects interaction "if they are to overcome anxieties and are to effectively use the technology" (p. 239). In addition, she includes the need for faculty to examine how teaching to distant students alters a course designed for on-campus instruction and how to manage the learning process for both on-campus and distant students.

Shaw and Taylor (1984) present another argument for conducting research on effective distance teaching. They clearly state that "distance educators have a common need for effective instructional systems" (p.277). Parallel to satisfying the essence of education - teach-

ing and learning - is the need to survive. Since most courses are archived on videotape, an instructor's classroom actions and behaviors are recorded and available for evaluation. If poor instructional quality is demonstrated time after time, it would be difficult to resist an argument to eliminate distance education as a means of delivering instruction.

Conclusion

Moore and Thompson (1990) refer to facilitating interaction as an art and the key is to actively use the interactive nature of the classroom. Instructors must resist the temptation to only lecture and bring the learners continuously into the classroom action by asking questions, encouraging student presentations, getting students to talk to each other and other ways. How might we identify these *other ways*? They suggest "further research and an emphasis in the training of teachers is needed concerning the techniques of facilitating interaction" (p. 40).

Chapter Summary

An introduction to the chapter explained the sources and procedures used in conducting the literature review. Three bodies of literature were reviewed. The first review was on the topic of faculty attitudes towards teaching at a distance. Literature concerning research on this topic was discussed. Specific barriers to distance teaching cited by distance learning faculty were described.

The second, and most extensive, body of literature involved effective teaching. Literature defining instructor competencies for effective distance teaching was reviewed with research conducted on effective teaching in traditional classrooms. Emerging from this comparison was a discussion identifying interaction as a crucial characteristic of effective teaching.

The final body of literature reviewed involved research focused on the need to understand the process of facilitating interaction in distance classrooms. Noting its importance as an issue of international conferences to informal on-line computer groups, interaction has become a top research priority. Following the discussion on the significance of this study

was a conclusion and a summary of the chapter.

CHAPTER III

RESEARCH DESIGN AND METHODOLOGY

Development of the Study

Chapter I includes information on the development of the study. By way of review, two studies were cited in Chapter I (Bates, 1991; Gunawardena, 1992), and a number of others in Chapter 2 (the literature review), which identified as a problem the need to understand the process of facilitating interaction in the distance learning classroom.

Most research in distance education is focused on learner attitudes and perceptions. The limited research conducted on faculty concentrates on their positive and negative perceptions of teaching in distance learning classrooms. Faculty concern with reduced student interaction is a common theme emerging from this research (Clark, Soliman, & Sungaila, 1985; Siaciwena, 1989; Scriven, 1986; Dillon, Hengst, & Zoller, 1991; Parer, 1988; Johnson & Silvernail, 1990 McNeil, 1990; Gunawardena, 1992). Launched from this concern, and discussed in Chapter 2, is a scant body of research and published statements outlining the need for faculty de-

velopment programs focused on facilitating interaction in their distance learning classrooms.

Considering the findings of the above studies, a strong argument exists for conducting research from instructors' experiences in order to examine the process of interaction. Information gleaned from such studies could assist in the development of effective distance learning instructor training workshops and programs related to interaction.

Type of Research

This study is an inquiry into the nature and conditions of practice, an idea deeply rooted in phenomenology where the aim is to gain "a deeper understanding of the nature or meaning of our everyday experiences" (Van Manen, 1990, p.9). Phenomenology is a science of human experiences that investigates the nature of specific experiences in order to understand their meaning. The purpose is to describe and interpret the meaning of a phenomenon as seen by the viewer. Because phenomenology doesn't seek to conceptualize or categorize experiences, it offers the possibilities for insights into meanings. These meanings can bring us into more direct contact with the world (Van Manen, 1990).

At the core of this science is retrospection where reflection is the recollection of experiences, such as tele-classroom interaction, that have already passed or been lived. Through a systematic attempt to uncover and describe the very nature of a phenomenon - what something *is* - we can begin to understand structures that govern its instances or how it manifests itself. In this case, what *is* the process for facilitating interaction in the distance learning environment?

Beyond a mere reporting of an act - referred to as "thin description" (Glesne & Peshkin, 1992), phenomenology utilizes "thick description" (Geertz, 1973) which seeks to "describe and probe the intentions, motives, meanings, contexts, situations and circumstances of action" (Denzin, 1988, p.39). Because of the nature of this study, sciences that emphasize statistical relationships among variables or the frequency of specific behaviors would be unsuitable tools.

Participant Selection

Data were collected from five faculty members who had traditional classroom teaching experience and had taught in the University's Distance Learning Center two-way audio/video tele-classrooms. The five faculty se-

lected were active members in the University's Distance Learning Faculty Development Program and actively consulted with the University's Distance Learning Team. The number of participants was limited to five because of the feasibility of conducting large numbers of in-depth interviews and the complexity of protocol analysis.

Interview Procedure

As stated earlier, the aim of phenomenological research is to gain a deeper understanding of experiences. To ensure a thick description of the phenomenon - interaction in the distance learning classroom - data were collected with open-ended, tape-recorded interviews.

The phenomenological-based Action-Reason-Thematic Technique [ARTT] (Peters, Johnson, and Lazzara, 1981) provides for an interview-analyze-interview cycle that examines actions taken by the participant and reasons for taking those actions [see Appendix A]. The first step in the interview process is to identify the problems or tasks as defined by the participant. In this study, the participants (Distance Learning Faculty) were to identify problems they experienced while teaching a tele-class. Two conditions apply to this step: 1) the

problem/task must be directly related to the role of the participant as teachers; and 2) the participant must have actually attempted to solve the problem/task by taking one or more specific actions toward reaching a solution (Peters, 1990).

The core of the ARTT process is to examine the actions and reasons for the actions taken to solve the problems. Two broad questions utilized throughout the interview process for probing include: *What* did you do? and *Why* did you do it? By examining faculty experiences with tele-teaching, opportunities were provided to identify and describe specific problems they encountered in teaching a telecourse and actions they had taken to solve the problem. Further probes provided opportunities for identifying and describing their reasons for taking each action. Operating within the parameters of the research problem - to clarify and conceptualize the process of interaction in the distance learning classroom - the interviewer investigated those problems and actions related to facilitating interaction.

The final step of the ARTT process reduces the actions and reasons into themes. In this study the themes relate to the process of facilitating interaction in the distance learning classroom. From these themes a conceptual map was developed in order to conceptually rep-

resent the five instructors' understanding of the process of facilitating classroom interaction.

Data Collection

The five faculty members were initially contacted by phone to participate in the study. A letter outlining the nature of the study, interview procedures, and statement of consent (see Appendix B) was mailed to each participant. Because the nature of the ARTT technique allows for follow-up interviews for clarification, participants were notified of the potential for second and possibly third rounds of interviews. Using electronic mail, initial interview dates were scheduled beginning in September 1994.

Each interview began with a greeting and a brief review of the interview procedure, including the use of an audiotape recorder for transcription purposes. Participants were reminded of the informal nature of the interview and encouraged to ask questions about the procedure. The consent forms previously mailed were collected. Given their informal structure, the interviews generally lasted from thirty minutes to one and one-half hours. In addition to audio-taping, handwritten notations were scripted. These were used as reminders for

points needing further clarification or for specific gestures that could not be captured on audiotape.

After assigning a pseudonym, demographic data were collected, specifically years teaching (in the traditional and distant classroom); content area(s) for teaching in the tele-classroom; and faculty status (Associate or Full Professor, Adjunct faculty). Following Peters' (1990) recommendations for beginning the ARTT interview, this process provided each participant with an opportunity to feel comfortable with the interview procedure and establish trust in disclosing information about themselves and their teaching practice.

First Interview

After collecting the general demographic information, participants were asked to explain how they became involved in teaching a tele-course. Then they were asked to recollect their initial thoughts about teaching in the distance learning classroom and describe the actions they took in planning for their tele-course.

To broaden the scope, participants were asked to describe their tele-teaching experience from the beginning of the semester to the end. Here is where the events and actions for further exploration were identified. Subsequent questions probed for problems they

encountered as a result of teaching in the tele-classroom, the actions they took to resolve those problems, and the reasons for taking those actions. After the first round of interviews, the audiotapes were transcribed and analyzed as described in the data analysis section.

Second Interview

After the initial analysis of the first interview transcripts, a second interview was scheduled with participants. The purpose of the second interview was to clarify points made during the first interview. This included actions that had not been identified, reasons that needed to be clarified or elaborated upon, as well as new questions generated from the first interviews.

It was during the second interviews that more detailed reasoning for the actions each participant took regarding the facilitation of interaction in their tele-classrooms was revealed. These interviews provided opportunities to direct questions and probes regarding the techniques the participants utilized to facilitate interaction in their tele-classrooms, to examine instances where they felt interaction was facilitated in their tele-classrooms, and to examine their definition of interaction.

Data Analysis

The interview transcripts were searched for recurring themes. Words or phrases that expressed recurring themes were circled as tags for coding purposes. These tags represented the participant's experiences with interaction in the tele-classroom. This procedure is called a thematic reduction (Lazzara, 1985). These words and phrases became a working set of codes for describing the participant's experiences. These "first-level codes" (Miles & Huberman, 1994) were a device for summarizing the larger segments of data.

To reduce the large amount of data from the first transcripts into smaller units, the first-level codes were merged and/or revised to identify their properties and the relationships among them. This involved "identifying, coding, and categorizing the primary patterns in the data" (Patton, 1980/1990, p.381). From these new groups emerged the "pattern codes" (Miles & Huberman, 1994). Utilizing guidelines from their description of discriminant sampling, Lincoln and Guba (1985) suggest these pattern codes should be added to the first-level list of codes and tried out on the second set of transcripts to see if they fit. The patterns that emerged from the data reflect those recurring themes of action

and reason within the context of facilitating interaction in the tele-classroom. The results were the themes associated with facilitating interaction in the distance learning classroom.

In addition to examining the data for themes representing the actions and reasons for facilitating interaction in the tele-classroom, conceptual maps were developed. By visually presenting the component codes in a network display, interconnectedness of the components becomes visible. It provides a new perspective for the themes. These maps, presented in Chapter 4, contain the factors (as described by the participants) associated with facilitating interaction in the distance learning classroom and tele-techniques for facilitating interaction.

Chapter Summary

This chapter described the context of the study. A brief review establishing a need to understand the process of facilitating interaction in the distance learning context was presented along with a restatement of the importance of conducting such research from instructor's experiences. Given this context, a discussion of the role of phenomenology followed.

A brief description of the participant selection process was presented. This was followed by a description of the interview procedure. Data collection procedures were presented followed by a description of data analysis methods.

CHAPTER IV

FINDINGS

Introduction

The purpose of this study was to clarify and conceptualize the process of facilitating interaction by identifying and describing the tele-classroom experiences of a select group of distance education practitioners. Interviews of five faculty members with traditional and tele-classroom teaching experience were conducted to examine their experiences with facilitating interaction in their distance learning classrooms.

The results of those interviews and the subsequent themes emerging from the data are summarized and discussed in this chapter. It is presented in seven sections: 1) Participant Profile; 2) First Thoughts About Tele-classroom Teaching; 3) Problems in Tele-classroom Teaching; 4) The Role of Experience, 5) Tele-techniques; and 6) Interaction Defined. A seventh section includes a conceptual map containing the factors, as described by the participants, for facilitating interaction in the distance learning classroom.

Participant Profile

The first round of interviews focused on collecting general demographic information and examining how each participant became involved in tele-class teaching. In addition, participants were asked to recollect their first thoughts about teaching in the distance learning classroom and describe the actions and reasons they took in planning for their tele-course.

All of the participants were full-time faculty members with traditional and tele-classroom teaching experience. Averaging fifteen years of traditional teaching, each participant had at least one semester of two-way audio/video tele-classroom experience, with some having additional experience with videotaped teaching. Faculty status included one Assistant Professor from the College of Engineering; three Associate Professors from the Colleges of Communications, Human Ecology, and Library and Information Sciences; and one Adjunct Associate Professor from the College of Human Ecology.

When asked how they got involved in distance education, a common thread emerged. Four of the five faculty members were selected to teach in the tele-classrooms because of their previous experience with inter-

active teaching, as student and/or as teacher, or they were identified in their department as having a "technology orientation." Faculty #1 responded:

> "I'm a very technology oriented person. I like to try different things."

Faculty #4 said:

> "I just, you know, was a natural for the technology. It was something new, and that's what really turns me on."

Faculty #5 was selected "because his course came up on the Department's rotation of courses."

While describing how they became involved in tele-class teaching, all spoke of a familiarity with technology. Each faculty member had used various technologies and media-based resources in their traditional teaching practice for instructional, communications, and/or management purposes.

First Thoughts About Tele-classroom Teaching

To ease into the process of talking about one's practice and examining problems associated with that practice, each faculty member was asked to recollect those first thoughts in planning for their tele-class. Two themes emerged. First, each faculty member reported there was a different structure to teaching a

course in the distance learning environment. Furthermore, a concern for the needs of students at a distance existed within this structure. Second, some of the faculty members expressed the need to dramatize and add humor in their tele-class for student motivation. From these recollections surfaced the problems they associated with teaching a course at a distance.

Restructuring the Course

While examining the idea of a different course structure, each faculty member noted he/she had previously taught his/her tele-course in a traditional classroom. Although most had used a lecture format in their traditional teaching, they said it would be an ineffective strategy for reaching students at remote sites. Faculty #1 reasoned:

> "I wanted to make sure there were points where they could ask questions, or you know, allow interaction there to make them feel a part of the course."

She began to rethink the lecture format by taking her previously generated lecture notes, breaking down the information into smaller parts, adding discussions, and preparing questions to stimulate discussion. All the while, she recalled:

> "I was always concerned about the people at the

remote sites. I don't think they were as involved in the discussion process."

The same was heard from Faculty #2 as she described her concern for students at a distance and feeling a need "to make them feel part of the course." Faculty #3 and #4 offered similar concerns. This is consistent with the literature reporting reduced student interaction as a barrier frequently cited by distance learning faculty (Clark, Soliman, & Sungaila, 1985; Siaciwena, 1989; Scriven, 1986; Dillon, Hengst, & Zoller, 1991; Parer, 1988; Johnson & Silvernail, 1990; McNeil, 1990; Gunawardena, 1992).

Using Drama and Humor

In addition to examining the effectiveness of the traditional lecture strategy, faculty members' first remarks about tele-teaching included another theme. This was a need to add drama and humor to keep the tempo moving; an idea clearly consistent with the results of research conducted on student perceptions of effective teaching at a distance.

Faculty #3 said dramatizing the content for student motivation was important because he realized the course content "wasn't real exciting content." In addition, the course was offered late in the day and

students worked full-time, therefore,

> "dramatizing the content would motivate and excite the students and create a tempo for moving at a pace that would be entertaining and educational."

In planning for his tele-course, Faculty #4 also thought about ways to motivate the students given the time the course was offered.

> "Most of the students would have worked a full day and already would be at home with their shoes off, relaxing, during the class hours."

Humor was used in a similar fashion for Faculty #2. Although her tele-course was offered in the afternoon, "it was a required course and that sometimes decreases student motivation." In discussing her use of humor for motivation, she admitted;

> "I'm not a good joker, but occasionally throwing in something...to keep it light. I wanted to make it interesting and provide a little diversity."

Use of humor as a tele-technique is discussed in the fifth part.

Problems in Tele-classroom Teaching

Faculty members were asked to describe their tele-teaching experience from the beginning of the semester

to the end. Most discovered concentrating on their successes and difficulties to be a manageable way to describe their tele-teaching experiences. The difficulties (problems) quickly became the focus of their descriptions. Those problems included an initial resistance to changing content and/or strategies for tele-classroom teaching, amount of planning time, logistical and administrative issues, flow of communications, and technical difficulties.

Initial Resistance to Change

The faculty members commented on their initial resistance to change in order to teach in this new environment. Faculty #1 approached teaching in the tele-classroom as a "project" and "wasn't going to do it if she couldn't keep it manageable." Her first thoughts were resistant to changing the syllabus - until she began thinking about the course and realized the varied teaching capabilities available for teaching in a tele-classroom. Faculty #5 was initially interested in "the minimal changes that have to be made to the intellectual content so that I can deliver in this new format." He called himself "a fairly stodgy old-fashioned lecture-oriented teacher." It wasn't until he read articles addressing new ap-

proaches to teaching in a tele-classroom that he "put the intellectual content stuff on hold for a while." In general, the faculty members were not interested in changing their existing course for distance delivery. However, their resistance diminished as they became more acquainted with the tele-classroom.

Amount of Planning Time

Previous research on specific barriers to teaching at a distance cited by faculty include additional work load and lack of time. This is consistent with Clark, Soliman, & Sungaila, 1985; Siaciwena, 1989; Scriven, 1986; Dillon, Hengst, & Zoller, 1991; Parer, 1988; Johnson & Silvernail, 1990; McNeil, 1990; and Gunawardena, 1992. Every faculty member in this study commented on the large amount of time they spent planning for each tele-class.

Although the question asked them to describe their tele-teaching experiences from the beginning of the semester to the end, the extra amount of time needed for planning permeated the events of the semester. Faculty #1 noted she spent more time planning for her tele-course than she had in planning for the same course for traditional classroom delivery; a statement conveyed by Faculty #2 and #5. "Planning, I think,

was one of the biggest things;" a statement by Faculty #3 that summarized the issue of planning time for all of the faculty members.

Logistical and Administrative Issues

In addition to an initial resistance to changing an existing course for tele-classroom teaching and the amount of planning time, logistical and administrative problems became apparent. These included delays in delivering and receiving materials to and from remote sites, more student work to evaluate, and the lack of incentives to invest more time and effort. Faculty #2 commented on the problem resulting from delays in delivery of xeroxed case studies to all of the remote sites;

> "...and some of the times the problem was they [the students] didn't get the material you know in time to even fully participate. You had to plan for that, too."

Faculty #4 admitted:

> "I was sometimes tardy getting all the papers back - fifty to sixty papers takes a day to grade and I don't have a day to take off, so weekends and late nights was when I did them."

Lack of incentives included released time for extra preparation and administrative teaching evaluations not developed for distance delivery courses. Faculty #4

continued:

> "On the Chancellor's evaluation, the question asks 'Is the professor accessible to you?' and the remote students interpret that as 'No.' The problem is distance learning courses are not identified as such on the evaluation reports the Chancellor receives."

These problems clearly support Dillon and Walsh (1992) since logistical and administrative concerns topped their list of barriers to teaching cited by distance learning faculty.

Flow of Communications

The flow of communications and technical issues were two additional problems surfacing during the faculty members recollections. Accompanying these problems was the role of experience.

"There was no free flow of communication [between teacher and students]," according to Faculty #2. A majority reported problems with delivering materials to and from the remote sites. However, this concept of communication extended beyond the paper trail to include facilitating in and out of class questions. Faculty members and students phoned, faxed, and e-mailed outside of class which "took following through on both our parts" to make sure communications had been received and responded to in a timely fashion.

For in-class communications, all of the faculty members commented on the difficulties in facilitating questions between sites. "You lose some time going through the process (asking questions between sites) because of the audio delays," according to Faculty #3. When asking students a question or making a comment, Faculty #5 commented on his communications style;

> "The teacher has to pause longer than is comfortable...to insure that there's a response."

Experience, however, helped the faculty members to feel comfortable with the awkward audio/video delays. Experience also helped the students to become comfortable with talking into the microphones and seeing themselves on the monitors with the audio/video delays. Noted by Faculty #4, "Two or three courses down the road...they'd [the students] be more accustomed to it." An in-depth discussion of the role of experience is presented in the fourth section.

Technical Difficulties

Technical issues posed another problem for the faculty members. Faculty #3 emphasized, "There were less technical difficulties in the traditional classroom." As previously mentioned, all of the faculty members had been active users of various technologies in their prac-

tice prior to teaching in the tele-classroom. Accompanying that active use were technical difficulties. The tele-classroom was no exception. All experienced some degree of technical difficulty in their tele-classrooms, to include, computer software incompatibility, computer system failures, and/or audio/video system failures. With these technical difficulties came frustration. "Technical failure issues..they cause nervousness," Faculty #4 admitted.

One technical failure was all it took for faculty members to arrive for class prepared with alternative plans. Faculty #4 stated, "You don't know when the equipment is going to fail." It became a problem to prepare additional materials to support class activities in case of a technical failure. This reconnected to the problem of time and preparation. Faculty #5 found little return on his investment of time and effort to develop computer presentation programs when they often did not work or were incompatible with the system he currently used in the traditional classroom.

The role of tele-classroom student technicians held another technical issue. Faculty were frustrated with the student technicians rotating shifts throughout the semester. "You need one technician throughout the course...to get to know the instructor's style," Faculty

#3 emphasized. In addition, he noted:

> "Having a high turnover of part-time technicians can result in less professionally developed tapes that others will be seeing."

This feeling of dependency upon the student technicians became a point for examination. Faculty #3 stated:

> "I felt that I didn't have control of the technology. I had to ask someone to show the Elmo [overhead projection device] or computer screens. Had to give verbal commands that were disruptive."

All of the faculty members were accustomed to running their own technologies in their traditional classrooms - determining when and where to insert activities. If the computer system failed in the traditional classroom, the faculty members were familiar with appropriate shutdown and/or re-booting procedures. Experience in the tele-classrooms lessened the dependency faculty members felt upon the student technicians for help with technical failures.

The Role of Experience

Examining the faculty members' actions and reasons for those actions in the tele-classroom raised a question about the role of experience in teaching at a distance. The role of experience existed in several cat-

egories, to include a general unfamiliarity with teaching a tele-class, maintaining sensitivity to student needs, and drawing upon parallel experiences with television-based production. In planning for their telecourse, most of the faculty members recalled feeling their lack of experience teaching in an interactive tele-classroom. Faculty #1 commented:

> "At first I felt it wasn't a flexible classroom, but if I had more experience, I would change my mind."

Faculty #5 admitted he "was unfamiliar with teaching in an interactive environment," coupled with his involuntary selection to teach a tele-course, which caused a negative reaction, initially, to teaching a distance learning class. This was exacerbated by a colleague who openly discussed his negative experiences in teaching an interactive course the previous semester.

Regardless of their experience, or lack of, with a distance teaching medium, experience played a role in maintaining sensitivity to student needs. In the tele-classroom, for example, "staying on your spot" is recommended so the picture received at the remote sites is not blurred with excess movement. Most of the faculty members found it difficult to change the "pacer style" they had established in the traditional classroom to sit

in one spot. In fact, Faculty #4 said:

> "I changed my style to sit on my spot, but this was hard because students are tired after working all day and they need stimulation."

Keeping the student needs in mind, he continued:

> "I figured if technology can't change for me and I can't change technology, then I can change my style and I have done that a lot."

However, Faculty #4 was concerned that some of the changes he made to teach in the tele-classroom - like staying on his spot - were affecting the way he taught in the traditional classroom. He noted a particular situation where he received feedback from an on-site workshop participant that he "wasn't really as good as [he] used to be." Reflecting on this comment, he realized he sat in the same spot during the workshop. However, on the opposite end of the gamut was Faculty #1 who was encouraged that her teaching in the tele-classroom would have a positive effect on her traditional classroom teaching.

> "It's not the way I was taught, nor the way I had been teaching. ... I opened up to thinking about my traditional classroom teaching and maybe I could change that, too."

Other aspects of maintaining sensitivity to student needs included not putting students on the spot with questions while the camera is focused on them. Faculty

#3 stated, "I've been put on the spot all my life and it's not too comfortable." Another aspect was teaching from the remote sites to "get a feel for the remote student's environment." These techniques are further elaborated in the next section on tele-techniques.

Those faculty members having experience with teaching and learning at a distance, either as student or teacher drew upon their experience during the planning for their tele-class or while examining their problems with tele-teaching. Having taken some videotaped courses as a graduate student, Faculty #2 recalled her experiences:

> "I just didn't feel that I was part of the class. ... I missed being able to interact with the instructor immediately."

She clearly remembered having to work all day and how difficult it was to maintain concentration. As a result, in planning for her tele-class she felt it was "important to offer some diversity in presentation."

Two of the five faculty members had produced a community television program for three years. During this experience, they had worked with television cameras, technicians, crews, scripts, sets, and editing with "professional looking tapes" as a result. That experience carried over into the tele-classroom when technical issues became a problem. Both felt they didn't have the

same control of the technologies in the tele-classroom they had been accustomed to having in the television studio. However, they were quick to note that tele-classroom teaching had a different set of problems than those experienced in the television studio and only experience would offer them the same level of familiar comfort.

Tele-techniques

While recollecting first thoughts and examining problems they associated with tele-class teaching, the faculty members revealed techniques they had utilized for teaching at a distance. During the first round of interviews, these techniques surfaced frequently in response to probes regarding restructuring their traditional courses, amount of planning time, technical difficulties, or flow of communications. As a result, each faculty member was asked to describe the techniques they utilized for tele-teaching and the reasons for using those techniques during the second round of interviews. From their descriptions of these techniques and reasons for utilizing them, three distinct categories of techniques emerged: presentation, planning, and instructional (see Appendix C).

Planning Techniques

As discussed previously, all five faculty members commented on the large amount of time they committed to planning for their tele-class. From their descriptions, a process for planning clearly emerged - a process they used on a macro level during their initial thinking about teaching in the distance learning classroom and returned to on a micro level throughout the semester. The process for planning, or planning techniques included 1) looking at the entire course, 2) examining current teaching practices, 3) being open to new strategies, 4) examining the course content, and 5) using diversity in presentation. The planning techniques section of Appendix C follows in Figure 1.

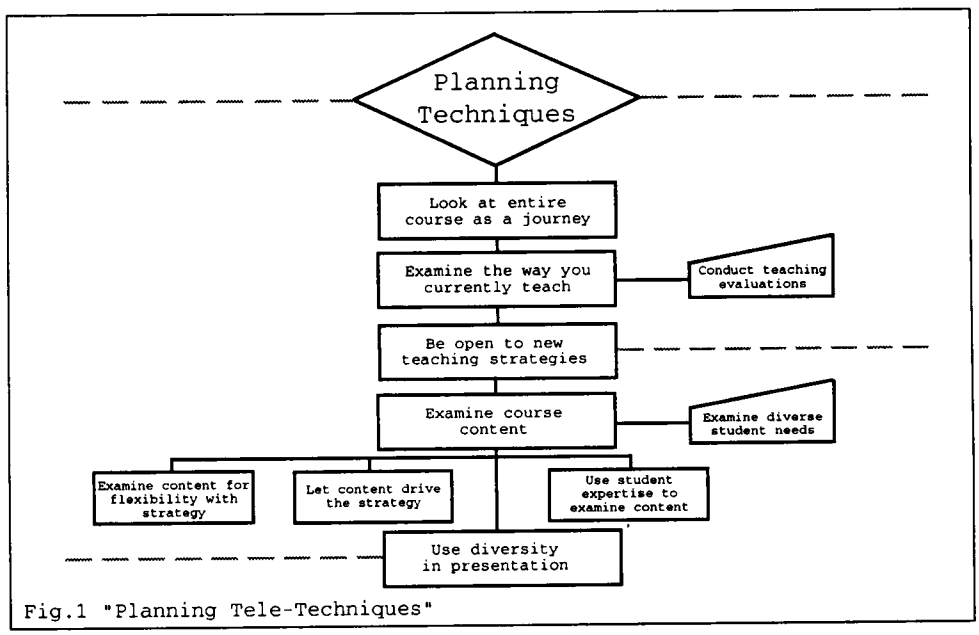

Fig.1 "Planning Tele-Techniques"

As identified in Figure 1, faculty members noted the importance of taking a macro approach by looking at the entire course. This clearly supports Carl's (1986) suggestion that faculty need to examine how teaching to distant students alters a course designed for on-campus instruction. Faculty #1 commented:

> "The first step to planning for my class was to look at the course like a journey...with a beginning and an end and various points of interest in between. Where did I want the students to be by the end of the course? What were the course goals and objectives?"

In addition to examining the entire course, all of the faculty members agreed it was important to examine the way they were currently teaching in the traditional classroom for applications in the tele-classroom. However, it was important not only to examine one's teaching on the front end of planning for a tele-class, but it was important to take a micro approach by conducting midterm teaching evaluations from students as well as watching videotapes to critically assess teaching style(s). As noted by Faculty #3, "...you can get immediate feedback about yourself by looking at your [video]tape."

Being open to new teaching strategies was a critical factor emphasized by all five of the faculty members. Faculty #2 noted she had taken some graduate

courses at a distance and felt it was important to keep the presentations diverse.

> "I just didn't feel that from my experience, I didn't feel that I was part of the class. ...I realized it was important to offer some diversity in presentation, something, you know, to help the student to be able to stay alert. ...You have to be open to new strategies."

Faculty #5 admitted that:

> "...most of my planning thoughts went to the intellectual content as I had it captured, lecture notes, outlines, reading lists, or whatever and I guess my thought was what are the minimal changes that have to be made to the intellectual content so that I can deliver it in this new form, format, or what have you and shortly thereafter I began to receive material from [The Distance Learning Faculty Development Team] which encouraged me to think more about planning in terms of pedagogy."

Being open to new teaching strategies was mentioned concurrently with examining the course content for applications with different strategies. Three sub-themes emerged. One, it is necessary to examine the course content for flexibility with different strategies. Faculty #2 had previously used a class team project in her traditional course where

> "...we broke the components of the project into individual assignments that built on each other until they had the final project completed, but [re: the tele-course] I was real leery as to how well they would be able to get together to work in teams, so that semester I did leave it as individual projects."

Two, it is necessary to let the content drive the strategy. According to Faculty #4;

> "...it [the course] really involved working with teams in the class, in groups and the instruction focused on how to maximize group activities. ...I was teaching a class that was utilizing human resources. So to me it was important that the people learn how to talk to each other."

Three, it is necessary to use student expertise to examine the course content. Two ends of the gamut were noted since different courses attract differing levels of student expertise. For Faculty #5, his course was an introductory survey course "where students typically have little knowledge or background." As a result of the student experience, or lack thereof, with the content, he would

> "...read a lot, interact with the profession... talk with people..synthesize a lot of stuff and then you deliver that stuff to the students in lectures that you hope are relevant and current as well as organized."

For Faculty #3 it was an opposite situation:

> "...we had a lot of expertise out there and I'm the facilitator of learning. I'm not the person with all the knowledge."

While it was important to examine course content for applications with different strategies, it was also important to examine the diverse needs of the students. Strategies were selected according to their "fit" with

the content, "fit" with the faculty member's style, as well as "fit" with the different needs and experiences of the students. Another consideration, approached from the macro and micro perspective was the importance of using diversity in presentation. This led to identifying presentation techniques.

Presentation Techniques

When asked to describe the presentation techniques utilized for tele-class teaching, several were identified by the faculty members. These were grouped into three categories: 1) location, 2) visuals, and 3) tele-presence. The presentation techniques section of Appendix C follows in Figure 2.

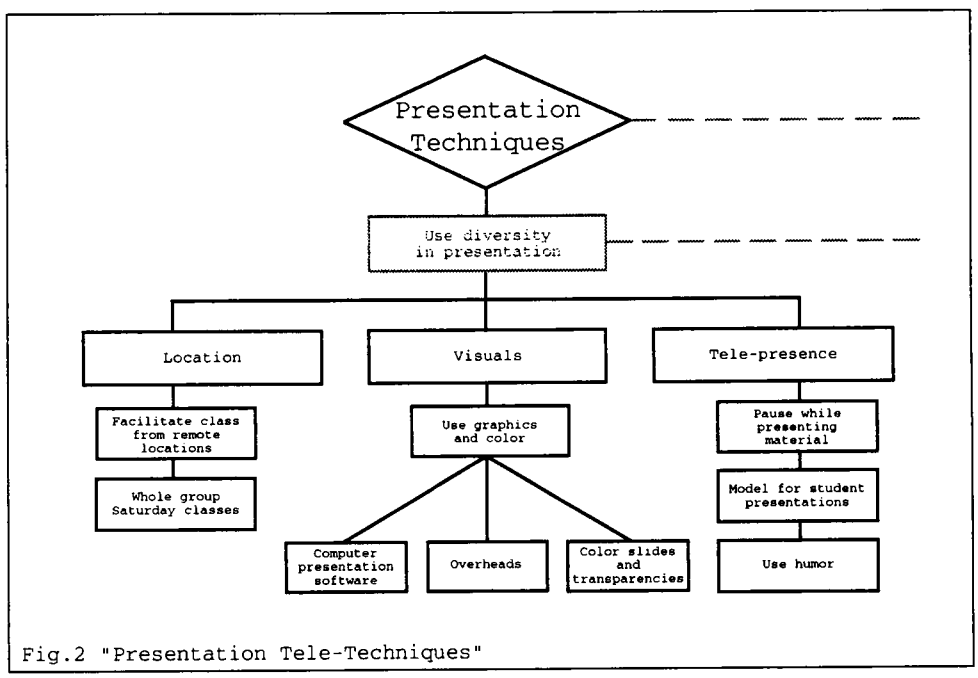

Fig.2 "Presentation Tele-Techniques"

Location

While examining their tele-course from the beginning to the end of the semester, most of the faculty members noted the importance of facilitating class from remote locations and/or bringing all of the students together for whole group classes on Saturdays. It was suggested by Faculty #5 that physical proximity to the teacher facilitated interaction:

> "...about 80 percent of the participation came from the [home] site and perhaps because of the physical proximity to the teacher."

Teaching from the remote sites was important for the faculty members because it gave them a perspective for understanding the remote students' operating environment. According to Faculty #4:

> "...It would be nice just to go look at the [remote] classroom and see what they're in because obviously the environment the person's in affects how they learn so if the classroom is conducive to learning or not conducive to learning I think you should be aware of that, I mean if the ventilation's good or bad or is the seating arrangement good or bad or whatever it may be."

In addition, they felt it was important for students at the remote sites to see and interact "face-to-face" with the teacher. It would also help to develop a rapport with their students and show their interest in them. As clearly stated by Faculty #5:

> "I think it would be good for the [remote site]

> students for me to actually be there on site and I think having been on site and had a face-to-face kind of interaction, then when I came back to [the home site] and they were once more the distance site I think that would make a difference."

Also noted by Faculty #4:

> "...if my schedule will release me of time to drive to [another site], I will do that. And I will teach a class from [another site] and I will be there early and I will stay late so that they'll get to know me."

He also thought it would be educational for the students at the home site for they would have a perspective of what it was like being the remote site students.

Bringing students together for whole group meetings was another presentation technique practiced by the Faculty members. Most of these meetings occurred on Saturdays due to travel distance and weekly schedule conflicts. There were two perspectives for their rationale. First, they felt it was important for the students to meet face-to-face, and second, it allowed those with late evening classes to shorten them. According to Faculty #4:

> "I decided to get that personal connection that I would require the students to come to campus two times and meet on a Saturday and we'd meet just about all Saturday and so we did that and they said they liked that a lot..."

However, it was not always convenient for faculty members to meet on Saturdays, as Faculty #3 sums pointedly:

> "...I went through the process of trying to ascertain as to their desire if they want to stay until 10:25 at night or come on Saturdays and they indicated that they wanted to come on Saturdays which to me I would prefer to stay to 10:25 at night so it was a sacrifice on my behalf to give up two precious Saturdays to do this."

When questioned about his spending the time on Saturday meetings, he was quick to note that as instructor he

> "...should be a facilitator of learning...and really look at the total group and say what's the best way you [the students] learn and try to accommodate those students."

Not all of the faculty members had Saturday class meetings. Their reasons ranged from not having the time to think about alternative scheduling since this was their first tele-class, to students expressing disinterest when approached with the idea. However, when questioned if they would consider having Saturday classes in their future tele-classes, they indicated a willingness to try it next time if the students were interested in committing one or two Saturdays.

Visuals

Use of visuals was another presentation technique utilized by the faculty members. Each of the faculty members spoke of the importance of using visuals that incorporated graphics and color as a method for stimulating student interest. Three types of visuals were noted in particular. These included use of computer presentation software, overheads, and color slides and transparencies.

As Faculty #2 commented on the need to diversify presentations, she mentioned "using the presentation software and using pretty colors." She thought that helped to keep students alert and interested in the material. In fact, at the end of the course, student feedback was very favorable towards use of the computer presentation programs and noted they would like to have seen it for every class. She admitted it was too time consuming during this first tele-class to have a computer generated presentation program developed for every class, but would keep their recommendation under consideration for future tele-classes.

In addition to computer presentation programs, the faculty members used overheads and/or color slides and transparencies to stimulate student interest. As Faculty #3 stated:

> "See, you've got to remember I'm teaching people at night and they're tired. They've been working all day. They're tired and they come up here and they don't want you to sit there and lecture to them, so I would walk around the room. Well that movement makes a fuzzy image at the remote sites...so I used color transparencies and computer-generated graphics and if I'm sitting on my spot, the camera can put me in a little box in the corner with the visual and still see enough of my face that we can get a little bit of that emotion out on the screen without the dizzy image from my movement."

All of the faculty members confirmed Faculty #3's statement that students were more stimulated when the technicians simultaneously projected the faculty member's face with supporting visuals rather than just focusing the camera on the faculty member or visual.

Tele-presence

The third presentation technique identified by the faculty members was the concept of tele-presence, or how their image and communications style was projected. As stated by Faculty #3:

> "I think the tele-presence that you present in the distance learning class is probably more important than what you present in a traditional classroom. Your mannerism, your appearance I think, because the camera's picking up your image."

Each faculty member believed the image they projected was a major link to interaction, especially for re-

mote-site students. Three tele-presence techniques they identified included pausing while presenting material, modelling for student presentations, and using humor.

Pausing while presenting material was important to the faculty members because of the delay in audio/video transmission. Generally there was a two to three second delay in transmission, therefore periodic pausing provided opportunities for students to ask questions or make comments. Pausing was especially important during multi-site class discussions of fifty to sixty students. It also accompanied the development of good listening skills according to Faculty #4;

> "If you're being trained to be a good listener which was one of the things that we focused on in the class, then you've got to be able and willing to let other people have their chance."

Pausing during presentations also supports the idea of modelling for student presentations as it was important for students to pause during their own presentations. In addition to pausing, faculty members felt it was important to model using computer presentation programs and overhead transparencies so students might utilize them in their own. According to Faculty #1:

"I've noticed consistently in all classroom situ-

> ations that how you present your material is exactly what they'll get up and do."

However, along with the successes of using a program, technical difficulties were just as valuable a lesson. As Faculty #1 continued:

> "They saw me fumbling around with PowerPoint or Persuasion [computer presentation programs] and I think that's good for it shows that it takes some lead time to prepare and become accustomed to using it. Most of the students used the computer during their presentations and weren't too upset when they experienced some technical difficulties because they had seen me do the same."

Using humor was another tele-presence technique all of the faculty members felt was important for developing a rapport with students and breaking down the barriers of distance. In addition, humor relieved the tension during technical difficulties as well as helped the students to relax around the technologies, especially if it was their, both the faculty member and student's, first experience in a tele-classroom. As Faculty #1 stated:

> "Laughing in the face of technical difficulty made the technology seem less in control. The students relaxed and I relaxed."

The concept of humor as an instructional technique in the tele-classrooms is presented in the next section.

Instructional Techniques

While examining the techniques used for planning their tele-course, the faculty members emphasized the importance of being open to new teaching strategies. As a result, they were asked to identify those techniques used for instruction. Three categories of instructional techniques emerged: 1) front-end activities; 2) questioning; and 3) individual and group activities. The instructional techniques section of Appendix C follows in Figure 3.

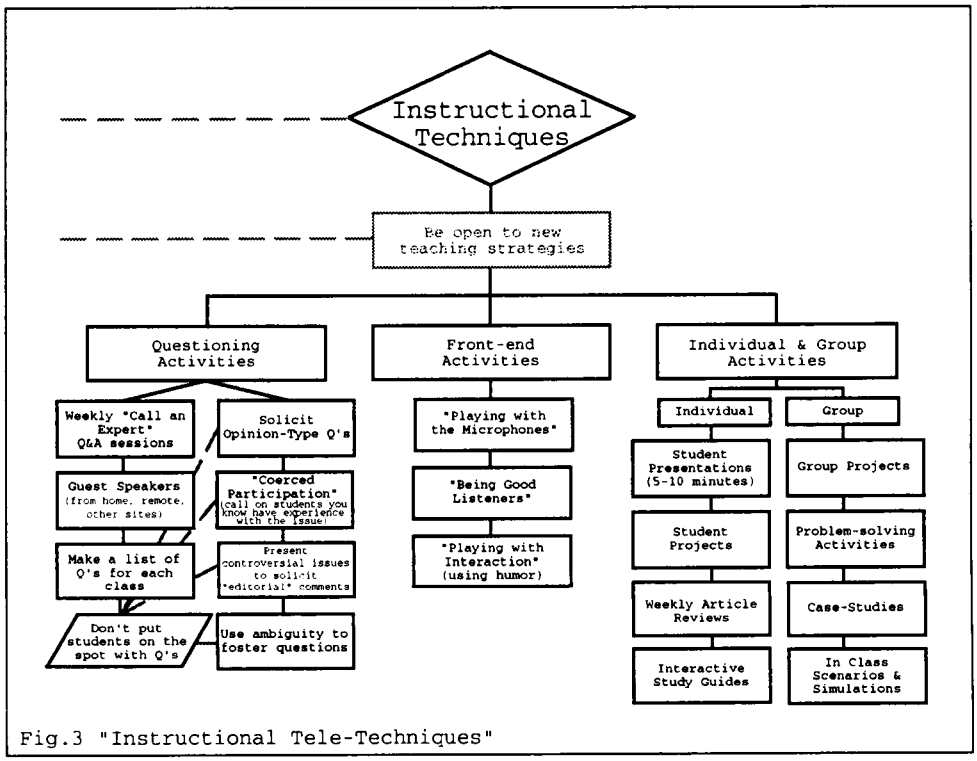

Fig.3 "Instructional Tele-Techniques"

Front-end Activities

As mentioned previously, adjusting to the technologies of a tele-classroom posed a problem not only for the instructor, but for the students. The faculty members were quick to note the importance of experience for adjusting to the variety of technologies and potential failures of those technologies. Students were not immune to the "newness" of the technologies as they required adjustment time as well. As a result, faculty members developed front-end activities to help the students become accustomed to the variety of technologies and begin feeling comfortable with communicating through them. Although coined by Faculty #4, the activities/exercises were utilized in some fashion by all of the faculty members. They included "Playing with the Microphones," "Being Good Listeners," and "Playing with Interaction."

In the tele-classrooms, the student microphones were push-to-talk and the instructor's was an open microphone. This meant that in order to be heard at all of the sites, students had to depress a button, and talk into the microphone sitting on the desk in front of them, releasing the button when finished. Regardless of their site location, when a student depressed the button, the system cameras switched to

that site. Only the instructor's microphone could override a student's microphone. Since most of the students had no prior experience in the tele-classroom, many found the act of pushing the microphone to be heard awkward or forgot in light of having something urgent to say. Therefore, "Playing with the Microphones" was one of the first activities each of the faculty members introduced to their students. As described by Faculty #4:

> "We spent a lot of time playing back and forth on the microphones. I spent less time talking and we spent more time playing, you know, talking to one another."

Faculty #1 described the microphone activity she used at the beginning of the class.

> "That first night, every student had a chance to introduce themselves and make a statement or two about anything they wanted. Some talked about their families, children, jobs and other told us about their hobbies. A couple [of students] mentioned how strange they thought the microphones and classrooms were, then everybody agreed and we felt a little more comfortable recognizing that."

Even with the front-end activities, students sometimes forgot to push-to-talk and had to be reminded by the instructor, another student, or by the technicians flashing a message, to that effect, across the monitor.

"Being Good Listeners" was another activity de-

scribed by the faculty members. More students created more opportunities for disruptions. Recognizing this, faculty members thought it was important to work with the students to not interrupt while someone else was talking. Faculty #2 and Faculty #4 used a visual cueing process where they would raise their hand if they noticed or heard another student trying to say something and the technician could focus the camera on them. Then the other student could make his/her point. Faculty #4 noted:

> "To be a good listener, you've got to be able and willing to let other people have their chance and, so I would cue the class and say well let's give him a chance, we have somebody in Oak Ridge who wants to speak. It took a while for everybody to learn."

Faculty #2 would use the open instructor's microphone to override the student microphone if too many students tried to talk at one time. Or, they would visually cue the students by having the technician focus the camera on her/him as a reminder to talk one at a time. Since the cameras were voice activated, this prevented excess switching amongst the sites, thereby reducing the dizzying effect of too much camera movement. Faculty #2 continued by noting this was hard for students to learn.

"You know yourself, Julie, that when you have a

> conversation with people, sometimes your best thoughts come in mid-speech and you really want to talk, don't you, particularly when you're in a group."

Humor had many roles in the tele-classroom, but as a front-end activity, it was used to facilitate interaction. Most of the faculty members reported having students bring in a joke/riddle-of-the-day or humorous drawing/cartoon to start-off the class. The result was students made comments to students at other sites about the joke at hand or a parallel one they had heard. They were interacting. As Faculty #3 stated:

> "It gave the students a comfortable forum to talk to each other, especially at the beginning of the semester."

In addition, it gave students an opportunity to see themselves on camera, work with the push-to-talk microphones, and hear their voice over the audio system.

Questioning Activities

According to the faculty members, facilitating questions was a difficult, but important aspect of teaching in the tele-classroom. It was difficult because of the audio/video delays as well as the large numbers of students to facilitate. It was important

because of the non-contiguity of the instructor and students.

The faculty members identified several activities they utilized in their tele-classrooms. These included weekly "Call an Expert" question and answer sessions, soliciting opinion-type questions, using "coerced participation," presenting controversial issues to solicit "editorial" comments, using ambiguity to foster questions, and making a list of questions for each class. Overshadowing each of these activities was strong support from the faculty members to never put students on the spot with any questions.

Faculty #3 utilized the weekly "Call an Expert" question and answer sessions. He got the idea from watching David Letterman where he would actually call someone up and ask them a question. Faculty #3 would call an expert in the content area and "get their opinion on certain things." Since he didn't make arrangements in advance with the "expert," once or twice he called when the expert was eating dinner or sleeping. But for the most part, using spontaneity was good and the students really got involved with asking the "experts" questions. However, he admits it was difficult for all of the students to get an opportunity to talk.

> "There were just too many and not enough time. I had to be careful not to really cut anybody off that felt like they were contributing something to the class."

Faculty #1 had a similar practice, but instead of calling the "expert," she invited the guest speakers to join the students at different sites. If the guest was from Kingsport, they participated from the Kingsport site. She felt that "brought the class closer," not to mention made it easier to invite guests from across the state instead of just those local to the home site. At one point in the semester, a guest speaker did not have convenient access to any of the sites. So, Faculty #1 arranged for the guest to participate from a fourth classroom that was part of the University tele-system, but had no students enrolled in the course. "That time *everybody* was a remote site," she emphasized, then smiled.

Soliciting opinion-type questions, using "coerced participation," and presenting controversial issues to solicit editorial comments were techniques practiced by all of the faculty members. Instead of asking yes/no or correct/wrong types of questions, most felt it was important to move the students towards the higher end of Bloom's taxonomy to solicit synthesis types of answers. When asked how students reacted to his pre-

sentation of controversial issues, Faculty #5 replied:

> "They tend to perk up and they tend to make editorial comments about whether they think it's good, bad, or indifferent. So when I had the most participation was when a student would make an editorial comment... everybody has a comment on a trend or fad."

"Coerced participation" was used similarly, except the faculty members called on students they knew had experience with the issue. Although coined by Faculty #5, Faculty #3 described such a situation. After reading the student information sheets collected at the beginning of the semester,

> "I may say, 'John, you've been with [a company] for twenty years as a production manager. In your situation, how would you use that concept?' So again, it's an opening question, it's not a correct way or a wrong way, but he has some expertise."

Another reason faculty members used opinion-type questions and "coerced participation" was to avoid putting students on the spot. Faculty #3 was emphatically opposed to putting students on the spot.

> "I would never call on a student and ask them for a specific answer. If someone asked me to give the answer and I didn't know it, it would be quite embarrassing perhaps, probably have me avoiding participating in future classroom discussions."

He continued by noting the camera would be focused on the student and their embarrassment would be recorded

on videotape. Faculty #3 recalled the negative reactions he received from students early in his teaching career when he called on them by name to answer specific questions. "I did it early in my teaching life and students were embarrassed and reacted to is somewhat negatively." Faculty #2 remembered her own experiences as a student and promised to never put her students in the same position. "It's embarrassing when all you can see is your blank face on a big monitor."

Another questioning technique was the use of ambiguity. Faculty #1, #3, and #5 felt that giving students a printout of the presentation slides or a copy of the lecture outline inhibited participation. Summed by Faculty #5:

> "It seems to be that because everything seems to be laid out by the numbers one, two, three and then the teacher goes over things one, two, three I think in a sense that inhibits participation."

He felt that if it's all laid out for the students, they may feel they don't need to ask anything. So, he would leave certain words, lines, phrases blank for students to fill in the information.

As previously stated, all of the faculty members realized the difficulty of facilitating questions in their tele-classrooms. Faculty #1 felt "the hardest

situation for students and myself was to generate discussion," so she made a list of questions for each class. She also had the students make a list while the class was going on to accompany the list they made from the week's readings.

> "I usually made a list of questions so that if there's going to be a problem with students generating discussion, then I could ask one or two of the questions from my list. Frankly, I can't really recall if I had to use that list. Most of the time the students used questions from their lists."

Faculty #2 found that to be a practice amongst several of her students, though not suggested or requested by her. "If someone was talking and they had a question, they would write it down and wait for the talker to finish." This was evidence of successful front-end activities focused on good listening.

Individual and Group Activities

A third category of instructional techniques identified by the faculty members was individual and group activities. The individual activities included student presentations, student projects, weekly article reviews and using interactive study guides. Student presentations and projects were used in varying degrees. Faculty #5 required students to read a

book and make a brief presentation using established guidelines. Faculty #2 was more concentrated in her use of student projects. Given the project-oriented focus of the course content, students worked on them throughout the semester. Faculty #3 had students develop presentations and encouraged them to use the technologies available in the tele-classroom, such as the computer and overhead projection cameras.

Presentations of weekly article reviews was an activity regularly used by Faculty #1, #3, and #4. Although each was required to submit his/her reviews, faculty members requested volunteers to briefly present their review. While keeping track of "repeaters," faculty felt this activity gave students an opportunity to discuss their work with as well as address questions from their colleagues. Faculty #4 also found the activity good for connecting each week's class.

> "After the joke-of-the-day, I'd ask for volunteers for article reviews. From there we would discuss applications in the field or review a point addressed in a previous class. Sometimes someone would bring up a point that referred to one of the evening's topics. That got us going."

Faculty #1 would ask students for events in the news that related to previous class topics. Again, this was a method for getting students to talk at the be-

ginning of class.

Although discussed in the previous section on questioning activities, faculty also used interactive study guides as an individual activity. Because most of the faculty were concerned that students were being "fed the information bullet by bullet," according to Faculty #5, using interactive study guides more or less forced the students to actively listen to and observe the information as it was delivered in order to fill in the missing sections.

Group activities included group projects, problem-solving activities, case-studies, and in-class scenarios/simulations. For Faculty #1, group projects supported the course content in that professionals in the field participated in team projects.

> "They have to work together. Part of it is in the particular profession that I prepare them for."

Faculty #4 stated,

> "I always have group projects and we'd work along with a lot of other assignments that I give them."

He admitted that it was difficult to monitor the groups off campus, which is a reason he visited the remote sites to check on their projects. Faculty #3 was reluctant to use group projects early in the se-

mester, because he thought "they might wander out and get cokes and go to the bathroom and forget to show back up," and he wasn't well acquainted with them yet to know if they had left.

Faculty #2 frequently used group problem-solving activities. She was "real leery" about using group projects given her concern about the students being able to get together, even though the course was traditionally set up to support group work. However, as students presented problems in their own projects, she turned them into group problem-solving activities. The result was "students working together across sites." Faculty #3 spoke of using in-class scenarios, simulations, and brainstorming activities towards the middle of the semester;

> "as the students became more familiar with each other, and I with them. I didn't feel they would leave class like I did at the beginning of the semester."

However, he did admit to reserving most of the group activities for the whole-group Saturday meetings.

As each faculty member described the techniques he/she utilized for tele-teaching, their concept of interaction emerged more clearly. Further probes uncovered their definition of interaction, which is presented in the next section. Culminating from the

first five sections and their definition of interaction was a process for facilitating interaction, as presented in the seventh section.

Interaction Defined

During the first interviews, the concept of interaction peppered the faculty members' descriptions of their first thoughts in planning for their telecourse. This was noted by Faculty #2;

> "I wanted to make sure there were points where they [students] could ask questions or you know, allow interaction there to make them feel a part of the course."

The concept appeared more frequently as they discussed the various problems encountered in the tele-classroom. Realizing distance learning brings larger numbers of students together, Faculty #3 noted "more students can prevent interaction." Therefore, it became central to many techniques they utilized for tele-teaching. Examples included Faculty #4's "Playing with Interaction" activity and Faculty #5's "Coerced Participation" questioning activity. Noting the unsolicited frequency of this concept, each faculty member was asked to define interaction.

Faculty Definitions of Interaction

Faculty #1:

"It's discussion; students taking an idea generated from another student, or from the instructor, and examining it - generating questions and hypothesizing. It's also being friendly toward one another beyond the content, like when one site sent Easter eggs to everybody."

Faculty #2:

"It's student involvement and it's mutual involvement in that there's immediate feedback and communication flows freely in both directions."

Faculty #3:

"It's making visual or verbal contact. It doesn't have to be verbal - I see them and they see me concurrently. It doesn't have to be vocalized, can just be a thought. It's also being able to respond and express your feelings or thoughts. But, because everyone can't respond at one time doesn't mean they're not interacting - for they're thinking. Silence can also be interaction."

Faculty #4:

"It's a sense you've been taught and you're involved, not just teacher's asking questions and students pushing the microphone button and talking. ...It's having a common need; a common goal. ...It's having a chance to get to know each other."

Faculty #5:

"It's real-time queries. But it's different from participative, as participative means just being able to respond. Interaction is beyond the act of participation. It's using the technology to have everybody see and hear each other, then you can feel involved."

These solicited responses provided the foundation for interpreting a process for facilitating interaction in the distance learning environment, presented in the seventh section. At the core of this foundation was the theme of involvement. As evident from their definitions, involvement was a theme shared by each of the faculty members.

Instructor Role During Interaction

After stating their definition of interaction, each faculty member was asked to think back to a time when he/she felt interaction was occurring and describe their role. "Facilitator" of interaction was the role most of the faculty members identified, clearly removing themselves from a directive role.

While stating her definition of interaction, Faculty #1 referred to students taking an idea and examining it, generating more questions, and hypothesizing. She continued in describing her role;

> "The instructor becomes a facilitator for that examination, keeping the tempo, but staying far enough outside of the discussion to allow for student latitudes."

Faculty #4 concurred by stating;

> "The teacher's role is to get out of the way...they're doing it [interacting], see, not me. They're doing it. I don't have all the an-

> swers. I'm not supposed to. I'm the facilitator."

Drawing upon theories of adult learning, Faculty #4 noted this was a role he utilized in both distance and traditional teaching environments.

Student Role During Interaction

In addition to describing their role during interactive experiences, some of the faculty members described the students' role. For most, the student's role was to take responsibility for their learning. "They [the students] are there to learn. That's their job," according to Faculty #1. In restating her role as facilitator of learning, she added, "If they don't do their job, I can't do mine." Similarly expressed by Faculty #4,

> "It's not for me to come in and teach. It's not for me to come in and perform. They [the students] are there to learn."

He said he felt this was an easy role for students since most were taking his tele-course because they were genuinely interested in the content, not because it was required.

Other student roles included Faculty #3 believing the students should "take hold of the talk" by using

their knowledge and personal experiences. Again, that allowed him to do his job - facilitate. Although her course was required, which she felt reduced student motivation, Faculty #2 believed the students' role was to become involved. "They should have certain expectations of themselves, in addition to those I established for the course."

Descriptions of the instructor and student roles during interaction, accompanied by the definitions of interaction, occupy an important position in the map outlining a process for facilitating interaction in the distance learning classroom presented in the next, and final, section.

A Process for Facilitating Interaction

When asked to describe their tele-teaching experiences from the beginning of the semester to the end, problems faculty members encountered were the quickest to surface. However, there were occasions when they described successful experiences. For the most part, these experiences involved interaction.

While examining these experiences, faculty members described the actions they took to facilitate interaction in their tele-classrooms and the reasons for tak-

ing those actions. A conceptual map outlining a process for facilitating interaction in the distance learning classroom resulted from this examination (see Appendix D).

The conceptual map is organized around three phases for facilitating interaction. Phase One includes the basic premises faculty members established for teaching and learning in their tele-classrooms. Phase Two includes the concept of involvement, central to the faculty members' definitions of interaction, and how it was fostered in their tele-classrooms. Phase Three includes their identification of elements necessary for real-time queries.

Phase One: Basic Premises

One successful experience described by all of the faculty members occurred during their first or second tele-class meetings. This experience related to how the faculty members communicated to the students some basic premises for teaching and learning in the tele-classroom. Each of the faculty members verbally communicated these premises during the initial class meetings. Some reinforced these premises non-verbally using their syllabus.

In addition to communicating some basic premises,

most of the faculty members discussed with students the importance of working together to establish a collaborative environment for teaching and learning in the tele-classroom. Phase One, presented in part from Appendix D in Figure 4, was synthesized from the faculty members' descriptions of their first tele-classes.

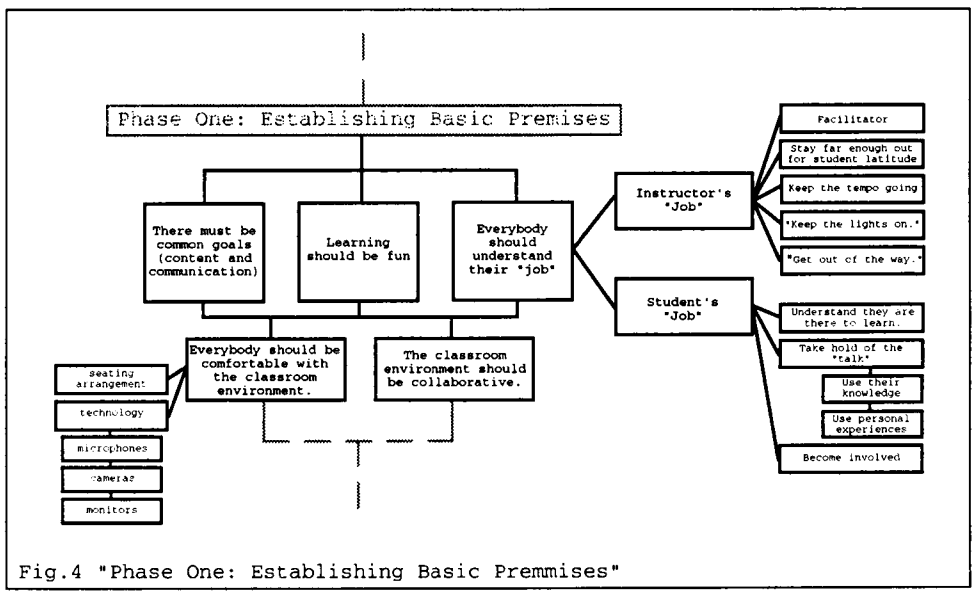

Fig.4 "Phase One: Establishing Basic Premmises"

The need for goals focused on the course content as well as goals on communication in the tele-classroom were amongst the basic premises. Establishing course goals and objectives is a common practice in all teaching environments. However, some of the faculty members added goals focused on communication. On the first day, Faculty #1 said;

"It's important that we communicate with each

> other - with your colleagues in the room **and** your colleagues in the room across the state."

Faculty #2 made a similar statement as she told her students, "We'll have to work together on this [communication]."

"Learning should be fun" was a basic premise Faculty #3 included in the initial class discussions. He realized many of the students worked full-time, the class was offered at a late time, and many of the students were taking the class because "it was the only course offered that semester that fit into their schedules." As a result, he said he felt fun was an important factor for student motivation and learning. In addition to communicating this philosophy, he reminded the students *everybody* was responsible for generating fun.

> "I'm not the only one responsible for making a class fun. It is a shared responsibility. Like knowledge, we all have experiences to be shared...and we talked about that."

A third, and related, premise was understanding the instructor's and students' "jobs." As discussed in the previous section on defining interaction, faculty members identified their roles and the students' roles in the tele-classroom. Part of this identification resulted from experience in the traditional

classroom combined with their initial thoughts about teaching in a tele-classroom. The rest resulted from discussions with the students. During the first class meeting, Faculty #4 shared what he believed to be his role and asked the students, "What's your job in this class?" He also asked the students what they would like from him in addition to the job description he offered.

Creating an opportunity for everybody to feel comfortable with the classroom environment was another basic premise. As discussed in the section on tele-techniques, there were front-end activities utilized by the faculty members to give students opportunities to become familiar with the classroom technologies, such as the microphones, cameras, and monitors. In addition, each of the faculty members provided his/her students with a brief handout to remind them: 1) to push the microphone buttons to talk; 2) not to worry about talking "to" the cameras for "they" will find the student; and 3) no conversation is private given the sensitive nature of the microphones. Another activity used by Faculty #5 was to call names on the roll and have each student raise their hand. This gave the technicians time to focus the camera on the student so everybody could "meet" them. He recalled;

> "I would call roll and have the students wave... it was just a way of kind of breaking down the tension a little bit."

Accompanying the front-end activities was an underlying premise each of the faculty members communicated early in the semester and frequently revisited. That premise was the collaborative nature of the teleclassroom. By soliciting student comments on what they thought to be the instructor's role to making sure students had opportunities to meet and greet each other, the faculty members said they felt they were establishing an environment conducive to collaboration. Recalling their concern for remote site students, faculty members constantly worked to make sure all students understood their participation was vital to the success of the class. This premise remained constant during the semester. Faculty #1 summed it nicely. "You have to fertilize collaboration. It's not something you set up once, then leave alone."

However, important as they were to the faculty members, these premises were basic. They were important because they established the direction of the course. However, it was not enough to establish a comfortable and collaborative environment. As Faculty #4 noted; "They [students] must feel that they're

working together." It is the feeling of involvement that moves the process into Phase Two.

Phase Two: Fostering Involvement

As presented in the faculty members' definitions of interaction, a shared theme was the concept of involvement. As this concept was examined, two types of involvement emerged: individual student and mutual. The concept of involvement was the core of Phase Two, presented in part from Appendix D in Figure 5.

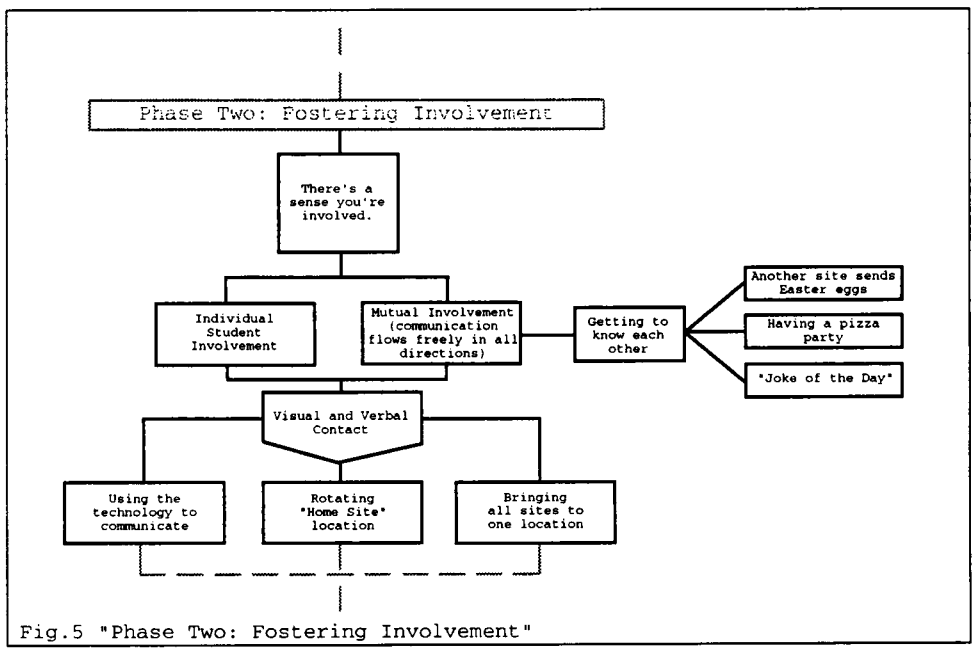

Fig.5 "Phase Two: Fostering Involvement"

Some of the faculty members expressed concern for meeting the different types of learning styles students brought to their classroom. Faculty #3 developed a questionnaire where he asked students how they

learn best.

> "I try to find out what methods that they actually have learned best from. Is it mainly through reading, is it mainly doing reports, is it mainly through class discussion, and then I try to get their feelings as to what they like most about an instructor."

He admitted developing activities for meeting different student needs was a challenge, but felt it was necessary for maintaining student motivation. Faculty #1 expressed similar concerns including individual student expectations in the course content.

> "Everybody comes to the class with a different agenda. I wanted to know what that agenda was and make every attempt to include it. Of course, you can't cover and do everything, but you can let them know you're trying. If you do, you're likely to get their attention."

For Faculty #1 and #3, it wasn't enough to plan, develop, and deliver activities using methods focused on individual student needs. The key was in communicating that interest to students.

In addition to students feeling individually involved, a feeling of mutual involvement was also important to the process. Faculty #2 summed this idea when she said communication should flow freely in all directions. Mutual involvement was facilitated by activities focused on getting to know each other. Faculty #1 reported one of the remote sites sending

Easter eggs with nametags to the other sites. Faculty #4 had a "Joke of the Day" activity where students shared a funny story, joke, or t-shirt with their colleagues. During whole group meetings, Faculty #3's students pitched in for a pizza party.

Beyond communicating an interest in individual student needs and engaging in activities for getting to know each other, three methods of fostering student involvement emerged. These included: 1) using the technologies to communicate, 2) rotating the home site location, and 3) bringing all of the sites to one location. Although each of these methods has been discussed as a tele-technique, they resurfaced when faculty members were asked to describe how they fostered, or would foster student involvement in their future tele-classes.

These techniques appeared to be important to the faculty members because of their capacity for simultaneous visual and verbal contact with students. Recalling their descriptions of using the various technologies in the tele-classrooms, the faculty members were quick to identify the importance of using visual and verbal methods of delivering information to the students. Not only did it meet the individual needs of auditory and visual learners, but it maximized the

potential of the tele-classroom given its ability to support simultaneous audio and video delivery. In addition, maintaining student motivation was important for those faculty members with late night classes, and stimulating graphics/visuals could support that need.

Rotating the home site location offered several benefits for supporting visual and verbal contact. Originating class from a remote site location gave students at remote sites an opportunity to "see" the instructor. Faculty #1 commented on the importance of students being able to see their teachers,

> "They're used, just like I am, to being in the same room with their teacher. In time we'll all get used to the difference, but for now, well, I thought it was important."

In addition to giving the remote site students a chance to see the instructor, it gave the regular home site students a chance to feel like the remote site. Some felt that would stimulate those students in a different way. Faculty #4 noted,

> "Everybody gets a chance to feel like the remote site. Everybody gets a chance to feel similarly about the class."

Another benefit to rotating home site locations was it gave the faculty members a chance to experience the remote students' environment.

Bringing all of the sites to one location for Saturday class meetings was a technique faculty members utilized to foster collaboration as well as allowing them to shorten some late evening classes. It also offered students opportunities for face-to-face visual and verbal contact with their remote site colleagues. As noted in the tele-techniques section, all of the faculty members did not utilize whole group class meetings. However, those faculty members expressed the opinion that students would benefit from the experience.

Phase Three: Elements for Real-Time Queries

In their definitions of interaction, descriptions of interactive experiences, and knowledge of tele-classroom capabilities, the faculty members clearly surmised the essence of interaction was a real-time query. In addition to identifying elements essential to the process of real-time queries, they were quick to note what is excluded from the process. Phase Three, as presented in part from Appendix D in Figure 6, includes the elements of the real-time query process.

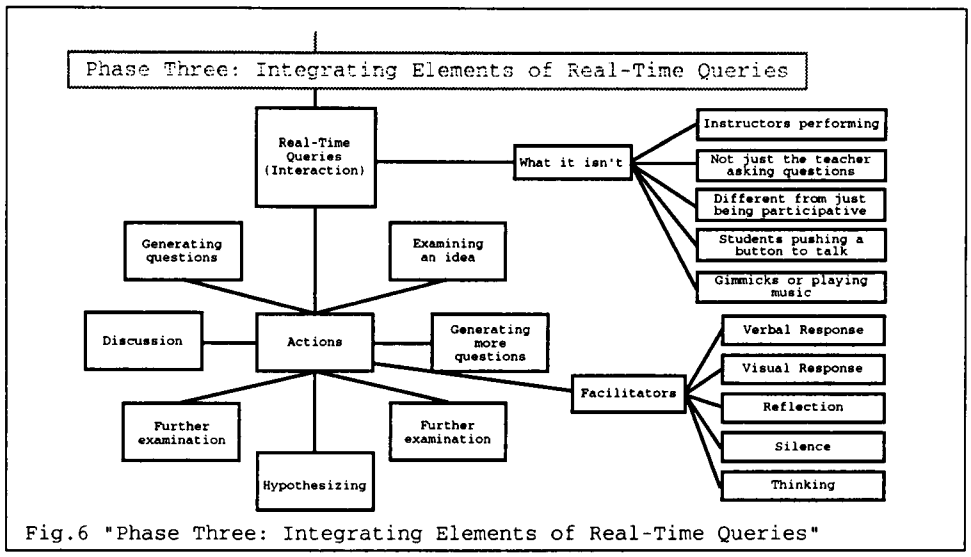

Fig.6 "Phase Three: Integrating Elements of Real-Time Queries"

Based on the faculty members' definitions of interaction and descriptions of interactive experiences, the process of real-time queries can involve six identifiable actions. These include 1) generating questions, 2) examining an idea, 3) generating more questions, 4) further examination, 5) Hypothesizing, 6) Discussion. Since the faculty members were not requested to identify the relationship of these variables, an organization of those actions remains unclear. However, there were opportunities where the faculty members identified facilitators of the actions. These included the ability to respond verbally and visually, reflection, silence, and thinking.

Faculty members were clear in noting those actions that are excluded from the process of real-time

queries. According to Faculty #1 and #2, it's not instructors performing. For Faculty #3, interaction does not include using gimmicks or playing music. However, he did utilize them as stimulants in the tele-classroom environment. Faculty #4 said it was more than teachers just asking yes/no questions. Faculty #5 believed real-time queries were different from just being participative. In other words, having the ability to respond does not ensure interaction, it only ensures an opportunity to interact.

Chapter Summary

In this chapter, the results of two rounds of interviews conducted with five distance learning faculty members were presented. It was divided into seven sections. The first section was a participant profile the five distance education faculty members. The second section identified two themes faculty members revealed in their descriptions of first thoughts about tele-classroom teaching. These included 1) Restructuring the Course and 2) Using Drama and Humor. Problems encountered in tele-classroom teaching comprised section three. The five themes discussed in this section included 1) Initial Resistance to Change,

2) Amount of Planning Time, 3) Logistical and Administrative Issues, 4) Flow of Communications, and 5) Technical Difficulties. The fourth section included a description of the role of experience in teaching in the distance learning environment. Section five included a discussion of the tele-techniques utilized by the faculty members. These tele-techniques were presented in three categories: 1) Planning Techniques, 2) Presentation Techniques, and 3) Instructional Techniques. In the sixth section, faculty members' definitions of interaction were presented, followed by a discussion of the instructor and student role during interactive experiences. The seventh, and final, section presented a conceptual map outlining a process for facilitating interaction in the distance learning classroom. Each of the three phases: 1) Establishing Basic Premises, 2) Fostering Involvement, and 3) Identifying Elements for Real-time Queries were presented and discussed.

CHAPTER V

DISCUSSION, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Introduction

Documented in the literature, and presented in Chapters I and II, distance education was found to be growing rapidly as an educational delivery system for institutions of higher education. Accompanying that growth were increasing numbers of faculty members faced with the challenges of teaching at a distance. One challenge, surfacing frequently in research conducted from student and faculty perspectives, was the process of facilitating interaction in the distance learning classroom.

As noted from Chapter I, the research problem was to clarify and conceptualize the process of facilitating interaction in the distance learning classroom by examining the extent to which five distance education instructors went about enhancing this process in their own tele-classrooms. Given the nature of this problem, a phenomenologically-based open-ended interview technique, discussed in Chapter III, was used to exam-

ine the tele-classroom experiences of the participants. The results, presented in Chapter IV, were the themes associated with facilitating interaction in the distance learning classroom. In addition, conceptual maps containing the factors and tele-techniques associated with facilitating interaction in the tele-classroom, as described by the instructors, were developed. A discussion of the findings, conclusions, implications, and recommendations follows.

Findings and Discussion

Due to the expansive nature of phenomenological interview research, two categories of findings emerged. First, those findings directly related to the research problem - to conceptualize and clarify a process for facilitating interaction - are presented and discussed. These are followed by findings that are potentially related to the research problem.

Directly Related

Prior to teaching in the tele-classroom, all of the faculty members had previous experience using technology in their traditional teaching. *This reduced the learning curve for implementing technologies in their tele-classrooms.*

The faculty members were recruited for their tele-teaching assignment for a variety of reasons. However, while describing how they became involved in tele-class teaching, all spoke of a familiarity with technology. Each faculty member had used various technologies and media-based resources in his/her traditional teaching practice for instructional, communications, and/or management purposes.

Prior experience with traditional-based instructional and communications technologies reduced initial intimidation of the faculty members by the various technologies available in the tele-classroom. This experience also guided their questions in planning the incorporation of various instructional and communications technologies into their tele-course. Experience, then, allowed the faculty members to immediately utilize some of the technologies available and reduced the learning curve on utilizing others.

Having prior experience proved especially valuable to the process of facilitating interaction. All of the faculty members were active users of electronic communication prior to their tele-classroom experience. Using this experience, students were offered an additional medium of communicating with their instructor on the first day of class. The result was a

quicker breakdown of the barriers to communication that accompany teaching and learning at a distance.

As identified in Chapter IV, the technology was a vehicle for communication. By generating computer presentation programs or handouts supported by graphics, the faculty members enhanced visual contact with their students, thereby fostering involvement - the foundation of interaction.

Techniques utilized by the faculty members extended beyond instructional purposes to include planning and presentation purposes. *Planning techniques were utilized on a macro- as well as micro-basis. Presentation techniques focused on group stimulation created opportunities for interaction. Instructional techniques were more focused toward facilitating student involvement and interaction rather than delivering information.*

Effective planning skills are among the specific instructor competencies identified for encouraging interactive experiences (Thach & Murphy, 1995; Burge & Howard, 1991). In this study, the faculty members frequently discussed the amount of time they devoted to planning in their tele-courses and subsequent problems they encountered. Moreover, planning was not a onetime event; nor was it limited to specific situations such as an evening's lesson or coordinating

events for a guest speaker. Careful planning was required throughout the semester and was a prerequisite for every activity the faculty members developed for their tele-classrooms. Given the potential for technical failures, problems with materials delivery, or inclement weather, faculty members had to develop alternative plans beyond the general planning for an evening's class. Planning extended beyond preparing the general direction of the course for the semester. Planning was needed to prepare the direction of every class as well as micro-managed to prepare every activity, including alternative ones, during the class period. As a result, the faculty members approached planning from a macro-basis, for the larger course context, to a micro-basis, for the individual activities.

A variety of presentation techniques were described by the faculty members, to include location, visual, and tele-presence techniques. Each of these techniques reflects competencies identified for effective instruction at a distance in the current literature. However, beyond demonstrating the use of these techniques rests the faculty members' reasons for using them. It appears they were concerned with diversifying their presentations by changing location, us-

ing a variety of visuals, and developing a positive tele-presence to stimulate the students and break down the barriers of distance. Using these techniques created opportunities for students to focus on something they could relate to, like being the home site or experiencing a humorous situation. As a result, opportunities to simultaneously focus could facilitate interaction amongst the sites.

The faculty members described a variety of instructional techniques they utilized in the tele-classrooms. From their descriptions, these techniques were categorized as front-end activities, questioning activities, and individual/group activities. Descriptions of teaching students how to interact using the technologies discussed by Gunawardena (1992) and Nelson (1988), parallels some of the front-end activities utilized by the faculty members in this study. The ability to use questioning techniques has long been identified as a competency for effective teaching in the traditional classroom and was identified by Burge and Howard (1991) and Chute, Balthazar, and Poston (1988) in the distant. Likewise, so has effective coordination of individual and group activities. Therefore, some of the tele-techniques utilized by the faculty members have been established as effective

techniques in the traditional classroom.

As Thach and Murphy (1995) reported, "there is a growing realization that traditional teaching techniques will not work in distance education settings" (p.57). The results of this study clearly indicate the faculty members directly applied some effective traditional techniques while examining others for different applications. They also developed new techniques specifically for their tele-classroom teaching. It appears, however, the emphasis of any technique utilized was less on delivering information to students and more on creating opportunities for facilitating student involvement and interaction.

Key steps taken by the faculty members created an environment in which opportunities for interaction could exist in the tele-classroom. *From these key steps evolved a process for facilitating interaction consisting of three phases: 1) establishing basic premises, 2) fostering student involvement, and 3) integrating elements of real-time queries.*

While the faculty members described their first thoughts about planning, problems encountered, and techniques used, the concept of interaction was always present. What started out as an occasional comment grew to a integral concern as the faculty members de-

scribed their experiences in the tele-classroom. A concern for reduced student interaction is repeatedly cited in the current research as a barrier to teaching at a distance.

As their concept of interaction surfaced, a unique aspect appeared. There was a shared, though independently solicited, consensus regarding the importance of student involvement. By tugging on this thread, a process for facilitating interaction in the tele-classroom began to unravel. The issue was not to identify specific strategies of interaction. Instead, the emphasis was to identify the key steps taken by the faculty members that allowed interactive opportunities to exist in their tele-classrooms. Emerging from these key steps was a process for facilitating interaction.

As described in Chapter IV, the process for facilitating interaction appeared to exist in three phases. Phase One centered around basic premises the faculty members established early in their tele-courses. Communicating course goals, defining instructor and student responsibilities, and determining student comfort in the classroom environment are premises that appear in the traditional classroom. Research conducted on competencies for effective teaching in the traditional classroom include having a clear instructional focus, having clar-

ity of communication, and being empathizing and warm. Similarly, competencies for effective teaching in the distant classroom include knowledge of basic learning theory and developing an empathizing rapport with students. From their descriptions, it appears the faculty members gleaned these premises from their traditional classroom experiences and interpreted them in light of the tele-classroom environment. Here again, the idea of taking actions from traditional classroom experiences and transforming them for the tele-classroom emerged.

In the traditional classroom, being enthusiastic about teaching is a competency for effective teaching. It was similarly identified by students in the distant classroom. In this study, an attitude focused on "learning should be fun" appeared to be an important premise for the faculty and worthy of communicating to the students. This was due, in part, to the unfamiliarity and general lack of experience both students and teacher had with learning in this new environment. As a result, humor became a primary vehicle for establishing this premise.

The premise of establishing a collaborative environment in the tele-classroom was also important. In the traditional classroom this translates into learners - students and teachers - understanding their responsi-

bilities, knowing they have valuable contributions to offer in the learning process, and feeling comfortable with sharing those contributions. In the tele-classroom, collaboration extends beyond the teacher/student to include the technicians and other support staff. Results of this study indicated occasional strains on the faculty member/technician relationship when issues of control arose. Students were exposed to this tension given the public verbal/visual nature of communication in the tele-classroom. However, when a collaborative spirit was demonstrated between the instructor and technician, students began feeling the same spirit existed for them. In addition, tele-techniques used to foster student involvement fed this spirit. Here is where the process entered Phase Two.

Phase Two of the process was focused on establishing a sense that each student is involved. Trickling down from the basic premise of collaboration in Phase One, this phase was concentrated on the application of tele-techniques for fostering student involvement. In addition, this phase had a cyclical nature as the concept of student involvement was returned to throughout the semester, providing direction for development of each class activity. Fostering a sense of student involvement fed the spirit of collaboration.

Personalizing the tele-classroom experience is a competency specifically identified in the current research on effective distance teaching and provides an umbrella for the concept of nurturing student involvement. As presented in Chapter IV, there were two types of involvement described by the faculty members - individual and mutual. Using a variety of visual and verbal methods of contact, faculty members described the activities and techniques they developed and utilized to encourage student involvement.

For some of the faculty members, travelling to remote sites or bringing all of their classes together for whole group instruction was a way of fostering involvement. For some, travel was an option due to the relatively small distance that separated most of the sites. Due to the potential of distance education to span thousands of miles, this would be an unrealistic activity in some tele-classes.

Given the noncontiguous nature of the distance learning environment and the relative inexperience most students had learning in this environment, the faculty members who travelled to remote sites or brought their students together for whole group instruction did so as a means of fostering involvement. Those faculty members not participating in these activities indicated their

willingness to do so, if requested by the students and/or supported by their administrators. However, they looked upon it as a technique they could opt to ignore in place of others for facilitating student involvement, such as using the technologies to communicate. Regardless of their decision, the results of this study indicated faculty members felt they had a choice in the techniques they utilized in their tele-classrooms.

Although this study was about clarifying and conceptualizing the process of facilitating interaction in the distance learning classroom by examining the extent to which five distance education instructors went about enhancing interactive opportunities, additional elements emerged. Organized into Phase Three and presented in Chapter IV, these elements represented the act of real-time queries.

Real-time queries were interactive opportunities occurring student to student, student to teacher, or teacher to student. In addition, within those combinations of participants, they could occur within a site or between sites.

As the faculty members described the conditions in which a real-time query could occur, they identified some specific actions that were not inclusive in the process. A real-time query was not instructors perform-

ing, using gimmicks, or playing music. These actions stimulated students and could lead to interaction, but were not part of a real-time query. In addition, being able to participate or respond by pushing a button to talk only allowed one an opportunity to engage in a real-time query. A real-time query involved more higher order thinking through analysis, evaluation, and synthesis activities. It did not include instructors asking yes/no response type questions. The specific actions described by the faculty members included in a real-time query were examining an idea, generating questions, hypothesizing, and discussion. These actions were facilitated by verbal and visual responses, reflection, silence, and thinking.

The actions identified in this study support the current research on specific instructor competencies that encourage interactive experiences. Burge and Howard (1991), identified using silence to encourage reflection, developing a prearranged response sequence, and using directed questioning techniques, as did Chute, Balthazar, and Poston (1988) in their identification of effective questioning techniques. Similarly, knowing how to question was a competency identified for effective teaching in the traditional classroom (Brophy & Evertson, 1976; Kauchak & Eggen, 1989). Again, it ap-

peared the faculty members in this study were actively transforming actions from their traditional classroom for application in the tele-classroom.

What remains unclear about real-time queries was the organization of the actions and the relationship of the facilitators to those actions. However, what was clear was the transfer of actions from the traditional classroom to the tele-classroom. Prior to entering the tele-classroom, the faculty members had working definitions of interaction and specific actions developed from their traditional classroom experiences they associated with facilitating that process. Apparently in developing techniques to facilitate interaction in their tele-classrooms, they transformed some of those traditional actions for tele-classroom application.

Potentially Related

The specific problems faculty members encountered during their tele-classroom experience created frustrating obstacles to successful teaching. *These problems included issues surrounding the: amount of planning time; logistical delivery and receipt of materials to and from remote sites; administrative associated with lack of incentives, extra release time, and student evaluations of teaching not developed for distance delivery courses; technical operations; and the flow of communications.*

The limited body of research conducted on attitudes of faculty teaching at a distance is primarily concentrated on positive and negative perceptions of the teaching environment. Although the faculty members of this study were not asked to comment on their "likes" or "dislikes" about tele-classroom teaching, it appeared that their perception of teaching in the distance learning environment was constructed by their positive and negative experiences. When asked to describe their tele-teaching experience, the faculty members emphasized their successes and difficulties to document their experience. The problems described by the faculty members parallel those identified by distance education faculty members in other research studies and quickly overshadowed their successes.

A general problem echoed by most distance educators and echoed similarly by every faculty member in this study was the amount of time spent planning for each tele-class. They noted specific issues of time, that included developing alternative lessons in the event of technical failures or delays in delivering materials, and arranging time to assess double or triple the standard load of student work. Most found the noncontiguous nature of the tele-classroom required a more intensive and time consuming examination

of the content for tele-teaching.

For Dillon and Walsh (1992), logistical and administrative concerns topped the list of barriers to teaching cited by distance learning faculty. Similar problems were cited by faculty members in this study. They cited delays in delivery and receipt of materials to and from remote sites, the lack of incentives, such as release time for extra preparation, and administrative teaching evaluations not developed for distance delivery courses.

With the exception of delivery of materials, a problem faculty members faced early in the semester, these problems were offered in hindsight of their tele-teaching experience. For some of the faculty members, they were obstacles to considering future tele-teaching assignments. Obviously, these issues were out of the direct hands of the faculty members; however, keeping lines of communication open between faculty, staff, and administration could reduce unnecessary frustrations and eliminate the possibility of losing experienced distance education faculty.

Flow of communication was a multifaceted problem. Initially, this problem was connected to the issue of materials delivery as discussed above. However, later it was associated with the problem of facilitating

interaction given the audio/video system delays contributing to reduced spontaneity in the tele-classroom.

The codec required two or three seconds to respond to audio input which directs video output. This delay was awkward for the faculty and students, often inhibiting spontaneous discussion. The faculty members developed activities to reduce student inhibitions for responding with push-to-talk microphones as well as increasing listening skills to accommodate codec delays. Using these activities early in the semester reduced some of the obstacles to interactive opportunities.

Technical failures pose a problem for any person utilizing technology for instructional purposes. Distance education instructors are not immune, as evident from existing research identifying technical difficulties as a barrier to tele-class teaching. Faculty members in this study joined their predecessors as they were quick to discuss the technical difficulties they encountered during their tele-classroom experience. Although each had prior experience using various instructional and communications technologies, they were frustrated by computer software incompatibility, computer system failures, and/or audio/video

system failures. This tied back into the issue of planning time as incompatibilities and failures required more time developing alternative plans and/or recreating existing instructional programs on software packages compatible with their tele-classroom.

Faculty members also noted how difficult it was to work with the rotating schedules of the tele-classroom student technicians. The University employed students to work as technicians, which meant a change of technicians during scheduling conflicts. Generally the student technicians remained in a fixed schedule, but it was the unannounced rotation of schedules that created a problem. For some of the faculty members, this added an unnecessary frustration to tele-class teaching and was presented as an obstacle to developing a team relationship between instructors and technicians. Maintaining open lines of communication is necessary for effective team-building. Clearly this issue ties back into the problem of flow of communications.

Existing in the literature as obstacles to effective teaching, these problems are potential obstacles to facilitating interaction. It appeared the faculty members were continually faced with problems that were largely out of their control and offered little admin-

istrative and/or institutional support for changing them. Using valuable time and energy troubleshooting administrative and logistical problems could, in itself, become an obstacle to interaction. Left with little time or desire to examine interaction, or a lack thereof, opportunities to develop appropriate activities and techniques would be lost. In addition, if faculty become too frustrated and develop a resistance to tele-class teaching, opportunities to examine the process of interaction from experienced perspectives would also be lost.

Knowledge gained from traditional classroom experience helped the faculty members examine tele-classroom practices. *Likewise, tele-class experience fostered an examination of traditional classroom practices.*

In suggesting components for faculty development programs, Carl (1986) noted a need for faculty to examine how to alter traditional classroom courses for distance teaching. As much of the literature on effective teaching at a distance is based on the assumption that teaching at a distance requires a different set of skills than those needed in traditional classrooms, it also supports the idea that certain skills acquired in the distant classroom can benefit teaching in the tra-

dition (Beaudoin, 1990; Dillon & Walsh, 1992). Through this study's examination of the role of experience, this issue clearly emerged as the faculty members examined the transferability of the knowledge gained from traditional classroom experiences to the tele-classroom, and vice versa.

Experience is accompanied by a degree of confidence. Each of the faculty members had traditional classroom experiences offering a degree of confidence in their ability to work with students and content. This experience and accompanying confidence followed the faculty members into the tele-classroom as they carefully structured the course content for tele-class delivery and actively remained sensitive to student needs. However, their lack of experience with tele-class teaching emerged when they questioned the teaching style they were developing for tele-class teaching and how it transferred back to their traditional classrooms. For example, one faculty member discovered the technique of staying on his spot in the tele-classroom was negatively received by their traditional classroom students as being less animated and enthusiastic. They were unaware of this transfer until it was brought to their attention by a student. This prompted an examination of their tele-class practices

that were incompatible in the traditional classroom. For another, a willingness to examine what they were doing in the tele-classroom facilitated an examination of what they were doing in their traditional classroom. Success with student-centered practices they were using in the tele-classroom prompted an examination of the teacher-centered practices they had been using in the traditional classroom. They looked at their lack of experience in the tele-classroom as an opportunity to examine their traditional classroom teaching style. This supported Dillon and Walsh (1992) as they noted student-centered teaching skills acquired in the tele-classroom could benefit traditional classroom teaching.

Each of the faculty members had experience using various technologies in his/her traditional teaching practice, again offering a degree of confidence. With that experience came the ability to handle a variety of technical difficulties. However, that experience did not transfer as easily to their tele-classroom as they were presented with a new set of technical difficulties, often out of their ability to correct or control. In addition, most of the faculty members had little experience relying on others to support the teaching process in their traditional classroom. As a

result, planning for the unknown became an overwhelming, but valuable assistant. However, maintaining open lines of communication with technicians able to assist with technical difficulties alleviated some of the tension.

It appeared experience provided the faculty members with the freedom to explore their teaching practices. Prior experience teaching with technology allowed them to explore new methods of utilization in the tele-classroom. Conversely, a lack of experience relying on others to support the teaching process allowed the faculty members to explore team approaches to teaching versus teacher-centered approaches. The faculty members also explored the benefits of using student-centered approaches to teaching and the transformations required to put them into practice in both the traditional and distance classrooms. The result strengthened their understanding of interaction in both classroom environments.

Conclusions and Implications

The major finding of this study indicates there is a process for facilitating interaction in the distance learning classroom. Establishing an interactive envi-

ronment takes time, therefore this process must be implemented from the first class meeting and nurtured throughout the tele-course. Student involvement is a primary vehicle that feeds the continuous nature of the interactive process.

There was no specific technique identified in this study for facilitating interaction. Instead, the faculty members used a combination of techniques evolving from their beliefs and experiences. Extracted from the faculty members' experiences were the actions and reasons for those actions they took to construct interactive opportunities in their tele-classrooms. These were synthesized into a process for facilitating interaction. This process, however, only reflects the experiences of the five faculty members participating in this study. As a result, this process may have different applications for other distance educators given the individual beliefs and experiences they may bring to the tele-classroom.

Experience drives the process of interaction. Although the purpose of this study was not to compare and contrast tele-classroom experiences with traditional, it is evident the faculty members drew upon their traditional experiences for their tele-classroom teaching. It is also evident their tele-classroom experiences

transferred back to the traditional. As this combination of experiences evolves, it cycles back into the process of facilitating interaction, offering a clearer definition of the process each time.

Regardless of an instructor's individual beliefs or experiences, a basic process for facilitating interaction exists in the distance learning classroom. Given the information gathered in this study and current research on effective teaching at a distance, it appears the process presented here contains a basic structure for facilitating interaction. In addition, this basic structure can provide a foundation for other distance educators seeking a way to foster interaction in their own tele-classrooms.

The implications of this study extend from recruitment of distance education faculty to the development of faculty workshops. Recruiting faculty with prior experience using instructional and communications technologies will reduce initial intimidation with the variety of technologies available in the tele-classroom. It will also increase the potential for more intensive usage. Faculty inexperienced with classroom-based technologies need extensive training prior to entering the tele-classroom as a preventive measure for frustration and obstacles surrounding its demanding use. Providing

ground zero training for faculty to use instructional and communications technologies would unnecessarily strain the limited availability of resources argued by most distance education administrators. It would be wiser to spend limited resources on workshops focused on developing existing technology skills for maximum interactive impact in the tele-classroom or on faculty incentives.

As the numbers of distance education systems increase, so do the experiences of distance educators. Opportunities to share these experiences must be made available to other distance educators. Using the knowledge gleaned from experience, faculty workshops can be developed that focus on opportunities for reflection on practice. This systematic reflection can assist distance educators in constructing their process for facilitating interaction in the tele-classroom.

Recommendations

Replication of this study is needed to document the significant findings to determine the parallel existence of a process for facilitating interaction. Given the nature of qualitative research, the results of this study can not be generalized for all distance education

professionals. However, if the results of future research efforts corroborate those in this study, the existence of a process for facilitating interaction will be further substantiated.

Further research is needed into the role of experience in developing a process for facilitating interaction. In addition, research on the experiences of distance educators identified as having specific competencies for effective tele-teaching will assist in developing a more defined and accurate process for facilitating interaction in the distance learning classroom.

Research is needed into the elements of the real-time query process, the relationship of the actions in that process, and the role of the facilitators in the process. Identifying these relationships and roles will lead to a better understanding of the act of interaction, techniques for activating it, and organizing content around it in specifically the tele-classroom, and potentially all classrooms focused on interaction.

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APPENDICES

APPENDIX A

"The Action-Reason-Thematic Techinque"

ARTT involves five steps:

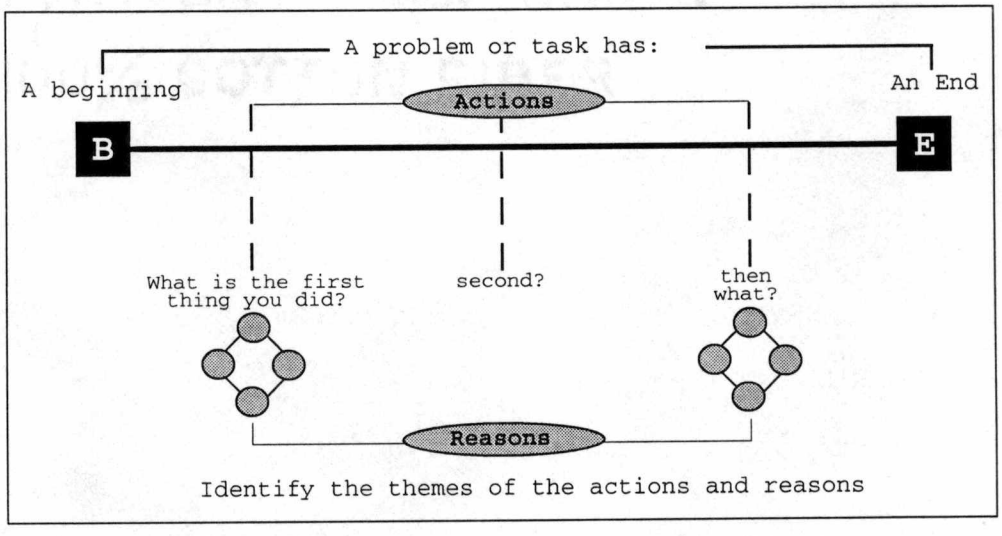
1. **Identification of the interviewee's problem**
   a. as defined by the interviewee
   b. must be directly related to the life of the interviewee
   c. the interviewee must have actually attempted to solve the problem by taking one or more specific actions toward reaching a solution

2. **Establishment of the time frame of the problem**

3. **Identification and description of specific actions taken to solve the problem**
   a. One action at a time is identified by "What did you do?", "What did you do next?", "And then what did you do?" until all actions are described.

4. **Identification and description of reasons for each action taken**
   a. Interviewer probes for elements of the learner's reasoning structure that underlie his/her actions.
   b. Questions are of the "why" type, in seach of the reasons for actions.

5. **Reduction of actions and reasons to argument themes**
   a. As actions and reasons are noted, the "text" of the interview is searched for themes.



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APPENDIX B
PARTICIPANT CONSENT FORM

The purpose of this dissertation research project is to obtain qualitative information from faculty regarding patterns of interaction in their distance learning classrooms.

You will participate in an informal interview that will last approximately one hour. The interviews will be audio taped. Your responses to the interview questions will be kept completely confidential and the tapes will be stored in a locked filing cabinet in my home. I will be the only person with access to the tapes. You will be given a pseudonym to ensure your anonymity in the presentation of results. This consent form will be stored along with the interview tapes.

There are no foreseeable risks involved in your participation in the project nor are there direct benefits to you. Participation will, however, provide you with the opportunity to reflect on your own experiences in distance education and it will help increase general knowledge concerning interaction in the distance learning classroom.

Your participation in this project is entirely voluntary and you may refuse to answer specific questions or you may withdraw at any time without penalty. If you have any further questions about this project, please contact me, Julie K. Little, at The Curriculum Lab, 302 Claxton Addition, College of Education, UTK; call (615) 974-8143; or e-mail jklittle@utkvx.utk.edu.

Thank you.

. . . . . .

I fully understand the explanation of the project and I agree to participate.

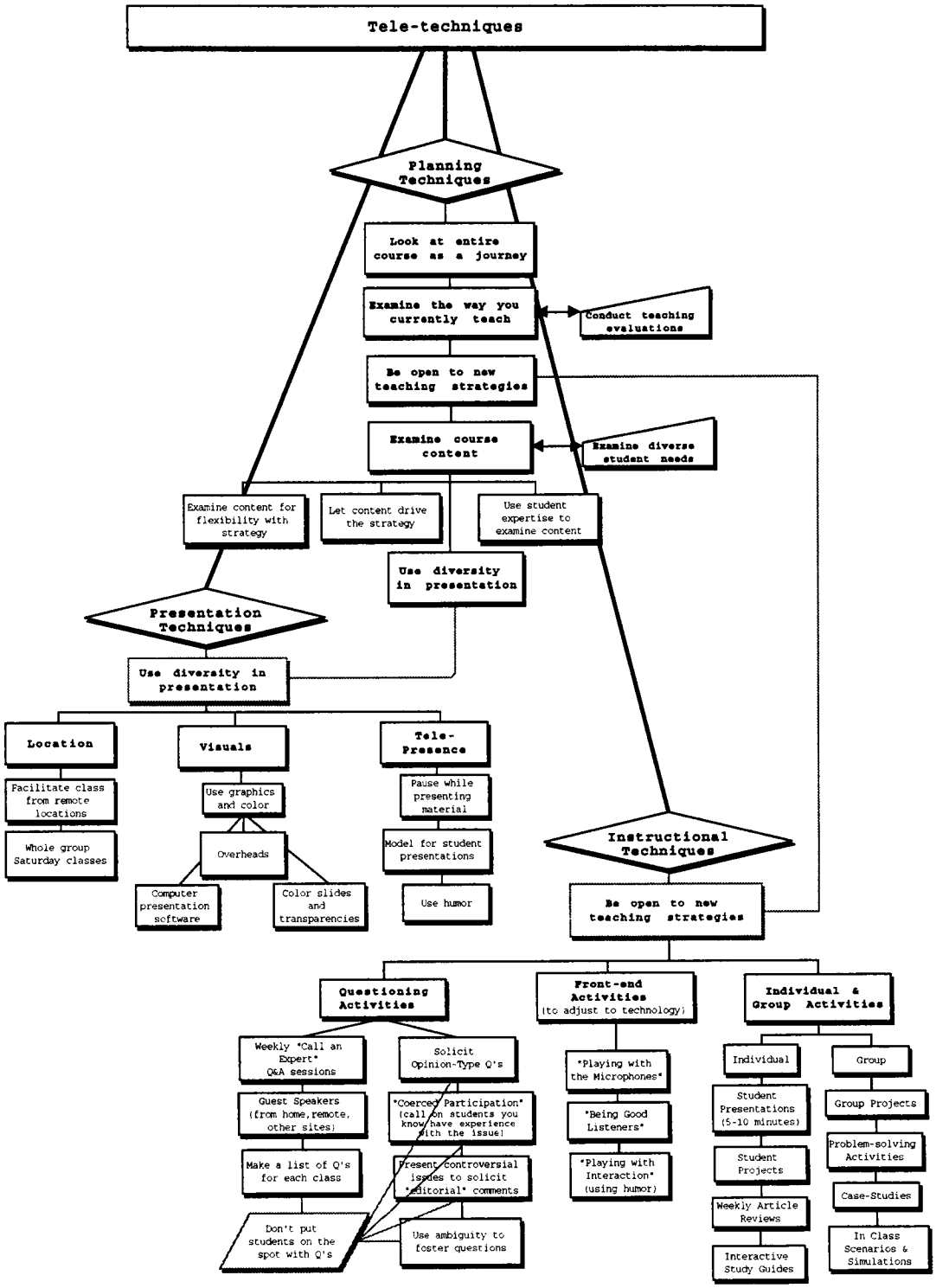
_____ _____

Name Date

_____

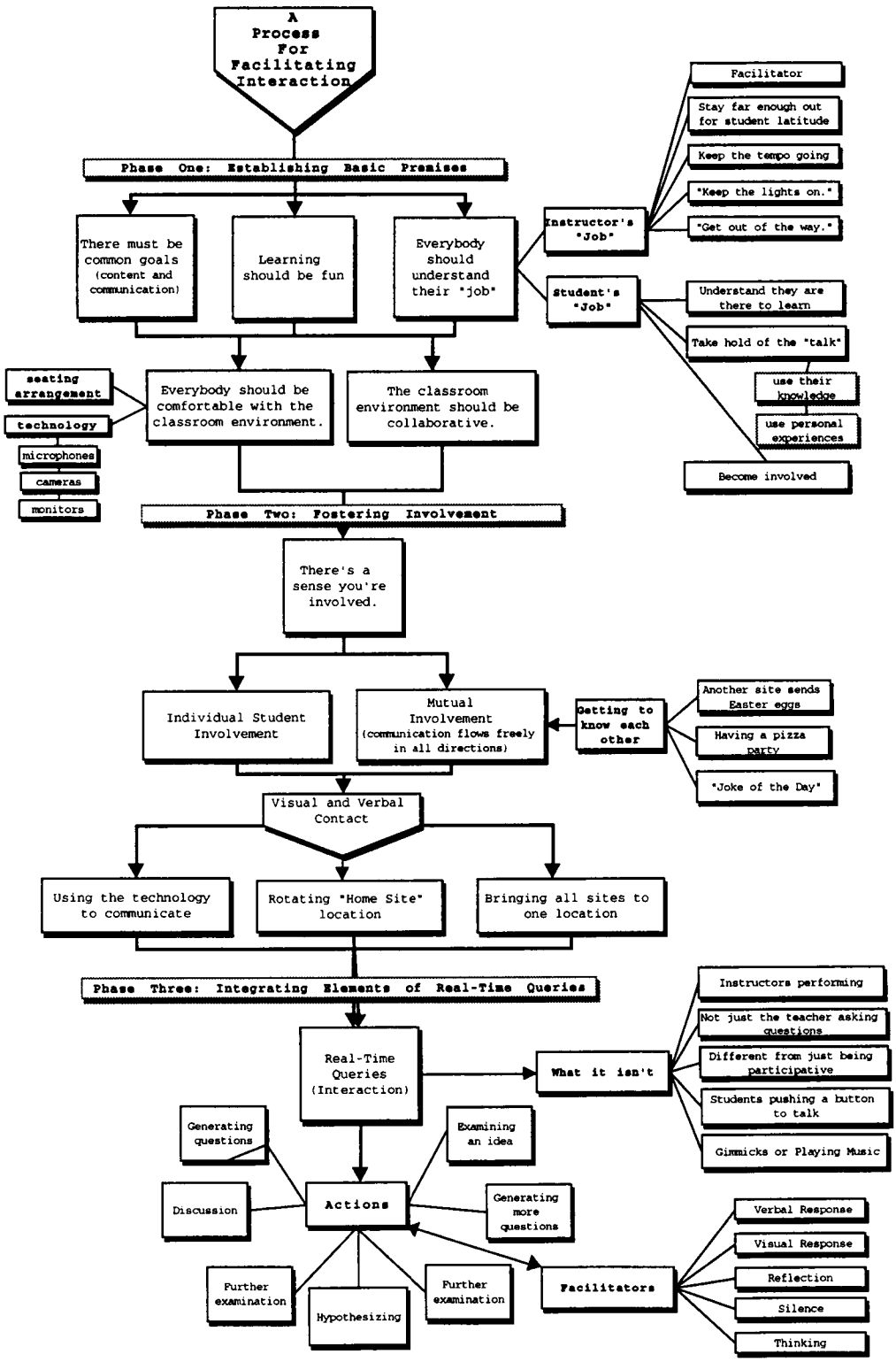
Signature

APPENDIX C
"TELE-TECHNIQUES"



APPENDIX D

"A PROCESS FOR FACILITATING INTERACTION"



VITA

Julie K. Little was born in Goldsboro, North Carolina and currently resides in Knoxville, Tennessee.

She attended St. Mary's College, Raleigh, North Carolina for preparatory school (1974-1976). She received a B.A. in Government and International Studies/ Italian Literature (1981) and a M.A.T. in Secondary Education/Social Sciences and Humanities (1983) from the University of South Carolina, Columbia, South Carolina. She was awarded an Ed.D. in Curriculum and Instruction/Instructional Technology from the University of Tennessee, Knoxville, Tennessee (1995).

Her secondary school teaching experiences included Social Science, Humanities, and English classroom instruction at Bertie High School, Windsor, North Carolina and Ansbach High School (DoDDS), Ansbach, West Germany. She was also director of the Sylvan Learning Center in Killeen, Texas.

As a member of the University of Tennessee Instructional Technologies Group, her collegiate teaching experiences included graduate and undergraduate general survey and special topics courses in Instructional Technology and Curriculum Development. In addition to teaching, she was an instructional designer for two multimedia projects contracted for the Department of Defense Special Forces and CSX Transportation.