INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

UMI

A Bell & Howell Information Company 300 North Zeeb Road, Ann Arbor MI 48106-1346 USA 313/761-4700 800/521-0600 ,

UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

DUAL MODE FACULTY'S FRAME OF REFERENCE AND EVOLVING APPROACH TO TEACHING OVER ITV: A PHENOMENOLOGICAL STUDY

A Dissertation

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

Doctor of Philosophy

By

Linda Wright-Smith Norman, Oklahoma 1999 UMI Number: 9925608

Copyright 1999 by Wright-Smith, Linda Lee

All rights reserved.

UMI Microform 9925608 Copyright 1999, by UMI Company. All rights reserved.

This microform edition is protected against unauthorized copying under Title 17, United States Code.

UMI 300 North Zeeb Road Ann Arbor, MI 48103

© Copyright by Linda Wright-Smith, 1999 All Rights Reserved.

DUAL MODE FACULTY'S FRAMES OF REFERENCE AND EVOLVING APPROACH TO TEACHING OVER ITV: A PHENOMENOLOGICAL STUDY

A Dissertation APPROVED FOR THE DEPARTMENT OF INSTRUCTIONAL TECHNOLOGY AND PSYCHOLOGY

ΒY



ACKNOWLEDGEMENTS

I want to express my most profound appreciation and gratitude to those individuals whose help and encouragement made it possible for me to complete my doctoral studies and expand my intellectual horizons.

I truly appreciate the constructive criticism, help, and suggestions from my co-chairs. Dr. Jay Smith advised me since the beginning of this adventure and provided recommendations which helped me attain my assistant professorship. Dr. Courtney Vaughn's upbeat attitude, critical reviews and guidance sustained me even when I was down emotionally frustrated. I am indebted to Dr. Connie Dillon whose critiques provided new insights. I also want to express my gratitude to Dr. Barbara Greene and Dr. Ray Miller who always found time to listen, make suggestions, and provide critiques, which helped me throughout my studies at OU.

With out the complete support of my family, I could not have made it through these years of study without the help of my husband and children. I feel a deep depth of gratitude and love for my husband Milton and thank him for his unweaving support, tolerance, patience and love. Te amo. I thank my sons Zechariah and Jeremiah for their youthful exuberant faith in me and for their ability to show me what was really important in life.

I owe a very special indebtedness and thanks to Alice and Zelda whose bravery, honesty, openness, and willingness to take the time to express their sensed experiences made it possible for me to conduct this research.

TABLE OF CONTENTS

CHAPTER ONE

Introduction Background of the Study Definition of Terms Statement of Problem Research Questions Significance of the Problem	1 4 5 6 6
CHAPTER TWO	
Literature Review Interactive Television Research Faculty Development Models of Faculty Development and Change Summary of Literature Review	8 11 14 19
CHAPTER THREE	
Research Methodology Conceptual Framework Population and Sample Participants The ITV System Procedures Data Analysis Assumptions and Limitations	22 23 25 27 28 30
CHAPTER FOUR	
Their Frames of Reference Zelda's Story A volatile beginning: The first four weeks Middle Interlude Holidays and Finals Alice's Story An Alice in Wonderland beginning: The first four weeks Out of Wonderland: The rest of the semester	31 36 41 43 47
CHAPTER FIVE	
Themes and Theoretical Linkages	_

Rogers -- Factors Affecting Perception of Attributes_____52

Relative Advantage	53
Compatibility	56
Complexity	60
Trialability	62
Observability	64
Lindquist's Adaptive Development Model	65
Olcott and Wright's Institutional Faculty Support Framework	67
Faculty Support and Loss of Empowerment	67
Summary	72
CHAPTER SIX	
CONCLUSIONS AND RECOMMENDATIONS	75
Faculty Support	80
Dual Mode Faculty Support Recommendations	81
Future Research	83
Summary	84
Epilogue	86
REFERENCES	89

APPE	ND	ICE	S
	-		

Appendix A	_96
Appendix B	98

CHAPTER ONE

Introduction

Background of the Study

This research study explores university professors' frame of reference as they simultaneously teach locally and distantly located students (dual mode instruction). The following research review shows the range of research concerning faculty in this type of environment. Bates (1996) wrote that "there has been little development of pedagogic theories of teaching and learning through the use of technology" (p. 490). The use of technology to teach can involve using a VCR to show educational tapes, integrating the use of computers in the classroom, or accessing the internet for information gathering and collaborative efforts. Teaching over interactive television (ITV) involves the use of technology as a carrier to get students and teacher together via two-way transmission of audio and video signals in distance learning classrooms. ITV teachers may or may not choose to integrate the use of technology in their curriculum, but they have to consider the impact of the ITV technology on their approach to teaching. Many teachers falsely assume that an ITV class can be taught without any pedagogical or design changes because with two-way audio/video teachers and students can see and hear each other (Wolcott, 1995). However, there is considerable research which suggests the need for different pedagogical approaches in two-way TV and

conventional classroom teaching. Research suggests among other factors that: attention span is shorter for ITV students (Martin, 1993); interpersonal distance is exacerbated by the technological interface (Wolcott, 1995); and, contingency plans are needed because the technology can fail (Lehman & Kinney, 1993; Martin 1993; Simpson, Pugh & Parchman, 1992). Because of these and many other problems faced by the distance educator, the idea that one can go from the classroom to a technology mediated classroom without some change in pedagogical approach is a fallacy (Martin, 1993, Dillon, Gunwardena, & Parker, 1993). As many traditional universities begin to add teleconferencing classrooms in order to reach adult learners at distance sites, many professors find themselves being tasked simultaneously to teach to traditional and distance classes.

Professors face new challenges when teaching in a traditional classroom setting while also teaching to students technologically connected through an ITV system. These new challenges encourage faculty to adjust their approach to teaching (Murphy, L.L., 1993; Ostendorf, 1997). The dual mode professor must reflect on many problems to include how to: engage local and remotely located students in the learning process; develop rapport among all the students; provide one-on-one counseling; and, set up a support network for handing out materials, collecting student work, and monitoring examinations. In 1986, Carl noted that research concerning issues of dual mode teaching was rare. Presently, there is an abundance of research

suggesting what teachers should be doing in ITV classrooms (Carl, 1986; Gehlauf, Shatz, & Frye, 1991; Graham & Wedman, 1989; Lehman & Kinney, 1993; MacKinnon, Walshe, Cummings, & Velonis, 1995; Ostendorf, 1997). However, there is little research that focuses on the experiential viewpoint of dual mode faculty.

The prevailing research has focused on other major concerns. One Gestalt principle posits that people cannot pay attention to every stimuli that bombards their senses (Ormrod, 1990). People focus on the details of one stimulus while marginalizing other details to the background. Analogous to this, the dual mode ITV teacher's voice is minimized in the number crunching to gather relevant data on distance teacher perceptions, student perceptions, teaching strategies, learning strategies, learning styles, reasons for discontinuance, and equivalency of learning outcomes. Goodson (1996) points out the danger of marginalizing traditional or the new narrative research methodologies by a domination of just one epistemology. Additionally, Goodson addressed the "long overdue" need to present the individual teacher's voice. The purpose of this exploratory study is to focus on dual mode professors' frame of reference as they teach a mixed class of locally and remote students because this has been a marginalized theme. Specifically, this study provides a voice for two university faculty members as they adapt their art of teaching over dual mode ITV.

Definition of Terms

<u>Compressed video</u>: The conversion of analog interactive television into digital signals for transmission and reception in distance education.

<u>Dialogue</u>: Communication taking place between students and their teachers is a form of dialogue. It "helps us focus on the interplay of words, actions, and ideas and any other interactions between teacher and learner when one gives instruction and the other responds" (Moore & Kearsley, 1996, p. 201). <u>Distance Education (DE)</u>: The use of technology to present formal classes where students are separated by place and/or time from their teacher. <u>Dual mode ITV instruction</u>: Instruction that is presented to students in a classroom while simultaneously teaching to students at a distance via two way interactive television. For the sake of brevity, in this study duel mode ITV instruction will be referred to as ITV and dual mode ITV professors will be referred to as ITV professors.

Interpersonal Distance: The perceived closeness among participants in an educational setting.

<u>Transactional Distance</u>: The "physical distance that leads to a communication gap, a psychological space of potential misunderstandings between the behaviors of instructors and those of the learners" (Moore & Kearsley, 1996, p. 200).

<u>Structure</u>: The "rigidity or flexibility of the course's educational objectives, teaching strategies, and evaluation methods, ...describes the extent to which

course components can accommodate or be responsive to each learner's individual needs" (Moore & Kearsley, 1996, p. 203).

<u>Telepresence</u>: A "set of computer, audio-video and telecommunications technologies carefully integrated to enable people to work together using technology as an intermediary. ... it conveys in the users the feeling of being present in each other's homes or offices from remote distance" (Chwelos, 1990, pp. 6-7).

Statement of the Problem

A need exists to investigate the ITV teachers' frame of reference as they teach in an ITV classroom. They face problems associated with both distance learning situations and to a traditional classroom. Phenomenological studies such as this study provide in-depth portrayals from the professor's frames of reference as they relate their ITV experiences, attitudes, perceptions, and reflections. Specifically, there is a need to know how ITV teachers perceive their experiences with the system. There is no significant body of research concerning ITV teacher's perceptions and ensuing pedagogical changes made because of their ongoing experiences during an extended course of instruction. The transition to teaching and learning in a dual mode interactive television setting might be less traumatic, more successful, and better received if faculty new to ITV have a priori knowledge of other professors' frame of reference of cognitive states, feelings, and ensuing

acts. Additionally, these frames of references will enable ITV technical staff understand and help faculty cope in this environment.

Research Questions

The research questions being addressed are as follows:

 How does a first time ITV teacher and an experienced ITV teacher perceive the dual mode teaching experience over the course of the sixteen-week class?
 In what ways do ITV professors perceive themselves altering their teaching strategies and behaviors to cope with the dual mode teaching experience?
 What pedagogical changes do these two ITV professors say they have implemented because of their reflective thought on what they perceive to be happening in the dual mode classroom?

Significance of the Problem

According to Ostendorf (1997), "More classes of students are being taught through this technology (ITV) than by any other electronic medium" (p. 51). As learning at a distance becomes the norm (Wagner & McCombs, 1995), educators need to know what coping and teaching strategies teachers use to succeed in an ITV environment. Research in distance education has most often focused on students and teachers who are separated from each other by space and or time. We need to turn our focus to the marginalized area of faculty perceptions to get the other picture. There is little phenomenological research dealing with faculty perceptions, feelings and subsequent actions as they teach to a traditional university student body while

simultaneously reaching out and teaching in the distance education mode. Moreover, there are few phenomenological studies where the ITV professor's developing frame of reference is followed over an extended period of time. The perceived problems and subsequent resolutions and changes in approaches to teaching in the classroom inform other ITV teachers and stimulate reflective discussion. This in turn leads to a more efficient, successful learning environment. Also, the juxtaposition of a novice and an experienced DE teacher's constructed reality of dual mode teaching can confirm, expand, or challenge existing theories of instructional attributes in distance education.

CHAPTER TWO

Literature Review

Relevant theories and research findings are reviewed in this chapter in order to seek out categories of faculty related research. The literature review is divided into four sections: interactive television research; transactional distance; faculty development; and models of faculty development; and change. This existing body of knowledge is reviewed and provides initial grounding for this study.

Interactive Television Research

Interaction is a vital factor in the learning environment. For example, professors use student feedback to gauge the amount of learning taking place, to encourage student participation, and to clear up any student misunderstandings. Although there is a plethora of research showing that TV students (Barbatsis, 1978) and ITV student outcomes are equal or better than traditional classroom students (Dillon, Gunawardena, & Parker, 1992; Lehman & Kinney, 1993; Pirrong & Lathen, 1990; Graham & Wedman, 1989), there is still mistrust about the quality of learning and the ability to interact over an interactive television system. Clark (1993) wrote that "interaction concerns and qualifications of the benefits of distance education were expressed by those who favored distance education as well as by those who did not" (p. 29).

Concern about the quality of interaction is one of the factors that causes teachers and students to resist participating in an ITV learning environment (Yocom & Whitson, 1995). Research also shows that some professors who vary their teaching strategies in the traditional classroom revert to the lecture mode because of the technological interface between them and a portion of their students (Gehlauf, Shatz, & Frye, 1991).

The title "Interactive Television" suggests that teachers and students are sharing ideas with each other visually and audibly. But research shows that many times ITV has developed into a talking head industry (Stone, 1990). Wyoming ITV students expressed the difficulty of interaction among participants and felt that their teachers approach to lectures had a "canned quality" (Yocom & Whitson, 1995). Zhang & Fulford (1994) collected data to measure adult students' perceptions of class interaction during a two-semester science education class via Hawaii's ITV. Interaction seemed to be a collective concept of group dynamics not measured by equal individual contributions. The data suggest that "collective cognition and affect generated by participatory episodes" can impact students' perceptions of interaction (p. 64).

Other research suggests that ITV practitioners also should consider and plan for learner-interface interaction (Hillman, Willis, & Guanawardena, 1994). At a minimum, professors should be aware of the following when planning their ITV classes: participants use microphones to communicate with remote

sites; cameras are used to focus in on participants; TV monitors provide visual contact with remote site(s); and, slight delay between audio/video signals are evident.

Training faculty to teach over interactive television is an important issue. Faculty and students recognize the need for training and support. Adult students enrolled in the Oklahoma Televised Instruction System (TIS) courses listed instructor teaching style as one major factor that hindered student performance. The complaints included instructor failure to interact, provide feedback, or develop rapport with the distant students (Dillon, Guanawardena, & Parker, 1992).

Over a four-year period, interactive television conferences, conducted by a Canadian science education association, were video taped; then, key dialogue was transcribed and analyzed to determine the dominant pedagogical features (MacKinnon, Walshe, Cummings, & Velonis, 1995). The analysis showed that the most effective ITV approach was a dialogical model of teaching where the learner is an active participant in constructing the knowledge base. Prescriptive suggestions from this research emphasized the humanizing of students by zooming in on them when they are talking to the class and making sure that microphones are strategically placed to facilitate dialogue.

Some researchers have contrasted traditional and ITV approaches to instruction. Dillon, Hengst & Zoller (1991) conducted research to determine,

among other things, which instructional strategies the faculty were using over a state televised instructional system in comparison to their in-house campus classes. Their results suggest that when using the ITV system the majority of professors reverted to teacher-centered strategies such as lectures.

Overall, interaction research has focused on ITV students' perceptions of their engagement with classmates and teacher. Whereas, professors view of interaction is reflected in figures concerning their pedagogical stance in the ITV environment. The 'talking head' analogy permeates the research. Professors have expressed concern that "using traditional lecture method in an interactive television course creates the 'talking head' syndrome" (Gehlauf, Shatz, & Frye, 1991, p. 25). The talking head syndrome is characterized as a bobbing head on a TV screen lecturing while distance education students sit passively. Without some interactive elements such as class discussions the level of cognitive engagement is minimized and optimal learning does not take place. However, if teachers do indeed revert to a 'talking head' over ITV, then researchers should be trying to find out how teachers perceive this teaching medium that causes them to become less interactive with their students. Faculty and student training with the technology has been one approach used to improve the quality of interaction.

Faculty Development

Faculty development workshops in dual mode teaching can help faculty make the teaching transition to distance classrooms. Providing courses over

interactive television requires that educational professionals develop additional skills (Dillon, Confessore, & Gibson 1992; Dillon, Gunwardena, & Parker, 1993; Martin, 1993; Wolcott, 1993; Telg, 1996). They also need to develop new ITV skills to effectively motivate, provide timely feedback, and engage the student in knowledge construction.

Thach and Murphy (1995) conducted a modified Delphi technique to identify major professions, outputs, and competencies directly responsible for effective distance education. Approximately 100 distance educators in the United States and Canada were contacted for the first round of which 51 responded to the survey. After the results were grouped into categories the second round survey went out and 36 out of the 51 were returned. Means and standard deviations were compiled for the outputs and competencies. The results of the research showed that distance education teachers take on many additional roles to insure their students receive a quality education when time and/or space become mitigating factors. The instructor inputs included being clear and well organized, being a subject matter expert, being able to develop learning objectives, and being able to provide timely feedback to students. Instructor competencies included: instructional design, feedback skills, technology knowledge, collaboration/teamwork and support services knowledge (p. 64).

A review of the input information from leading distance education professionals clearly indicates that distance education faculty need to learn

additional skills. Professional development workshops can help instructors develop distance teaching skills.

Some universities do provide a strong support system to help faculty develop these skills. Carl (1986) discussed goals of a Canadian faculty's development workshops and the importance of dialogue about dual-mode course design. Fifteen Ohio University ITV faculty filled out surveys concerning the difference in traditional and dual-mode classes and the need for research and training (Gehlauf, Shatz, & Frye, 1991). This survey produced some prescriptive suggestions from the professors concerning interaction tactics to develop rapport. The professors tended to depend more on lecture, overhead notes, and group discussion although they expressed a "need to address pedagogical issues including more 'hands-on' or 'role playing' experiences' to foster interaction with students" (p. 24).

However, dual-mode university faculty do not always receive the professional development needed to excel. Instead, they receive minimal training and end up teaching themselves or not using the system effectively. Research on the Oklahoma Televised Instruction System showed that only a minority of the faculty received ITV training before teaching over the system (Dillon, Hengst, & Zoller, 1991). The teachers drafted into presenting classes over the interactive television system received minimal operational and administrative training such as whom to contact if there was a technical problem. These ITV teachers did not receive: instruction on how to effectively

teach over the system; suggestions on adapting course design; or, information about relevant research on the needs of the distance learner (p. 38). The teachers "rely primarily upon instructor-centered strategies, particularly the lecture, thus supporting learning within the knowledge and comprehension levels of the cognitive domain" (p. 39). Additionally, Dillon et al. noted that if given a choice, these teachers would not volunteer to do any more ITV classes.

Models of Faculty Development and Change

A strong support system can help professors and students adjust to and embrace ITV technology. Shaeffer and Farr (1993) described the process used by one university's distance education program to evaluate and improve their ITV classes and help instructors overcome their apprehensions about the system. It begins with hands-on workshops for instructors teaching with the new technology and continues with their receiving ongoing coaching from instructional designers. Survey results of the coaching/mentoring sessions showed teachers had mixed feelings about using ITV. On the one hand, the teachers enjoyed the state of the art graphics' usage and ability to meet and share ideas with other teachers throughout the state. Participants, however, complained that too many sites were on-line at a time, which made it hard to be spontaneous and develop a good interactive learning environment. They also expressed the common complaint about time delays because of equipment failure. (Shaeffer & Farr, 1993; Yocom & Whitson, 1995). Some

universities are proactively developing a support system to help ITV instructors adjust to a distance learning environment. Additionally, follow-up training should be provided to demonstrate improvements and new capabilities of the system. However in many settings teachers receive little help, as interactive television is perceived to be similar to traditional classroom.

The distance education research suggests that new faculty development and support programs need to be implemented to support the expanding role of traditional universities, and adequately reward distance education faculty. Olcott and Wright (1995) developed an institutional support framework to help integrate technology into the curriculum, expand the role of traditional universities, and adequately reward distance education faculty. Their model (Figure 1) for faculty support shows the expansion outward from the faculty of necessary elements to successfully support an extended educational network. To provide learner centered technology-based instruction the faculty need to be properly compensated, given adequate training, and release time to learn how to effectively design their courses while using distance education technology.



Figure 1. Institutional Faculty Support Framework

(Olcott & Wright, 1995, p. 5)

There are administrators such as the president, provost, and departmental leaders who shape policy, provide the necessary resources, scheduling, and a nurturing attitude which helps make an extended program successful extend from the faculty center of the model. The third concentric ring in this model illustrates the essential need of graphics, media, and technological support to faculty. The outer ring pulls in the concept of cooperation and collaboration among different learning institutions to successfully serve a learning centered extended student population. Central to Olcott and Wright's institutional faculty support framework is the faculty itself. Faculty attitude toward change can hinder or enhance efforts toward technological changes at a university.

Faculty attitudes are important because these personal and collective feelings can affect how ITV classes are taught and the rate of ITV adoption (Clark, 1993). Walsh (1993) developed an interdependent attitudinal difference model after collating data from 121 surveys returned by traditional and distance learning faculty at the University of Oklahoma. The six factors in this model were: exposure, peer influence, barriers, opportunity/support, need and incentives. Referencing Lewin's force field model, Walsh noted that constraining and driving forces among the six factors affected faculty's change in attitude. According to Walsh, a disequilibrium of factor influences causes a positive or negative change in faculty attitude. Whether negatively or positively disposed toward distance education, the surveyed faculty felt that there was not enough distance education faculty training.

Lindquist (1978) addressed the need for faculty development to assist in academic change. Using his research of university case histories of planned change, Lindquist developed an adaptive development services model to help guide educational policy makers to institutionalize change (Figure 2).

Figure 2. ADAPTIVE DEVELOPMENT



Lindquist p. 254

The model provided basic ideas for consideration when developing change strategies in curriculum, teaching, and evaluation. In 1965 Rogers published his research on social diffusion of innovations which is now in its fourth edition (1995). Havelock (1970) was also researching and writing about educational and social adoption and change. He posited that a change agent could help innovation become adopted in the educational system. His relational problem-solving model involved disequilibrium leading to a need, which is diagnosed and then resolved after searching for and applying the best possible solution. This research guided Lindquist (1978) as he focused on educational adoption and change. He noted, as Rogers (1965) and Havelock (1970) had, that effective adoption of new ideas and innovation "should come from credible sources and should be offered as simple pilot projects or implemented in easy stages. They should be designed to fit existing values, interests, structures and behaviors as much as they can stand, and they should be easy to test and observe as possible" (p. 226). Rogers (1995) noted that five attributes of innovation: Relative advantage, Compatibility, Complexity, Trialability, and Observability, determined the speed and success of innovative adoption. Havelock and Zlotolow (1995) provided a change agent's guide to take policy makers through the seven stages of planned change in an organization. University faculty should be proactive partners and advisors in the educational change process.

Summary of Literature Review

The research suggests the following:

- Dual-mode universities face the challenge of having professors teach to the student population at the school while providing some of these same courses over the ITV system. Many of these professors mistrust and are resistant to teaching over the system (Clark, 1993).
- Distance educators report that they need additional skills to teach in that environment yet in some dual-mode institutes teachers are not receiving even basic professional development classes to assist them in this effort (Dillon, Hengst, & Zoller, 1991).

- Some teachers are more reliant on instructor-centered strategies when teaching over ITV than in their traditional classrooms (Dillon, Hengst, & Zoller, 1991; Gehlauf, Shatz, & Frye, 1991; Yocom & Whitson, 1995).
- 4. The research suggests that using a dialogical, learning centered approach to teaching will compensate for the transactional distance created by the physical separation of student and teacher (MacKinnon, Walshe, Cummings, & Velonis, 1995).
- 5. The ITV faculty research provides prescriptions and helps demonstrate the scope of skills required of distance educators but very little of it explores faculties phenomenological context.

Two distance education phenomenological studies addressed learning at a distance from the students' perspectives. May (1994) conducted a phenomenological study concerning five women's distance learning related experiences. The other study also involved distance learning students. Burge (1994) studied how students said they learned in a computer-mediated environment. While qualitative studies have been done dealing with dual mode instructors, the literature lacks phenomenological studies from the dual mode instructor's perspective. Attitudes are developed because of experiential perceptions. The teachers' frame of reference, their stories of how they cope and approach their teaching can inform and enlighten researchers and teachers. Additionally, this comprehensive, longitudinal view of two ITV teachers provides insight into the fit of their pedagogical stance with the prevailing DE pedagogical models.

.

CHAPTER THREE

Research Methodology

In order to make sense of how people handle problems, situations, the world, we have to understand the way in which they experience the problems, the situations, the world, they are handling (Marton & Booth, 1997, p. 111).

Conceptual Framework

This exploratory research focused on the experiential (cognitive, affect, and conative) states of two teachers as they adapt/develop coping strategies, teaching strategies, and a pedagogical stance to fit their dual mode interactive television environment. The professors provided an ongoing picture from their frame of reference of how their cognitive states, feelings, and subsequent actions were directed toward successfully guiding and challenging dual-mode ITV students in the learning process.

This research answers the question of how these two teachers perceived this phenomenon as they taught in an interactive television environment. This study was a phenomenological study. "Phenomenology describes how one orients to lived experience" (Van Manen, 1990, p. 4). Specifically, the study combined inductive analysis (Miles & Huberman, 1994) and an interpretive process (Denzin, 1989).

Husserl developed the concepts of phenomenology as we understand it today (Denzin, 1989). Husserl wanted to understand and interpret experience before reflective thought imposed bias and clouded the reality of that lived experience. This required a phenomenological reduction or 'bracketing' of the experience (Ozmon & Craver, 1990). "If we are to understand primordial conscious experience, we have to perform a 'phenomenological reduction,' that is, we must strip way or' bracket' the assumptions and presuppositions of culture, of which traditional science is but one part, and get back to the immediate or original perception" (p. 244). I wanted to investigate those immediate experiential perceptions of ITV professors as they spent sixteen weeks as dual mode ITV instructors. It is from this inductive examination of the phenomenon that the search for understanding and verification or development of theory begins (Goetz & LeCompte, 1984).

Population and Sample

Throughout the world more and more people are delivering classes and training sessions over interactive television. The researcher purposively selected two participants for this study from a pool of ten instructors scheduled to teach an ITV class at a large south-centrally located university in the United States. These two participants provided a good counterbalance of master and novice ITV qualities. Both were respected professors at the same university; however, one was an experienced ITV instructor while the other was teaching over the system for the first time. The teachers were briefed on the proposed research and agreed to participate in the research (see appendix A).

Participants

In phenomenological research the main researcher and the participants are co-researchers (Moustakas, 1994). Additionally, the background and

philosophical stance of the researcher should be disclosed (Denzin, 1989; Glesne & Peshkin, 1992; Bogden & Biklen, 1992). I spent two years managing an ITV as a Department of Defense civilian employee. My duties included conducting experiments to determine what could be accomplished with the system, training remotely located instructors to teach over the system, showing technicians how to operate the system and facilitating the instructors. During this time, I demonstrated that computer data and video feeds could be used concurrently during ITV instruction. I was enthusiastic about the ability of ITV to actively engage distance learners in a collaborative learning process while playing out military scenarios with data transmitted over the system. My interest in the lived-experience of individuals and cultures predisposed me to using experiential phenomenological research methods.

Another participant was a classics professor, Zelda, who has eleven years of university teaching experience. Additionally, her undergraduate work included a childhood development and early childhood education major with a minor in both psychology and English. She had never experienced teaching over an ITV system and just learned a week before the class started that she was teaching a combination of local and remotely located students. Her class load consisted of 41 students at the university and 7 remotely located students students. However, because Zelda had to conduct her class in an ITV studio, which only seated 28 students, 12 of the local students sat in an adjacent room, which provided only one-way television. In the adjacent room, students

watched her on TV and used telephones to communicate with her. The classics department had never used the ITV system before and did not require its ITV professors to deliver part of their classes at the remote site.

Conversely, the professional studies professor, Alice, had over twenty years of teaching to include experience as an elementary school teacher and over twelve years as a university professor. She taught research methodology over the universities ITV system nine years ago and over the years has participated in compressed video teleconferencing. Last semester she began teaching over the system again. During the research semester, her dual mode ITV class consisted of 17 remotely located students, and 9 local students.

The years of ITV experience, number of students, course content, and facility arrangements were not the only differences between these two classes. Alice was required to spend a portion of her time teaching from the remote site and they had different student operators.

The ITV System

Both university compressed video ITV studios had the capability to send/receive video of students, professors, videotapes, or computer graphics among the sites on line. Microphones were placed on the student tables so students at the other sites could hear them. The professors had two small monitors recessed into the instructor's desk so they could view the outgoing video and their remotely located students. Two 35 inch TV monitors anchored from the ceiling allowed students to see their teacher, graphics, and/or remote

site participants. A student operator sat in the back of the library science class to operate the system. The classics student operator operated the system from a technical booth next to the ITV classroom.

One other room, next to the teacher's ITV classroom, was used for the student overflow in the classics class. This small room was equipped with a 34 inch TV set in front of the room and 12 student positions consisting of three tables and hinged chairs. These students could use telephones located at each position to talk with the teacher. There were no cameras in this room, so the professor could not see who was in this room, and the students only saw the send camera on their monitor.

At different times, both professors' students used the same remote site classroom at Bella. This classroom had two 35-inch TV monitors in the front of the room, two cameras in the front pointed toward the students and one camera in the back focused in on the instructor. A professor could sit at a table in front of the room and lecture, use the computer to send graphics, or use an electronic document stand. Two TVs located at the back of the room provided a send and receive video signal for teacher monitoring. The Bella classroom had a full-time technician who would sit at the front student table to operate the system, while the students sat at tables behind the technician and at tables on the other side of the aisle. The Bella students also had microphones, which allowed the university site participants to hear Bella students.

At Bella, two full-time technicians provided technical support. One technician linked the sites for the day class while the other technician linked the sites up for the evening classes. At the university, student operators provided the technical support. The university ITV manager provided back up support if problems developed with the student helpers.

Procedures

The researcher taped a semistructured interview at the beginning of their teaching experience (see appendix B). Participants also expressed their experiential thoughts via e-mail, and in informal free-flowing conversations with me for the duration of the semester. The purpose of the semi-structured interview established a baseline of comparable data across participants. On the other hand, the free-flowing, exploratory conversations exposed a range of perceptions as they developed over the duration of the class. Furthermore, these conversations bring the reader into the participants' world (Bogdan & Biklen, 1992). I arranged to talk with the professors, at their convenience, a minimum of once every week. Moreover, both professors would communicate with me via e-mail and phone. The free-flowing conversations allowed the participants to express themselves in a stream of consciousness format without being "drawn back" to a more focused conversation. Some of these conversations were taped. Zelda, the classics professor asked me to see her before class and invited me to walk with her to the ITV studio. I observed most of their classes. I sat in the adjacent room for the classics class, and I
sat in the back of the professional studies professor's class. I also traveled and viewed both professors' classes from the Bella site on two occasions. On two other occasions, I traveled with Alice, the professional studies professor, to the Bella site.

Videotapes of the classes were made for student viewing outside of class-time. The ITV manager gave me these videotapes. All of the tapes were reviewed to glean spontaneous comments on participant perceptions of this phenomenon. End-of-course interviews were conducted with participants. The interviews were based on data analysis of preceding interviews, conversations, observations, and pertinent DE research. The taped interviews were transcribed along with video taped segments in which the professors talked about the ITV phenomenon and their approach to teaching. Contact notes were made of non-taped informal conversations, and videotapes provided a longitudinal picture of the professors' developmental reality of the ITV phenomenon and enhanced the trustworthiness of the data (Denzin, 1989; Miles & Huberman, 1994).

Data Analysis

I used Moustakas' (1994) modified Van Kaam methodology to analyze the data. The Van Kaam methodology includes a possible mixture of topically guided, open-ended, and informal interviews in the data gathering process. Each participant's statements were initially given equal value and reviewed to

determine unique textures. After discarding statements that did not pertain to the study, I developed individual structural themes such as empowerment and faculty support. The last step was the integration of individual descriptions to create a composite textural and structural description of the phenomenon from the participants' frames of reference.

Transcribed data was expunged of real names. Themes and event codes which emerged from the data were categorized and coded. Personal interviews were triangulated with video taped data, written data from the participants and an end of semester discussion with the professors to verify and enhance data trustworthiness (Guba & Lincoln, 1989; Bogdan & Biklen, 1992; Morse, 1994). Individual textural-structural descriptions were constructed and then combined to get a composite picture of similarities and differences in their perceptions. Both participants reviewed the data collected and confirmed that the perceptions being portrayed reflected what they said and wrote over the semester.

To help maintain a sound study, Guba and Lincoln (1989) defined the criteria for the trustworthiness used in qualitative research to help maintain a sound study. The criteria of trustworthiness of the data refers to data credibility, dependability, and confirmability. In this study prolonged engagement, persistent observation, and peer debriefing were tactics used to provide data credibility. Additionally, a committee member who has spent numerous years conducting qualitative analysis, to include phenomenology,

independently reviewed all the taped interviews, transcripts, and a purposive sampling of the videotapes. A doctoral candidate independently coded the transcripts, which provided a 99 percent inter-rater reliability check.

Assumptions and Limitations

Underlying this study was the assumption that the professor participants would share their sincere impressions about the system, their forms of adapting to it, and adjustment of teaching and coping strategies with candor. This is an exploratory study and as such the results should be measured only by the reader to determine if they are generalizable to their particular educational environments. Normally five to fifteen participants are recommended in a phenomenological study. However, this study was limited to two professors because of the prolonged experience of the phenomenon and the additional methodological procedures used. As this is a phenomenological study, the reader must determine the fit of the phenomenological study data to his/her own circumstances while remembering as Moustakas, (1994) said: "Descriptions keep a phenomenon alive, illuminate its presence, accentuate its underlying meanings, enable the phenomenon to linger, retain its spirit, as near to its actual nature as possible" (p. 58).

CHAPTER FOUR

Their Frames of References

ZELDA'S STORY

A volatile beginning: The first four weeks

Zelda had been told that her classics literature class was being offered as a dual mode ITV class. However, she did not concern herself about it because she was also told that these ITV courses "had never, ever been subscribed to." She was glad not to have to worry about it because of minor surgery she had to undergo during the summer break. Five days before classes were to begin in the fall, Zelda learned that there would be a remote site and local student body in her class. She had 41 students at the local site and 7 students enrolled for the class at the remote site. The ITV technician gave her a five-minute briefing on the two way audio/video compressed video system before the first class. Early in the class, Zelda explained that "I have presented three classes over the system and just received the manual" (teachers guide to using the system).

The first day of classes held many surprises. Zelda expected to teach her university students while simultaneously interacting with her distance learning students via television. However, the class enrollment exceeded her expectations. The university student enrollment was so large, approximately twelve of them had to stay in a small room adjacent to the ITV classroom and watch her on a TV set. Additionally, Zelda could not see who was in this room

as the video was a one-way feed. In other words, the students could see and hear her but she could not see them. About twelve students had to sit in chairs placed in the back of her classroom because there was not enough desk space for them. "The video room only holds 24 students and the adjacent room can hold 12 more but it is inadequate because the students can see and hear me but they cannot interact except via handsets which don't work." Zelda asked her honors students to drop and take the course as an honors course next semester.

After a week and a half of classes, Zelda was still agitated about the classroom situation and technical problems she was experiencing. She described her frustrations with the ITV system and classroom with me (Bella represents the name of the distance learning town):

As I see it now, I think it is horrendous. The technician in Bella has not hooked up the equipment that they need or he does not know how to work it. I do not know what his story is, but the students in Bella can hear me but I cannot hear them at all. So they are not free to ask any questions. And so the interactive portion of the class is null and void as far as they are concerned. They can hear what the other students are saying, but I imagine it is guite frustrating for them not to be able to participate in any way. They are strictly passive learners. ... Also, I must say this class was capped at 40 students. That was before anyone knew it was going to be offered in Bella and it was full last April. When I came to class, I found that the room was overflowing. That is because of the room I have to teach in; the video room only holds 24 students and the adjacent room can hold 12 more but it is inadequate because the students can see and hear me but they cannot interact except via handsets which don't work. They rotate - the ones that come in a little late are the ones stuck in that room. And, you can tell that I am less than happy. In fact I am enraged and, I think the students should be [enraged] because they are paying for this course.

Zelda also complained about the adjacent room and remote site

students being left out of the discussion because their audio was not working.

Talking about the students' ability to communicate with her from Bella, she

noted that the sounds coming from Bella were "just an EA EA EA EA. A very

staccato non communicative form of noise." Zelda decided that she had no

choice but to tell the students to complain if they were dissatisfied with the

problems created by the ITV system.

Please feel free to contact me. I usually do not give out my home number but I don't mind. I will give that to you -- I will write it on the board.You can call early if you are up at 6:30. There is another number on the board. Let's see -- someone else just came in at Bella.It's just like cartoons. I wished you could all talk to each other. I hope that will happen before long. To that point I have put on the board the presidents' action hotline number and I would encourage all or any of you -- because you are the students -- and you have the voice -- and you are the one's paying for your education... if you have any guarrel with this form of teaching -- if you feel that you are any way not getting your money's worth because of technical problems, because of room arrangement, because of anything -- I urge you to call the president's hotline and tell them the circumstances of this class. Or, if you are so inclined to be more politically motivated, then get up a petition if you indeed have guarrels with this. I am not telling you to do that. But I want you to feel free to do that. Because I think this is far from an ideal teaching situation and far from an ideal learning situation for all of you. Less so for those of you who have always been able to be in this room. But we do have to spend a great deal of time with technical problems, which is not to anyone's benefit. All of this if the system is indeed supposed to be working should have been in perfect condition before anyone paid any tuition, and I feel very strongly about that. So, I urge you to do what you will if you are so inclined, if you feel inconvenienced, if you feel gypped in anyway. Right? So it is up to you. The faculty does not have the voice the students have. Since we are underpaid and you pay.

Okay, I would also like to point out that there is a faculty manual for interactive educational television. I think this applies particularly to those of you in Bella. Number one under establishing a comfortable environment, it says a recording of your class will be provided to the remote site students. So, you make certain that you speak with your technician, because you missed at least the first twenty minutes of the last class and you are entitled to the lecture I gave then, which I cannot give again. So, that is between you and your technician and the technician here if he has a tape. Be aware of that. Be an activist.

Upon ending her emotional classroom speech, Zelda turned her

students' attention back to discussing The Aeneid, but her feelings of

frustration and powerlessness did not go away.

By the end of the second week, the major audio problems were

resolved. The distance education students could use their microphones to

communicate with Zelda and adjacent room students could use their

telephones to ask or answer questions posed by Zelda. The university

students in the ITV studio with Zelda were able to talk with her just like they

talked with other professors in traditional classes.

Zelda described her teaching style as interactive:

I provide study guides for the students. And I expect them to read with these guides as an aid. And, for these guides to act as a springboard to further inquiry on their part into the text that we are reading. And they come to class prepared to respond to questions on the study guide at least to those. And then, to bring up any other points that these points have further opened them to think about. And I ask them to always be challenging the text and whatever it is that I present to them about the text, to think beyond what is being offered to them. ...and to argue with one another about their approach to the text. Zelda asked students to interject their comments: "I tell them that I

expect everyone to be fully prepared to answer anything and everything that's

on the study guide. And so I choose people randomly in addition to those

volunteers." Zelda expressed the need to "scrap the student presentation

aspect of the class." Because she felt a portion of the class could not do these

presentations since they were not physically in the same classroom with her.

However, on one occasion she did toy with the idea of having the

distance learning students do some sort of presentation:

I feel that I am still eliciting the sorts of responses that I intend to elicit, that I am offering the students the opportunity to speak as much as possible. I don't know if there is anything I can do right now, since I am still trying to calm down to encourage the students in ----- to participate. They can't participate during class time. I might have to ask them to do presentations on papers that they send in. About some of the questions, they might have to do written responses to the questions. And it is going to be very difficult for those in the adjacent room because they rotate.

Two weeks into the class Zelda still felt very uncomfortable with seeing

her image on the TV set.

I have no television at home. I am not used to being invaded by images. And, when I teach I turn my head to the side and catch a glimpse of myself on the screen. I find it very distracting. It stopped me in my tracks this morning. During the time that the video wasn't up in Bella, in the screen in front of me was my image which I did not like seeing one bit, because it makes one quite self-conscious to see one's gestures. I wanted to concentrate on my students and material, not my own image. I feel that the screen encourages passive reception of knowledge. I don't feel there is interaction and that it is actually a hindrance to learning. I think the students feel that things are there for them when they want them and they don't develop thinking and learning skills that they do in the classroom when something is demanded of them immediately; that they don't take responsibility for their learning in general through the system.

Zelda continued making efforts to open up alternative communications

channels to all her students. She put her e-mail address and home phone

number on the board and told her students they could call her at her home.

Zelda talked about another classroom incident wherein her adjacent room

students' handsets did not work and the distance learning site in Bella was not

working for 20 minutes. She explained how she took her time doing

attendance to give the technicians time to take care of the problem. Fifteen

minutes into the class time, she began the lecture without making contact with

Bella.

Middle Interlude

Six weeks into the semester Zelda e-mailed me to explain why she

found instructing over the ITV system so frustrating:

I've still not learned the names of all the students on the campus, because I can't see those in the adjacent room and the students rotate between rooms. This course usually has a high degree of participation which is absent from this section for any number of reasons. I haven't a sense of their being "a class" due to the diffusion of students. I've gotten behind in my presentations because of time wasted at the start of the semester because of technical problems and shuffling of bodies here. Fewer students [than usual] have come to my office hours.

Zelda divided her time between the adjacent room and the video

classroom during the midterm. Her Bella students asked questions when they

saw her at her desk in the video classroom. At this time, Zelda still felt the

technology prevented her from having a more interactive classroom and made it impossible to have students present their papers:

I was not allowed to go ahead with a new innovation that I felt would help the material be understood more readily. And now I am being prevented by this system from doing something that I have done continuously; that has worked very successfully.

Because of the dispersion of her student population at two different campuses, audio problems and the lack of visual contact with the students in the adjacent room, Zelda felt unable to freely call on students. She did not know which students were in the adjacent room. At the beginning of the semester, she would have ITV studio and adjacent room students sign-in to determine who was there; however, late students were never accounted for until after the class finished. Because of this, Zelda was not be aware of the arrival of late students and was never sure who she could call on in the adjacent room. She felt compelled to change her approach to teaching:

I thought I had to restructure this into more of a lecture rather then a participation class.... I am lecturing more than I ever have. And, I don't mind lecturing and it is very efficient, but I feel it deprives the students of a great deal of their ability to grasp the material. I don't like straight lecture class because I don't like passive learning. Because I don't think it is learning.

Her discomfort with seeing her own image continued. In October, Zelda noted that during a couple of the classes the TV screens showed the remote site "I see myself again and I am taken back. I become too concerned with my own movements right in front of me because there is a screen right in front of me at the desk and I don't want to see myself." She explained that at times she would prefer to have no visuals because she could see the Bella students were not speaking which added to the distraction she experienced from seeing her own image. "I keep wanting to say: Can you hear me? Do you understand what's going on? Is there real communication? Are your microphones working?" She e-mailed me a message in October letting me know that her "superficial discomfort with the monitors had abated. Deeper discomforts still prevail." However, the following week Zelda had her local TV sets switched to black and white mode and had the technician call the remote site to have the same done there. She explained to me that getting rid of the color would remove some of the visual stimulus enabling the students to concentrate on what was being discussed. "Instead of being so taken by the image which is really worth very little as far as I am concerned, they might be taken in by the ideas. They might refocus and hear differently if the images were black and white rather than colorful."

The problems with her own image distracting her from the topic at hand returned to plague Zelda; "I don't want to be talking to myself. I don't want to see myself. I am concerned with ideas and if I see a hair across my face or something else, I don't want to be conscious of that sort of thing. It has nothing to do with the material... it gets in the way of how I am presenting." She was able to joke with the students about the distorted colors she would see on her monitor. "Just out of curiosity, for those of you in the adjacent

room and in Bella do I come across as green or red - the skin hue." A Bella

student told her she looked naturally blushed. She commented "that's very

sweet. I am kind of cadaverous color on this monitor so I did not know how I

came across over there. That is just a little bit of vanity - wanting to know

that."

Eventually, Zelda asked me if I could get her a tape of her class so she

can see how she was coming across to the remote students. The following is

her e-mail narration of viewing and evaluating her TV persona.

Thanks very much for the video of the 4 November class. I must first relate to you my personal response in anticipation of viewing myself, for the very first time, on tape: I experienced a nervous dread the likes of which I've not known before; physical symptoms included shallow breathing, mild headache, hand tremor, and prolonged avoidance of the moment when I knew I'd have to view myself. I waited until I was alone in the house, and still persisted in avoiding the need to fulfill the assignment. There. A confession.

Now for the response to your inquiry. I recall my distress at not knowing whether I should proceed with the class, my tremendous annoyance at having the technology force me to consider whether or not I valued the students who were not in view, both in Bella and the adjacent room, my lack of control in my own classroom(s), and my intemperate desire to verbally thrash the anonymous bureaucrats whose utter lack of sensitivity to the learning process found all of us in an unacceptable situation.

I continued lecturing as long as I had some indication that I was being received, at least aurally, by all of the students, although I realize after having viewed the tape that I did not, and still do not know completely how much I was "coming across." To my great surprise, my annoyance and frustration were not as overt as I had imagined: I was more collected than I recall, and also more consistent in my delivery than I would have thought possible. The tape was, after all, quite helpful, and even an incentive to more thorough preparation for class. It brought home that I am indeed lecturing, that the class participation is minimal, and that my years of work in fostering a meaningful dialogue in the classroom are not granted a part in this technological classroom. And this is a grave disappointment to me.

Zelda did not randomly choose to view the videotape. That particular tape contained her lecture that had continued after a catastrophic failure of the technology forced the adjacent room students to crowd into the ITV studio and a shutdown of the Bella site. Zelda continued her lecture to the local class while the recorder continued recording and capturing the last 38 minutes of class.

Late in the semester, Zelda noted that if she had a say in future ITV classroom set-ups she would:

*Limit the number of students to the size of the studio

*Provide better trained faculty support

*Show ITV professors and students how to operate microphones

*Have a Bella site technician present to prevent creating "latch key"

students

*Have a local camera on the ITV studio students so the distant site

students would feel more like they were part of the class

Additionally, she would get rid of the noise ("waor" sound) her

classroom students complained about:

A lot of them have moved to the adjacent room because the sound is much clearer. They don't have this interference. And so whatever it is that causes that "waor" would have to be fixed -- because we would not be using the adjacent room. We would all

be together in the one room where we have this noise. So whatever it is that is causing that would have to be fixed. ...

Zelda would also seek a remedy to the noise at the Bella students'

classroom:

I don't think I have ever had a clear sound. And, so what is ever causing that gargle, whether its instructing the students in sitting a certain distance from the microphone to do away with it, or whether there is actually something in the equipment, it needs to be fixed because this is a robotic interaction as it is now. Both the gesture and the quality of the voice make it very robotic. ...I feel that my responses might sound very forced because I am not speaking as naturally as I might if there weren't this dimension to it, this robotic.

Zelda felt that a reduction of noise and more camera movement on individual

students would remedy her feelings of remoteness from her students.

Holidays and Finals

Zelda canceled three scheduled ITV class meetings because she was

presenting at an international conference and had promised her students an

extra day for Thanksgiving holiday travel to their homes. The break from the

classroom brightened Zelda's outlook but she still felt a change in her teaching

mode because of the ITV environment.

From past experience, I have found it works best when they (her students) have a very active role, which they can't have -- given the distance. ...We do in-class presentations in other sections that I teach and everyone is assigned a Canto and they represent that Canto as their own. They do extra reading on it if they choose or they just do an interpretation on it and link it to the rest of the Inferno. I have found that was going to be unworkable since I have people in three places and we couldn't all come together and see each other. And, I didn't want disembodied voices speaking into microphones I wasn't comfortable with that. And so I feel that I moved into a lecture

mode that I am not pleased with. Maybe the students are glad to be passive but I don't care whether they are happy about being passive; I want them to be active. So I feel that there is a chance they are not going to be getting as much out of this work as they would be in other circumstances.

Additionally, she felt the Bella students suffered because they were

"latch key" students; because they were left to their own resources in a

technological classroom. In her view, however, this was mitigated by their

desire to take the class even if it meant using the videoconferencing system.

Zelda often asked if the remote site and adjacent room students could hear

what a student in the ITV studio had said. She found that:

They would say no. Which meant that, they weren't even interested enough or active enough -- or they felt so marginalized or intimidated -- that they didn't feel that it was their right to ask to be let in on this [hearing university students commenting about the literature] which is a complete subversion of the learning process and indeed a complete marginalization of students at the remote site.

The class session before finals, the student operator did not show up at

the ITV studio. Zelda contacted the main ITV office and within twenty minutes

she was on the air. After class she e-mailed an account of what happened:

I'd like very much to speak with you, either via telephone or preferably in person about today's class...for which the [student operator] technician didn't show up. I reached Bob's [the university ITV manager's] office, and he appeared in about five minutes, but by the time we got started we'd lost fifteen crucial minutes from the last class of the semester. After class I expressed my anger to Bob in no uncertain terms—he stood at attention and yes ma'amed me, but I could tell he wished he could throttle me on the spot.... So it all ended much to my dissatisfaction without a good clear summary of the last Canto of the <u>Inferno</u>.

ALICE'S STORY

An Alice in Wonderland beginning: The first four weeks

Alice decided to teach the first day of class from Bella. This was a conscious choice on her part because there were more than double the number of students at the Bella site then at the university site. However, instead of using her usual two-way audio/video compressed digital classroom at Bella, Alice and her students were told to use the compressed digital classroom next door. That classroom contained miniature student tables and desks. Ten minutes after the class was to commence, the link between sites was completed and class began with adult students crunched into small chairs. Alice was able to joke with the students about the accommodations. She went on: "Another issue is ergonomics. I love this one tonight when you all are sitting at desks a couple of feet high with your knees jammed there. I hope we do better next time." Alice engaged students at both sites asking them to present themselves and then encouraged individual participation in discussions. She explained that this form of distance education technology was something that the students "should embrace."

Alice conducted her next class from the university. She noticed that the Bella students still were sitting in the ITV classroom furnished with miniature furniture. She had one of her student's check to see if her regular ITV classroom was being used. It was not, so she asked her students to get the Bella technician and find out if her Bella students could switch classrooms.

Jim came and started talking over the ITV system with Alice. She informed Jim that the lack of air conditioning and squeezed in accommodations with miniature fumiture were not acceptable. Alice requested him to move her distance ITV students into the other classroom. Jim told her there would be a class there later so she could not have it. [Recall that during this same time frame Zelda was using that particular Bella ITV classroom in the mornings twice a week and the audio system was not functioning properly. Alice did not know about that situation.] In frustration, Alice called out to the Bella technician.

Jim, are you there? Since these people are physically uncomfortable, I am talking physically uncomfortable and Jim you are not sitting in one of their desks, may I make a request? Could these people at least sit in that classroom which is cool and large and equipped with adult size furniture until it is needed by somebody else who maybe has higher priority then these twenty people?

Jim told Alice that he would have to check on that. He further stated that he could not make any room changes at that time. Alice responded, "Jim, do you understand that I am angry about this? I will not be quiet and do you realize that Ray [the Bella ITV manager] needs to know about this and are you going to tell Ray? Jim assured Alice that he was aware of it and he was looking to replace the desks if they could find some. In frustration, Alice responded, "Do you need encouragement Jim?" Jim told her that they have to find the desks and it is not as easy as getting it from another building. He added that she should take her complaint higher up. Alice responded, "trying - trying to Jim -- working my way up." Alice went on to ask Jim to prop the door open to reduce the temperature in classroom. Alice explained to her university students that "they [the Bella students] do not have air conditioning. You do not know the desks they are sitting in. They cannot cross their legs; they are sandwiched in there. Okay, welcome to the class tonight." With that last statement and a laugh, Alice's demeanor of anger and frustration dissolved and the planned class lecture began.

The next week Alice was at the university. She continued using computer slides to enhance her lecture and encouraging student participation. She had the student operator zoom the camera in on individual students when they talked. The university system had the ability to transmit graphics and live video feed simultaneously using a quad splitter. Alice took advantage of this technology to maintain face-to-face interaction. In this way the students saw Alice in one corner of the TV monitor while simultaneously seeing her presentation slides on the same screen. This also provided moments of levity for the class; when the student operator made the adjustments, it appeared that her body was flying around the TV screen and all the students laughed. Alice encouraged active involvement from all her students and they all would let her know when there were technical problems or they wanted to see a particular slide put back on the TV screen. This scenario of active participation was indicative of how the semester went for Alice.

The Bella students moved into their regular classroom for the third week session. Unfortunately, the link was not up when the class period started. Alice and her students waited for about 15 minutes before the classrooms were electronically connected.

Once classes started, Alice again evoked a dialogical approach to teaching, encouraging students to speak up. She encouraged student interjection of ideas, comments and elaborations during discussions and lecture. She encouraged a sense of collaborative learning where each student could provide added value to the class. However she explained that:

Although students do spontaneously contribute to class, they are somewhat more thoughtful about sharing the 'floor' with each other. On compressed video I find that students tend to be more considerate in realizing class time as a commodity to be spent wisely.

Alice calmly handled the minor technical problems, which continued to plague the class. If the audio was breaking up, she and her students announced the problem and had people repeat what they had said. It became second nature to get technical corrections on the fly. At the start of one class, the technician at Bella told Alice to turn on her microphones and the Bella students chimed in "Dr. Alice, we cannot hear you." The Bella technician asked Alice to get the university student operator and have him replace her battery. After a battery change, Alice chimed in that the university classroom "is here. Are we ready to go?" After listening to a response from Bella she exclaimed, "Yes, we are wired! — There is a little feedback at this end." After

one more minor technical correction, Alice was given the go ahead by the Bella technician. Her approach to teaching required that the university students see the Bella students and vice versa so Alice asked if the Bella students could see the university students. They respond negatively noting that they saw her. Upon hearing this Alice exclaimed, "Too bad! They are a lot more interesting than I am."

Out of Wonderland: The rest of the semester

Her exuberance for the topics she was teaching and desire for visual interaction with her students continued. Alice explained why interaction was a significant factor in her approach to teaching. "For most that I teach, face-to-face interaction is very important; it affects motivation, emphasis on content aspects, feedback on developing concepts, and socialization into a profession." An example of that importance was demonstrated one night. A student in Bella offered up an insight wherein Alice responded, "Who said that in Bella? Allie? Where is the technician? I want to see you say it again." The technician moved the camera on the Bella student, Alice thanked him and the Bella student repeated her response. This was typical of Alice's approach to getting students involved in the learning process while gaining a sense of collaborative learning effort.

Some of Alice's guest speakers picked up on her positive feelings about the technology and openly responded to it and tried to use it. For example, a lawyer talking to the class about negotiations noticed that the screen was

blank. "I can see on my screens they have taken me off." (He toggled a switch.) "Ah! Here I am. I thought I was cut before the season premiere even finished!" After the Bella technician's classroom phone rang repeatedly, the guest speaker said, "We are getting calls from the outside. In Toledo, what is your question?" Another guest speaker at the university site expressed her feelings that the technology was a little intimidating but within an hour she was eliciting questions from Bella. Alice, who was at Bella that night, also chimed in to provide questions if the students were slow to respond to the invitation for input. Finally, the guest speaker blurted out; "I just have to tell you this is way cool. I have never done anything like this before." Alice responded "With the two sites?" The guest speaker agreed that the use of microphones and having two sites on-line was what she found so intriguing.

For all the free flowing exchange of ideas between sites, Alice still considered herself to be "very structured" when it came to teaching. "I lecture, I use commercially produced media. I count on class discussion. Sometimes it builds around case studies, or brain storming activities or personal experiences." She also took full advantage of the different communications media to keep in touch with all her students. "I feel that I am very accessible. Internet, telephone, home address, appointment wise they know that when I go up there they can make appointments to just come and see me." She believed that ITV was just an interim technology, and one day they would be using full-fledged telepresence technologies so professors and students could

work together, socialize, and collaborate on networked computers. Alice described via e-mail how her ITV approach to teaching was used to animate, motivate and create that sense of community among her students:

I value cooperation and group process; try to make everyone a winner; specifically thank them for their participation; ask for their help; emphasize the importance of professional networks; try to maintain a sense of humor; realize the support they give each other supports the teaching process; provide a directory to encourage their communication; minimize anxiety and competition—but maintain high standards for them to shoot for; structure learning activities to share to enrich the class (site visits, interviews, speeches); try to vary modes of teaching; can laugh at myself; try to make it clear that I accept and appreciate everyone of them—each has contributions to make.

Whereas Alice believed that organizational skills, positive regard for her

students, and detailed preparation was the foundation for her success as an

ITV professor, she felt that technicians and student operators non-professional

attitude interfered with the learning process. For Alice, their lack of

professionalism was demonstrated on several occasions when the technicians

and/or student operator did not have the classroom prepared for transmission

on time, were brisk with professors and students, or failed to show up. This

problem with being up and running on time was recurring throughout the

semester and resulted in an exchange of letters between Alice and Bob, the

university ITV manager. The manager wrote to her:

You caught a conversation between myself and the student operator assigned to your Thursday evening courses. I did not imply that you were in a state of panic, and I am sorry for your taking offense. My intention was to get this incident documented quickly before excuses could be thought up and to double-check the incident with you and get your comments and complete the resolution process.

Alice responded back to the technical manager:

My anger (and it was anger) was directed to the young man because he was simply not honest in explaining what happened. How could he say the system was up when there was no camera on the teaching position and the mike (sans battery) was zipped inside a container? I had found the battery and answered... the phone while two classes and my guest speaker ... stood by. Two weeks ago, when I was in Bella, he was late getting the class started, and I spoke to him at the close, making sure that he understood my expectations.

As Alice traveled to Bella during a rainy December afternoon, she

described a typical day in the life of an ITV professor driving up to teach at

Bella:

An average day can take this shape. The one that I am living through right now is that I am driving up there; I am fighting the rain. I am fighting the semi-trailers and there are a lot of trailers on the road today. My day started at school at 10 am. My department was very kind to me; several professors wanted meetings to start at 8 am this morning. I said that my day would be so long, and they asked if 10 am would work; I said that was better. So I started with 10 o'clock meetings at the [university] campus, and I was able to leave [the university] at about 11:30. I ran by to pick up some papers from downtown [neighboring city] that need to be couriered up. I will teach at 4:30, leave about 7:30, and get home about 10.... Tomorrow morning I have a meeting at 9 AM on campus. Now what this really translates to in my mind – is that on an eight to five schedule, I would begin work tomorrow at 6 AM, and this pace is the expectation. I have recovery time of twelve hours, and I have to be back in working order at OU.

When Alice arrived at Bella, she learned that the instructor's camera at

the university was not working so she had the guest speaker at the university

use a student position for his presentation. Later in the class, the

videoconferencing system locked up. The Bella technician said the guest speaker must have done something to cause it to lock-up. This was not the first time that Alice had been told she or her guest speakers must have done something to cause the video signal to lock up. Both ITV sites brought their system down and then back on-line (to clear the data channels). Class began again. When the class was over, Alice tended to Bella students' questions then she drove home in the rain.

The next week Alice administered finals to both sites concurrently, the technical support began this last day the same as they began the first day – late getting the system up and ready for the class session. Alice summed up a necessary trait for success at ITV teaching: "I think you have to have a tolerance for ambiguity."

CHAPTER FIVE

Themes and Theoretical Linkages

Five themes emerged from the data: technology, faculty support, interaction, professional empowerment, and approach to teaching. These issues cannot be addressed under any single change model. However, a combination of the models can be used to explain the extent that either of these two professors felt professional ownership with dual mode ITV instruction.

Havelock (1970) developed a guide to educational change, which combined internal and external systems to bring about innovative changes. Havelock and Zlotolow (1995) focused on the role of the change agent. In relationship to teachers, the relevant questions include teacher openness to change, and the extent that teachers in the change process were linked to one another and the teacher support/reward system. Havelock's work laid the foundation for future change studies done by Rogers (1995), Lindquist (1978) and Olcott and Wright (1995).

Rogers -- Factors Affecting Perception of Attributes

Rogers' (1995) reviewed over 600 cases involving diffusion of innovation and synthesized his findings to develop his own conceptional framework for change. One set of variables determining the rate of adoption is the perceived attributes of an innovation. Whereas the rate of adoption was

positively related to relative advantage, compatibility, trialability, and

observability, it was negatively related to complexity.

Relative Advantage

People tend to accept innovations when they perceive that these

changes have an advantage over doing things in traditional ways.

Relative advantage is the degree to which an innovation is perceived as being better than the ideas it supersedes. The degree of relative advantage is often expressed as economic profitability, social prestige, or other benefits. ...the characteristics of the potential adopters also affect which subdimensions of relative advantage are most important (Rogers, 1995, p. 212).

The practice at the university was to give professors an option of driving

up to Bella to teach a local class or teach the class concurrently over the ITV system. Zelda had driven up to present one class at Bella, but making the commute to Bella was neither part of her usual routine nor a desired action.

The only advantage she saw in the ITV system was that it allowed the university to reach out to more students. Zelda gualified her statements.

"The way it is being done detracts from the good it is. So I think the quality of

it is rather inferior and I think for the local students it is definitely detrimental."

One day Zelda noticed that the Bella classroom was empty, "I guess they abandoned ship today – understandably." Her university students also felt disadvantaged by the technology. Zelda never received the course critiques from the Bella site. However, she shared all her university ITV student critiques with me. These critiques supported her accounts of technical problems. Many of the university students wrote about lost learning opportunities because of technical problems. None of these students

commented positively about the ITV experience. A few responses from the

university students follow:

*Video courses are evil. Any course where only 2/3's of [the] students can cram into a room where the professor is – is heinous. No more video classes until your technical people do it right. *Much more harm than good. It distracted from the course way too much. *Technical problems were extremely annoying. *The technology sucked.

Zelda never developed a sense of relative advantage toward the technology

during or after her solo semester of being an ITV professor.

While Zelda's department had not used the technology, Alice's

department was an early adopter of ITV technology nine years ago. At that

time, Alice, like her departmental leaders, felt that video-conferencing

technology paved the way to the future in professional studies. For her there

were some relative advantages:

I committed to teaching on compressed video before I really had a grasp of the technology involved. I saw it as an improvement over the old talk back TV system. We had a history in our department of having experimented with that. Consequently, I was interested in distance education. I wanted to participate in distance education and this was something that I perceived to be a great improvement. ...I committed to it with a lot of blind spots.

After teaching a couple of years over the system, Alice's early

enthusiasm had diminished and she chose to return to making the long drives

to Bella, and teach classes at Bella independent of her classes at the

university. "The department wanted the Bella obligation fulfilled and I just

chose to drive to do it for a period of time. It was a hard day, but I had decided that the stress of the system didn't compensate for the time it saved me." So the early advantages she saw were diminished when confronted with "the unreliability of the technology, the complication of getting the materials back and forth between the two sites" and the lack of pedagogical compatibility to a new course she planned to teach. "I was not committed to bring those into this [ITV] format. I still feel that some courses are very much more compatible to the format than others."

Over a seven year span, Alice drove to Bella to teach some professional courses. Driving time, back and forth in heavy traffic, consumed at least 5 to 6 hours of her day. Subsequently, the heavy traffic, long hours, and at times dangerous driving conditions coupled with technological improvements, motivated her to again use the video-conferencing system.

However, teaching over the ITV system did not mean that the long drives were over. Her department required that the ITV professors teach at the remote site once a month. Teaching over the system while still driving up to Bella at least once a month created a very long workday. Alice commented, "All of our classes are usually taught at night; so compressed video or not, you have the long days because of regular committee meetings and other campus responsibilities."

Even though the days were long, Alice saw distinct relative advantages to dual mode instruction. She believed collateral learning took place because the students would be using similar technologies in their professional careers.

Additionally, Alice appreciated the advantage of having guest speakers who were physically located at the different ITV sites adding to the students' knowledge base.

Compatibility

The second relative advantage, compatibility, "is the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters" (Rogers, 1995, p. 224). In other words, an innovation is more likely to be used if that innovation is consistent with a person or organization's belief system. In one part of Zelda's mind she felt that distance education could be part of her teaching experience. Zelda responded to one of her Bella students that she "was absolutely not opposed to distance learning but I am opposed to any attempt to teach without the backup for that teaching. If they are not going to do it correctly it should not be done."

Even if the audio had worked throughout the semester, and all the university students could have been in the ITV studio with her, Zelda's preexisting view of television and its effect on the viewer also formed a psychological barrier between her and the ITV system. She considered television to be a passive learning technology. Zelda discussed about what she considered her ITV student's passive role in the class, "which I work very hard to try to avoid. [I want] to show students that they should be an active participant in their learning. I think the technology gets in the way."

The system was more compatible with Alice's professional goals.

Early on, she and her university department chairperson saw ITV as an

opportunity to expand their program. Alice explained:

In 1988 we had leadership in the department that valued the use of technology. We had a small faculty and we had a commitment to Bella for decades. ...So this concept of distance education is a long tradition. Also, the discipline had a strong tradition of applied technology. And, our leadership was willing to take risks. We accepted that and lived with it, and we were happy to do so. There was something exciting about the innovation and the potential of it. We had a sense of humor about it then. The leadership would describe us as being on the bleeding edge of technology.

Both professors believed in an interactive pedagogy. However, each

perceived the capabilities of the ITV system differently in its ability to allow

them to teach their courses interactively.

There are two rather different contexts for interaction: the first is an individual, isolated activity, which is the interaction of the learner with the learning material, be it text, television or computer programme; the second is a social activity, which is the interaction between two or more people about the learning material. Both kinds of interaction are important in learning. (Bates, 1995, p. 52)

Alice and Zelda's interactive pedagogy required students to read

assigned material, reflect on what they read, sometimes conduct further

research about a topic, and share these reflections with the class. Alice and

Zelda believed that this dialogical approach to classroom teaching was

absolutely necessary to provide students an opportunity to learn and grow

intellectually. Alice also wanted her students to be active participants in the

construction of knowledge. She noted that, "I probably value the social

environment for learning more than many people do, because I really think that learning is social."

To build on this social connectiveness, the students needed to communicate among themselves and their professor. Katz and Lawyer (1994) noted that communication "involves an exchange of thoughts and feelings to achieve meaning" (p. 3). This does not have to be a face to face communication. Professors routinely communicate electronically with their students outside the classroom. Particularly, Alice encouraged students' use of their class list-serve and the e-mail system to provide a degree of telepresence among her students. Zelda used the e-mail system to exchange communiqués with her students but did not use a list-serve. However, Zelda repeatedly reminded her students they could either e-mail her or call her at home if they needed to talk with her.

Communication also takes place when "information is exchanged through words, voice tone, timbre, and tempo; and physiology" (Katz & Lawyer, 1994, p. 3). This was why both professors wanted face-to-face interaction with their students so they could see students' physiological expressions ranging from bewilderment to epiphany. Then they could react to these expressions either by clarification of statements or having a student share his or her newly acquired intellectual insight. This type of communication also helped to build rapport among all participants. MacKinnon, Walshe, Cummings, & Velonis (1995) found that "the more

effective interaction television conferences present participants full-screen rather than as small faces in a crowd" (p. 92).

Zelda believed that not getting physical feedback from her "disembodied" students hindered dialogue and the development of rapport. Additionally, the only functioning camera in her university studio was focused on her so the students at Bella never had the opportunity to see which university students were making comments. Zelda did not get the level of student involvement and exchanges of ideas she wanted in her ITV classics literature class. Nor did she enjoy the usual rapport developed with her traditional students.

Difficulty in developing rapport with distance learners was not the only concern some faculty had with becoming ITV professors. Ostendorf (1997) noted that preconceived perceptions about television could also be an impediment to faculty transition into ITV instruction. Zelda did have a strong concern about the value of television and learning before she became an ITV professor and her concerns about a passive learning environment were not abated by her ITV experiences. Zelda believed that watching a TV monitor fostered a passive learning environment. The fact that the Bella and adjacent room students could not hear what the ITV studio students were saying; the fact that these same students had not reported the problem to the instructor until she asked them if they could hear, was indicative to Zelda of a passive learning environment. She did not waiver in this belief throughout the semester.

Zelda's solution to coping with this slightly dysfunctional and "passive technology" was to employ the lecture mode. Zelda did away with student presentations and changed her course grading so that student participation in classroom discussion did not provide any grade points.

Alice used the document stand and computer graphics to enhance her class lectures. She had students do group work and discuss the results with the entire class. She brought in guest speakers and consistently used directed questions to involve all of her students. They knew she expected them to be active participants and responded to her in that manner.

However, Alice also had to make allowances for the technology. She was more structured when teaching over technology: "I watch people that come in and deal with the [ITV] system, and I find that they are more structured too." Alice also coped by paying for duplicated videotapes because she believed the ITV system could not transmit good quality video to remote classrooms. When it was time to show a video she had each site disengage from each other and show the tapes locally. She also used students at each site as facilitators to get papers handed out and collect materials.

<u>Complexity</u>

Rogers' third attribute was complexity. The relative difficulty of understanding and using an innovation creates a sense of complexity that negatively relates to adoption rate. Zelda did not understand how the technology worked, did not know the different options she had in using the

system, and did not want to learn how to operate the system. She believed it was the technician's job to operate the system. "I didn't know what my role was going to be in all of this. I assumed that everything would be set up and all I had to do was run my class." She suspected that her students also did not understand how the technology worked.

I don't think any technician [or student operator] ever said anything to any student. I think I was the one who always reminded them to move the microphone towards them. The students didn't pick up on it. The students didn't automatically do it themselves if I wasn't reminding them. I had to remind them every time. Which means they were not caught up in what it meant to work with this technology.

Conversely, Alice learned how to operate the original system. She was

expected to control the cameras with an electronic tablet while teaching. In time, however, departmental leaders decided that the system "was not steady and reliable;" therefore, it was decided that "if we had a technician to manage the camera, we could devote ourselves more intently to the teaching aspect of it." Nine years later, Alice still wanted a technician operating the technology but she also wanted to learn how to operate everything herself. Alice explained that she needed this technical expertise so she could help a student operator when he did not know how to do something. She noted that two weeks earlier her student operator did not know how to run a videotape locally. While he tried to contact his boss and read the how-to-do it manual, Alice went down the hall, got a TV and VHS recorder, wheeled the equipment into the ITV studio, set the video system up and started the video herself. Alice felt that a competent technician would have no problems operating the technology and manipulating the cameras. On the other hand, from Zelda's point of view, it must have been very complex to operate the ITV system because the combined talents of technicians at both sites never resolved the audio to her satisfaction. The use of ITV technology added a layer of complexity because the professors had to depend on technical help and the technological interface during the process of teaching classes.

<u>Trialability</u>

The fourth attribute positively related to adoption rate is trialability. This refers to a person's limited opportunity to "play with" an innovation and see how it works. Zelda was the first in her department to teach over the system (and to this date, the last). She called herself the "guinea pig." Zelda did not get hands-on training with the system before she started using it. However, her first (and only) semester experience with it could be considered an opportunity for her to get to know the innovation. Unfortunately, the audio problems tended to bring out her cynical side. At the end of her second class period, Zelda told her Bella students to, "work on that technician. He is ruining your lives." After three class periods of not hearing the voices of her Bella students, she attempted to make two-way contact:

Bella can I have a voice yet? Can you say something? Say good morning -- no? You still are not coming through so I cannot call on you until your technician establishes a voice for you. Talk to him seriously. Take him out to lunch. Better ideas from this classroom – bring him back lunch and let him stay there and fix it.

By the next class period, Zelda felt that feeding the technician was too kind. She asked the students to e-mail her their questions. She explained:

That is the only way you are gong to get feedback for now -- until things right themselves. And it had better be quick or the technician is going to be strung by his thumbs. ... I am becoming violent -- the epic is getting to me.

During her ITV teaching experience, Zelda did not use any of the technology available to her to show slides or videotapes. Because she questioned the quality of audio/video transfer over the system, she chose not to show a videotape normally used in her traditional classics classes. After three months of teaching over the system, Zelda noted that, "I don't feel that I can count on it. One never knows when it is going to go down again. We didn't know that it was going to go down when it did. I would never feel real confidence with it."

Trialability is seen as a positive correlation to the rate of adoption but for Zelda it became a negative correlation. She ended the semester by letting the students know that twenty percent of their grade would not come from participation as stated on the syllabus. "It would not be fair. You did not have an opportunity to participate because of the technology." Zelda added, "I am very sorry that we had to start almost fifteen minutes late today. It did throw things off. It is the way we began this semester so maybe it is proper to adjourn [this way]."
Unlike Zelda, Alice had experimented with the system before she taught as a dual-mode professor. In Alice's department, all professors went to a demonstration of the system when the department first started using it nine years ago. Furthermore, she made an effort to personally experiment with the system before using it. On the other hand, Alice said that since that first demonstration, she had not received any updates on what the system can do or any other ITV hands-on training.

<u>Observability</u>

"Observability is the degree to which the results of an innovation are visible to others" (Rogers, 1995, p. 244). Potential users of an innovation usually have some degree of exposure to it and can judge for themselves the results. There were no classes in session between the time Zelda learned she was teaching an ITV class and the actual day she started teaching an ITV class. Consequently, Zelda was cognitively engaged in developing a class atmosphere that promoted critical thinking and student interaction while simultaneously coping with an unfamiliar technology. She observed the problems and complained about the technical support: "they have to see that there are real human beings here. That it is not a static situation. That there are ideas being passed around." From Zelda's observation post, the innovation was an impediment to the development, transmission, and sharing of knowledge.

While Zelda had short notice of her role in ITV instruction, Alice knew that she would be using the system six months prior to her first ITV teaching

experience. Alice chose to spend her summer sitting in on an ITV class to observe a fellow professor teach

Although Alice went through a seven year ITV instruction discontinuance, at least twice she used the video conferencing system to confer with fellow professionals. These conferences gave Alice opportunities to see the gains in the ITV technology. For example, in the early 1990's they brought up Bella, three sites in another state and the university site. A snowstorm had caused people at the remote site to leave but as Alice and others at the university were sitting and talking, "we had a good laugh because one of the monitors suddenly switched to a cleaning person who was running a vacuum cleaner." The sound of the vacuum cleaner had caused the voiceactivated microphone to come on, and the TV camera automatically turned toward the activated mike. This provided an epiphanic moment in which Alice realized that the cameras could automatically zoom in for face-to-face interaction.

Lindquist's Adaptive Development Model

While Rogers' mainly reviewed sociological changes, Lindquist (1978) focused on planned changes at the college and university level. Lindquist reviewed four different change strategies. These change strategies were rational planning, social interaction, human problem-solving and political approaches then concluded that no singular model of change could explain or guide educators in the change process. Lindquist then proposed his adaptive

development model, which combined other models of change to succeed in implementing new behaviors in the innovation adoption process.

The adaptive development model has four factors which affect the successful implementation of change. The first is interpersonal and informational linkage which included linking new information, perspectives, ideas and concerns with the people involved in and affected by the change process. The second factor is openness which refers to leadership ability to listen to different perspectives and search for innovative solutions. Leadership is a multifaceted factor leading to planned change by involving implementers and experts in the change process. The next factor in Lindquist's model is ownership, which involves making the stakeholders feel like they have a part in the change process. The last factor, rewards, refers to the value participants attribute to the innovation to include changes in personal status and professional esteem.

Alice and Zelda were a study in contrast with respect to factors leading to changed behaviors. Zelda was not linked to interpersonal and informational contacts, which could have helped her adapt to the technology, provide understanding, and help when she ran into technology related problems. Alice had contacts within her department with other ITV professors. Whereas Alice's department actively sought linkage with outside forces to help develop their distance education program, Zelda's department had a traditional orientation toward university education. The third factor of felt ownership revealed itself in how Alice's departmental leaders used the ITV technology

while Zelda's leaders drove to Bella to give traditional classroom instruction. Neither professor addressed their perceptions about professional status or esteem gained from being ITV professors.

Olcott and Wright's Institutional Faculty Support Framework

Olcott and Wright (1995) also concentrated on change strategies at the university level. However their focus was on the acceptance and use of distance education technologies at traditional colleges and universities. Their institutional faculty support model map out the infrastructure necessary to maximize the adoption of distance education at traditional colleges and universities. The faculty represents the central focus of their model with an adjoining need for compensation and training followed by the political support of the president/provost, deans, chairpersons, and faculty senate. The last concentric circles included factors such as delivery systems, support, partnerships, access-quality, student centered pedagogy, and public relation issues. Issues of faculty support and empowerment fit within this model.

Faculty Support and Loss of Empowerment

Both professors suffered strong emotional angst because of technician, student operator, and technical problems. They felt that their authority and power as professors were displaced because of inadequate faculty support, which brings us to the question of empowerment.

According to Prawat (1991), the empowerment research literature diverged on two different contexts: conversations with self and conversations with settings. Prawat went on to break down each of these contexts into an

epistemological and political component. In conversations with settings, there are two questions that both these professors faced:

What should I focus on in the teaching/learning environment? What resources and support do I need, as a professional, to be successful in my work? (p. 7)

Alice and Zelda felt that part of their classroom control and power were transferred to technicians. From Zelda's frame of reference this forced her to adjust her approach to teaching from a dialogical to lecture format. In turn, Alice ended up actively cajoling a technician and university student operators to do their job. Zelda and Alice believed that they were not adequately shown the full potential of the ITV equipment. Finally, the faculty support system left them at the mercy of varyingly competent and motivated technicians. Alice complained that it seemed that once she got a student operator trained to be interactive and attentive they would replace him with an inexperienced operator.

Their frustrations with the faculty support prompted them to tell the students to use the university president's action hot line if they were upset with the quality of their education due to technology problems. However, for Zelda it was more than putting a telephone number on the board to help students' route their complaints --- it was personal passion driven by feelings of disempowerment. She told them, "So it is up to you. The faculty does not have the voice the students have."

Midway into the course Zelda talked about removing herself from thinking about the technology to avoid what she considered "paralyzing anxiety." However, "Although someone would like to paralyze me at this point it could make one quite paranoid. I don't feel paranoid about it. I feel irate, inconvenienced, on behalf of the students."

Although she focused on her teaching goals, the feelings of lost control over classroom management haunted her to the end of the semester. The last day before finals Zelda and her students stood outside a locked ITV classroom because the student operator did not show up. Zelda gave Bob, the university technical manager, "a piece of [her] mind" but felt that "he wished he could throttle me on the spot." Unable to get me on the phone, Zelda e-mailed me to ask me to give her a call as she wanted to talk to me "preferably in person". That night she dreamed about being dragged screaming out of her home by Gestapo-type figures.

This loss of empowerment and emotional stress due to poor faculty support was not just a part of Zelda's reality. Alice said that when she first started teaching over the ITV system, nine years earlier, she also felt frustration and powerlessness, which lead to ITV teaching- related nightmares. Returning to ITV instruction this year, Alice still had feelings of disempowerment to the extent that she and her students were being held "hostage to the technician's lack of expertise and unwillingness to actively manipulate the equipment for maximum student interaction." Alice was concerned about:

Technicians [and student operators] who are not prepared; who are not on time; who are not informed; who have not been integrated into a larger network; who find that they answer to no one; who do not share the same responsibilities that I as a teacher feel, that the students feel.

In other words, some of the technicians and student operators did not have a sense of partnership in the learning process. Many student operators preferred to sit in the back and study, "eat, work puzzles, and talk to friends on the phone" while professors lectured at the front.

At Bella, different technicians provided Zelda and Alice support. Zelda's Bella site technician did not stay in the room during the class, which caused Zelda to lament about her "latch key" students. Alice's Bella site technician stayed at the front of the room where he became a distraction to the students. He sat centrally in front of the students because his ITV operations tablet and computer were located in the front and he could sit at Alice's table when she was at the university. However, his playing chess on the instructor's monitor and rocking in his chair became distracters to the student task of interactive learning.

Faculty support became a major issue with Zelda and Alice. Among other factors, faculty support includes compensation, professional recognition, dedicated support services and time for orienting, training, and developing revised course materials (Lindquist, 1978; Olcott & Wright, 1995). Faculty support also means providing technology orientation to students so they know the full potential of the technology. "Both distance teachers and students must be skilled users of the technical system if the technology is to become

transparent – unnoticed – during class discussions" (Guanawardena, 1992, p. 59). Zelda complained about being the one who told her students how to use the microphones and also the one who took responsibility to determine if the far site could hear her university students.

While Zelda and Alice's frames of reference concerning the innovation were almost polar opposites, both professors' feelings of professional disempowerment, and "disembodiment" on Zelda's part, created a sense of creative and personal loss of control they summed up in the following way:

- 1. Lack of adequately trained student technical helpers
- 2. Lack of a proactive system of checks and balances to maintain quality technical service
- Lack of sufficient ITV orientation for professors and students to help them effectively use the system
- 4. Lack of professionalism on the part of some in-class technicians
- Lack of sufficient lead time and follow-up time for student/professor interaction and technology checks

In the eyes of both professors, the lack of in-class proactive technical support fostered a "talking-head" approach to teaching.

This disempowered atmosphere did not lend itself to professional acceptance of the innovation. In Zelda's case, she backed away from it. Her only concern was what would happen to her if she refused to teach any more ITV classes. Alice took a different approach; she began climbing the leadership ladder to complain about the inadequate support.

Summary

Rogers' (1995) factors affecting perception of attributes influenced both professors acceptance of the ITV technology. Zelda did not see sufficient advantages to justify using the system while Alice enjoyed the opportunity to get experts at different locations to share their professional knowledge with her dispersed student population. The system was compatible with the needs of Alice's department and their desire to be part of distance education. On the other hand, Zelda's leaders demonstrated a traditional view by their choice of driving up to Bella to present their classes. The complexity of the system challenged both of them to think about their approach to teaching. Zelda believed that ITV methodology was detrimental to learning; Alice did not have to teach to additional students in an adjacent classroom; she was able to worked with the system to get student interaction. Whereas, Zelda was unable to give personal meaning to the innovation because there was no true trialability period; Alice was able to experiment with the system before she used it. The final factor, observability, was another opportunity denied Zelda; however. Alice watched another dual mode professor successfully teach before she began teaching over the system.

Lindquist's (1978) adaptive development model takes over the explanation when we go from innovative attributes to Lindquist's combination of change models to provide linkage of resources and

people with adequate professional development and time to implement change. Lindquist's model highlights the lack of linkage between Zelda and other faculty using the ITV system and lack of ITV experienced leadership models. Alice was open to new ideas concerning distance education, was linked to leadership proactively involved in distance education, and felt a sense of ownership.

However, both professors' professional empowerment depended on a technical and technician interface that added complexity and ambiguity to their teaching situation. At this point, Olcott and Wright's (1995) institutional faculty support framework with its emphasis on bringing distance education into traditional universities provides a model for professional development and empowerment. The power and control of the technology was held by one group, yet used by another group, which caused both professors to feel disempowered from having control of the resources and personnel they needed to teach. Zelda especially thought she had no input into how the technology was used to help her conduct interactive classes and she felt intimidated by the technicians, student helpers, and the technology. Alice also felt her professional power was limited because the technical help was not accountable to her department.

Lichenstein (1991) said the key to empowerment is occupational self-direction and professional competency in the political and classroom setting. Departmental leadership and personal ITV

experience helped Alice maintain the type of classroom interaction that she wanted. Zelda lacked both the departmental leadership ITV experience and personal ITV experience to get needed support. Alice and Zelda's political and classroom settings were altered by the addition of technology, technicians, and student operators. From their perspective, the faculty support to handle technology interface problems was not adequate.

CHAPTER SIX

Conclusions and Recommendations

This research study depicts two contrasting portraits of dual mode professors' sensed experience and thoughts concerning dual mode instruction. One of the research questions was how this ITV experience would impact their approach to teaching. Researchers say that:

Major pedagogical, instructional, and philosophical implications result from the learner or learners being more or less permanently separated form the teacher. This separation results in a profound transformation, not only by opening up educational opportunity to previous underserved populations, not only by changing education from a process that must be squeezed into the years of schooling to a process of lifelong learning, but also by changing the ownership of knowledge and, therefore, the power and authority relationships between teachers and learners (Moore & Thompson, 1997, p. 2).

Research posits that faculty support is needed to help professors

as they develop learner-centered methodologies to meet the needs of

the adult distance learner (Beaudoin, 1990; Knowles, 1980; Wolcott,

1993). However, Alice and Zelda did not have an instructional design

team to help convert classes from traditional to ITV delivery. They

depended on their own experiences, skills and resourcefulness to

adjust their interactive approach to teaching.

Interactive Pedagogy

Distance education research stresses the need for an interactive distance

education methodology albeit not necessarily a face-to-face interaction (Dillon,

Hengst, & Zoller, 1991; Garland, 1994; MacKinnon, et. al., 1995; Vilene, Holt,

& Petzall, 1991). However, one of the strengths of ITV is that university and remotely located students can have face-to-face interaction if the cameras zoom in on individual speakers.

Mackinnon et al. (1995), citing Cohen, characterized conventional pedagogy, as "teaching is telling, knowledge is facts, and learning is recall" (p. 91). Whereas, Mackinnon et al.'s research showed that "the most effective uses of interactive television to be those designed to sustain the interaction of participants in dialogue" (p. 91); this pedagogical position focused on interaction among students and between students and teacher. "When teaching becomes an exchange in which both students and teacher learn from each other, the general strategy shifts from dictation and recitation to creating environments where students engage in discourse" (p. 91).

Both Zelda and Alice wanted this interactive intellectual environment in their traditional and ITV classes. They stressed the importance of using dialogical methods to help students construct their own knowledge, think critically about what they read/heard, and foster a sense of professional community and cooperation among their students.

Alice and Zelda also desired face-to-face two-way contact with their students, not just classroom to classroom view. They wanted to see individuals large enough on the screen so that everyone in the classes could read the physiological language of the speaker as well as hear the words of the speaker. This was not only important to Zelda and Alice in order to get

feedback and promote dialogue, it was important because it helped to develop rapport, cohesiveness, and a sense of community among their students.

Experience and knowledge of the system had already convinced Alice that she could maintain a dialogical approach; although, she had to be more prepared and structured. Other teleconferencing faculty expressed this same need to be more prepared coming into the classes (Shaeffer & Farr, 1993) and more structured (Ostendorf, 1997).

Building a community of learners was another part of Alice's pedagogy. Among other elements, building community means "developing strategies which will encourage the development of myths and symbols and sharing of norms, values, and beliefs" (Moodie & Nation, 1992, p. 94). In order to build a sense of professional community, Alice had her students share stories involving their prospective professional environment. She had them go out into that community to research a topic and then share their new knowledge and insights with the class.

However, from Alice's frame of reference she had to be assertive to make some technicians and student helpers work in a face-to-face interactive mode. Alice coped with temporary classroom technology problems with humor and flexibility. At the same time, she expressed emotional pain at her and her guests "being blamed" when the ITV video would lock up.

In contrast, Zelda coped with the ITV environmental and technological stress by resorting to a lecture methodology. Whereas, Alice had prior ITV

experience, and ITV related resource knowledge, Zelda lacked that experience and resource knowledge. Zelda also lacked the technological selfconfidence and sufficient training needed to adjust her approach to teaching to make use of the technology. Shaeffer & Farr (1993) pointed out that distance education "should begin with instructors who have prepared properly" (p. 79). This also means that faculty require time and exposure to the system to acquire knowledge needed to prepare for teaching remote site students and develop a sense of ITV self-efficacy.

In research done by Dillon, Hengst, and Zoller (1991) dominant barriers to using interactive strategies were "poor audio quality, fixed cameras, and fixed seating" (p. 38), delays in receiving course materials and "difficulty with student operators" (p. 37). These same barriers plagued Zelda's ITV class.

The department and ITV staff knew the classics class was being offered. Even though it was never expected to actually take place, Zelda, like any new ITV faculty, should have received faculty development workshop to build her distance teaching expertise before ITV classes started (Carl, 1986; Gehlauf, Shatz, & Frye, 1991; Olcott & Wright, 1995). Zelda did not receive the necessary training to feel confident as an ITV professor; she felt disempowered by the technology and lack of faculty support.

Loss of Professional Empowerment

Loss of professional empowerment was an emerging theme from the data. Both professors felt dis-empowered to different degrees. Alice felt loss

of empowerment due to inconsistent technical help and a system that did make the technicians accountable when they did not do a competent job. Zelda felt more dis-empowered because she lacked ITV exposure, did not have a technician in the Bella classroom during classes, had some university students obscured from her view in the adjacent room, and did not get technical help she requested.

Faculty development programs give professors opportunities "to pursue continual professional growth rather than stagnation" (Hynes, 1994, p. 32). It also empowers them as self-directed professionals. "Teacher development of professionally relevant knowledge is necessary to genuine teacher empowerment" (Lichtenstein, 1991, p. 20). This professional knowledge is both epistemological and political (Prawat, 1992).

From an epistemological perspective, Alice valued the ITV system and shared this knowledge with her students as something they should value. Faculty development workshops could provide training for professors (and their ITV students) on such things as operating the graphics computer, simple toggle switches, and document tablets. The ability to use the technology, when they want, empowers professors and their students. However, technology changes, ITV professors need a strong faculty level support infrastructure to provide scaffolding for beginners and on-going assistance to experienced faculty. Faculty needs to focus on their teaching not on the technological interface.

Faculty Support

One way to professional empowerment is through a strong faculty support infrastructure. A strong faculty support network can build distance teaching skills, increase professional self-efficacy, and provide resources for ITV professors. If a university chooses to extend their educational reach through telecommunications technology, then senior leadership and faculty administrators need to provide adequate faculty support to motivate professors to want to excel as dual mode faculty.

Holt and Thompson (1995) addressed the use of leadership power to get faculty and staff to "adopt new educational approaches," which may seem coercive, and went on to propose that:

The use of power in what many would perceive to be a more positive sense relates to the exercise of power in the pursuit of empowering other people. The focus here is on gaining people's trust and commitment to the use, for example, of educational technologies. Motivated people are empowered people (Holt & Thompson, 1995, p. 63).

Even with a positive view of technological attributes, professional attitudes and motivation to continue using an innovation depend on a strong faculty support system. There are many topics to be considered when talking about faculty support. Administrators need to create a robust faculty development program (Olcott & Wright, 1995) and hire support personnel such as site coordinators. Administrators also need "an understanding of the professional demands placed on faculty" (Olcott, 1992, p. 22), and provide them with adequate professional recognition (Guanawardena, 1992; Major & Shane, 1991). However, in terms of the research data, faculty support focused on the immediate concerns about technician/student operator support and the logistics of getting class materials/exams to and from Bella. Something as simple as supplying a reliable timely courier service did not exist; Zelda and Alice had to depend on other faculty members and their remotely located students to get materials back and forth.

Support not only means keeping the student load small enough for effective classroom management; support is also rewarding faculty for their professional service, outreach, and teaching. Traditionally, professors have been underrated for their efforts in distance education, and it is time for distance education faculty to be recognized and adequately rewarded (Guanawardena, 1992; Major & Shane, 1991; Olcott & Wright, 1995). The rewards could include professional recognition, adjustments in faculty load, salary supplement, and/or graduate school assistants.

The collated data provided by these two professors provides some support recommendations.

Dual Mode Faculty Support Recommendations

- 1. Develop a robust faculty support infrastructure
- 2. Be receptive to professor's teaching style and provide an appropriate amount of camera interaction

- Demonstrate to faculty and students that they all can use the instructor's computer to present ideas and semester papers
- 4. Provide more continuity of student operators so faculty and student operators form a bond of mutual respect and common goals
- Build a sense of partnership with university and remote site technicians and the faculty
- 6. Provide faculty development workshops and mentoring, which teach among other things, media techniques, interactive abilities of the technology, and to using list-serves to maintain a social presence with students
- 7. Consider the support needs of different types of students and courses. Zelda's students were young students working on their undergraduate degrees while Alice's students were mature adults pursuing their master degrees in their professional field. This affects student interaction when faced with the technological interface and affects student motivational level to contribute to class discussions.
- 8. Make intrinsic and extrinsic rewards commensurate with ITV faculty effort. Olcott's and Wright's (1995) model for faculty support identifies different groups such as university provosts, deans and chairpersons, who can act on these recommendations and link faculty with professionally relevant materials and information. At the same time, professor autonomy needs to be respected. Professors determine what and how knowledge construction will

take place in their classroom; they determine how they approach teaching. Faculty support personnel provide the necessary materials, training, and qualified personnel to help faculty attain their professional and classroom goals. Through faculty support and development comes professional empowerment which is good for the university administrators, faculty and community they serve.

Future Research

This is just one exploratory study of an experienced and a novice ITV professors' phenomenological experience. More phenomenological studies of this sort could provide an evolving picture from the dual mode professor's frame of reference, which in turn can lead to effective faculty support needed to build strong distance learning communities. Future studies could also examine:

- 1. What is the relationship between professors' distance education selfefficacy and its influence on their overall professional identity?
- 2. Would different phenomenological perspectives come from a teaching oriented university as opposed to a research oriented university?
- 3. Is dual mode teaching considered to be an extension of the professor's traditional classroom? If so, does this contribute to an ambivalent leadership attitude toward appropriate faculty support and reward?

<u>Summary</u>

Phenomenological research seeks to understand and describe research participants' frames of reference. In turn, it is hoped that understanding will lead to change. "If people understand themselves better, if we understand each other better, if teachers understand children better, these awarenesses are bound to make a difference" (Langenbach, Vaughn, Aagaard, 1994, p. 152).

Technology, faculty support, interaction, professional empowerment, and approach to teaching were participants' evolving themes throughout the life of the data gathering process

Previous research findings propose that a majority of university faculty have a propensity to revert to lecture type teaching style and are reluctance to teach over the ITV system again (Dillon and Walsh, 1992). . In the ITV class, Alice's prior experiences provided her the ability to construct a dialogical approach to teaching while Zelda ended up lecturing more than she had "ever done" in a class before this experience.

Another research question initially being address was what coping strategies they used while teaching over the ITV system. Alice's coping strategies included mailing course material to students, using students as classroom assistants, demanding that student operators and Bella technicians zoom the camera in on talking students, doubling up on buying video tapes, giving out the university president's action hotline number, giving out her home

phone number, finding humor in the pathos, being flexible, and being more structured.

Zelda's coping strategies included restructing the course from a participation to lecture approach, using humor to alleviate stress, checking with Bella students to determine if they could hear the university students, sending Bella students out to find an ITV technician, having the TV monitors turned to gray tones, giving out the university president's action hotline, giving out her home telephone number, and dropping the twenty percent student participation grade.

Providing voice-activated cameras will not resolve the underlying problems of faculty and/or students' lack of awareness of technological capabilities, faculty mistrust in the reliability and quality of the technology, and professors' perception of isolation instead of community. Some of these problems can be alleviated through faculty development classes, which help hone old skills and develop new skills while providing recognition for outstanding effort. Other problems can be solved by having university departments select their own student operators who are culturally attuned with departmental values. ITV faculty should have the authority to require student operators' assistance in ways that enhances the professor's preferred teaching method.

When technicians and student operators become partners with faculty in the educational effort, when the technology is perfected instead of up-dated

to new imperfections, when reward is commensurate with effort, when universities recognize the sacrifices made by the ITV faculty then, professors, such as Zelda, might embrace instead of run from the ITV environment. The way it stands now, the university lost an outstanding intellectual and educator to the distance education arena because the scaffolding to help her make the transition to ITV instruction was weak.

<u>Epilogue</u>

I visited with Alice last week to determine if my finding reflected her thoughts and ideas during the research period. She confirmed the trustworthiness of the data. She added that there were more barriers to effective interaction because of updates being placed on the ITV system. She showed me a letter from the Bella site ITV manager, which explained why she could not get close up video of her remote site students:

the Bella end cannot control who you are seeing, and cannot allow the university to speak to [list of the other sites]. So to counteract this, even when you are in Bella, [the university] stays as the primary site in the connection. ...And, whenever the other secondary site cuts in to ask a question, [the university] is no longer able to hear what you are saying.

This research covered two professors' phenomenological frame of reference as ITV professors. However, I feel strong enough about what they went through to add a small portion of my frame of reference in defense of empowerment through faculty support. I observed most of the classes presented by the two professors over the course of the research. Usually Zelda and I met in her office just before classes began because she wanted to walk with me to her ITV studio while it provided me with another opportunity to engage in free flowing conversations with her. However, as we took the walk to the elevator, up the elevator, and down the hall the conversation would die, and I could feel the body and emotional tenseness overcome Zelda. As we turned the corner and saw the door at the end of the hall, it was if I was escorting Zelda to the death chamber. This intellectually articulate and physically attractive woman would wither emotionally as our steps closed the gap between the ITV studio and us. It was as if I, the guard, and she, the prisoner, with her thin cold hand grasping my arm for support were taking that final walk down death row. The yellowish brown door at the end of the hall set apart from the traditional classrooms opened up not to an electric chair but to a professor's chair and electronic console on a platform overlooking student tables and chairs. Staring back at her were TV monitors, a wall mounted camera and to one side a technician's booth. Hidden in a small room next door usually sat approximately nine to twelve of her "disembodied" students.

Zelda had the worst of this emotional nightmare, but Alice was not immune to the endemic emotional drain caused by lack of support. The difference is that Alice and her department were committed to the maximum use of the technology and openly sparred with resistant technicians to keep her students intellectually engaged in the learning process. Since I come from a military background I was shocked at the "laizze faire" attitude and lack of accountability on the part of some technicians. After an hour into one of

Zelda's classes, I went into the technician's booth to get a head count of the far site students. Music from a boombox filled the booth, and I leaned over the sleeping student operator to view the distant end monitor. These are the kind of situations that are not reflected in distance education research but do impact on how professors approach their teaching in an ITV environment.

References

Barbatsis, G.S. (1978). The nature of inquiry and analysis of theoretical progress in instructional television from 1950-1970. <u>Review of Educational Research</u>, 48, 399-414

Bates, A.W. (1995). <u>Technology</u>, open learning and distance education. London: Routledge

Bates, A.W. (1996). Education Technology in Distance Education. In A.C. Tuijnman (Ed.) International Encyclopedia of Adult Education and training (pp. 485-491)Great Britian: BPC Wheatons LTD, Exeter

Beaudoin, M. (1990). The instructor's changing role in distance education. <u>The American Journal of Distance Education</u>, 4, 20-29

Burge, E.J. (1994). Learning in computer conferenced contexts:The learners' perspective. <u>Journal of Distance Education, IX</u>,19-42

Bogdan, R.C., & Biklen, S.K. (1992). <u>Qualitative research for</u> <u>education</u> (Rev. ed.). Boston: Allyn and Bacon

Carl, D.R. (1986). Developing faculty to use videoconferencing to deliver university credit course over cable and satellite. <u>Canadian Journal of</u> <u>Educational Communication, 15</u>, 235-250

Chwelos, G. (1990). Telepresence: Technology for interactive distance education. <u>ED Journal 7</u>, J-7-J10.

Clark, T. (1993). Attitudes of higher education faculty toward distance education: A national survey. <u>The American Journal of Distance Education 7</u>, 19-34

Collet, D.J. (1990). Learning-to-learn needs for adult basic education. In Robert M. Smith (Eds.), <u>Learning to learn across the life span</u>. San Francisco: Jossey-Bass.

Denzin, N.K. (1989). <u>Interpretive interactionism</u>. Newbury Park:: Sage

Dillon, C.L., Confessore, S. & Gibson, C. (1992). Interaction in interactive satellite teleconferencing can it be increased? <u>Journal of</u>

Interactive Television 1, 43-53.

Dillon, C.L., Gunawardena, C.N., & Parker, R. (1992). Learner support in distance education: An evaluation of a state-wide telecommunications system. <u>International Journal of Instructional Media 19</u>, 297-312

Dillon, C.L., Hengst, H.R. & Zoller, D. (1991). Instructional strategies and student involvement in distance education: A study of the Oklahoma televised instruction system. <u>Journal of Distance Education VI</u>, 28-41.

Dillon, C.L. & Walsh, S.C. Faculty The neglected resource in distance education. <u>The American Journal of Distance Education 6</u>, 5-21

Garland, M.R. (1994). The adult need of "personal control" provides a cogent guiding concept for distance education. <u>Journal of Distance Education</u> <u>IX</u>, 45-59

Gehlauf, D.N., Shatz, M.A., & Frye, T.W. (1991). Faculty perceptions of interactive television instructional strategies: Implications for training. <u>The</u> <u>American Journal of Distance Education 5</u>, 20-28

Glesne, C., & Peshkin, A. (1992). <u>Becoming qualitative researchers:</u> <u>An introduction.</u> White Plains: Longman.

Goetz, J.P., & LeCompte, M.D. (1984). Ethnography and qualitative design in educational research. New York: Academic Press

Goodson, I. (1996). Representing teachers: Bringing teachers back in. In M. Kompf, W. Bond, D. Dworet & R. Boak (Eds.) <u>Changing research</u> <u>and practice</u>. (pp. 211-221)

Graham, S.W., & Wedman J.F. (1989). Enhancing the appeal of teletraining. <u>Journal of Instructional Psychology</u>, 16: 183-191

Guba, E.G., & Lincoln, Y.S. (1989). <u>Fourth Generation Evaluation</u>. Newbury Park: Sage

Guanawardena, C.N. (1992). Changing faculty roles for audiographics and online teaching. <u>The American Journal of Distance Education</u>, 6, 58-71

Havelock, R.G. (1970). <u>A Guide to Innovation in Education</u> Center for Research on Utilization of Scientific Knowledge Institute for Social Research,

Ann Arbor

Havelock, R.G. & Zlotolow, S. (1995). <u>The Change Agents Guide 2nd</u> <u>ed</u>. Englewood Cliffs: Educational Technology Publications

Hillman, D.C., Willis, D.J. & Guanawardena, C.N. (1994). Learnerinterface interaction in distance education: An extension of contemporary models for strategies for practitioners. <u>The American Journal of Distance</u> <u>Education, 8</u>, 30-42.

Holt, D.M. & Thompson, D.J. (1995). Responding to the technological imparative: the experience of an open and distance education institution. <u>Distance Education, 16</u>, 43-64

Hynes, W.J. (1984). Strategies for faculty development In David G. Brown (Ed.), <u>Leadership Roles of Chief Academic Officers</u>. San Francisco: Jossey-Bass

Katz, N.H. & Lawyer, J.W. (1994). <u>Resolving conflict successfully:</u> <u>Needed knowledge and skills</u>. Thousand Oaks: Corwin Press, Inc.

Knowles, M.S. (1980). <u>The modern practice of adult education: From</u> <u>pedagogy to andragogy</u>. Englewood Cliffs: Prentice Hall Regents.

Langenbach, M., Vaughn, C., & Aagaard, L. (1994). <u>An introduction to</u> educational research. Needham Heights: Allyn and Bacon

Lehman, L.A., & Kinney, P.A. (1993). Distributed training pilot: Video teletraining reserve component (VTT-RC) training effectiveness analysis (TEA). US Army TRADOC. Fort Leavenworth KS. TRAC-WSMR-TEA-92-015

Lichtenstein, G. (1991). Teacher empowerment and professional knowledge. Office of Educational Research and Improvement (ED), Washington, DC Contract: OERI-R117G100007

Lindquist, J. (1978). <u>Strategies for change</u>. Berkeley: Pacific Sounding Press

MacKinnon, A., Walshe, B., Cummings, M., & Velonis, U. (1995). An inventory of pedagogical considerations for interactive television. <u>Journal of Distance Education</u>, X, 75-94

Major, M.B. & Shane, D.L. (1991). Use of interactive television for outreach nursing education. <u>The American Journal of Distance Education 5</u>, 57-66

Martin, M.L. (1993). <u>Florida Teletraining Project: Reconfiguration of</u> <u>Military Courses for Video Teletraining Delivery</u>. Contract Number N61339-85-D- 0024. University of Central Florida: Orlando.

Marton, F., & Booth, S. (1997). <u>Learning and awareness</u>, Mahwah: Lawrence Erlbaum.

May, S. (1994). Women's experiences as distance learners: Access and technology. <u>Journal of Distance Education, IX</u>, 81-98

Miles, M.B. & Huberman, A.M. (1994). <u>An expanded source book:</u> <u>Qualitative data analysis 2nd ed</u>. Thousand Oaks: Sage Publications

Moodie, G. & Nation, D. (1993). Reforming open and distance education. In T. Evans and D. Nation (Eds.), <u>Reforming Open and Distance</u> <u>Education Critical Reflections from Practice</u> (pp. 92-100). London: Kogan Page

Moore, M.G. & Kearsley, G. (1996). <u>Distance education: A systems</u> <u>view</u>. New York: Wadsworth.

Moore, M.G. & Thmopson, M.M. (1997). The effects of distance learning. <u>American Center for the Study of Distance Education Research</u> <u>Monographs</u>, (15)

Morse, J.M. (1994). Designing funded qualitative research. In N.K. Denzin, & Y.S. Lincoln (Eds.), <u>Handbook of qualitative research</u> (pp. 220-235). London: Sage.

Moustakes, C. (1994). <u>Phenomenological research methods</u>. Thousand Oaks: Sage

Murphy, K.L. (1993). Teaming up with researchers and instructional designers to achieve immediacy and social presence in video conferencing. In Proceedings of the <u>Ninth Annual Conference on Distance Teaching and</u> <u>Learning</u>, 112-116. Madison, WI: University of Wisconsin-Madison

Olcott Jr. D. (1992). Policy issues in statewide delivery of university programs by telecommunications. <u>The American Journal of Distance</u>

Education, 6, 14-26

Olcott Jr. D. & Wright, S.J. (1995). An institutional support framework for increasing faculty participation in postsecondary distance education. <u>American Journal of Distance Education</u>, 9, 5-17

Ormrod, J.E. (1990). <u>Human Learning: Theories, principles, and</u> <u>educational applications</u>. New York: Merrill

Ostendorf, V.A. (1997). Teaching by television. In T.E. Cyrs (Ed.) <u>New directions for teaching and learning: Teaching and learning at a distance:</u> <u>What it takes to effectively design, deliver, and evaluate programs No. 71</u> (pp. 51-57) ___

Ozmon, H.A. & Craver, S.M. (1990). Philosophical foundations of education. Columbus: Merrill Publishing Co.

Pirrong, G.D. & Lathen, W.C. (1990). The use of interactive television in business education. <u>Educational Technology</u>, May, 49-54.

Prawat, R.S. (1991). Conversations with self and conversations with setting: A framework for thinking about teacher empowerment. Office of Educational Research and Improvement (ED), Washington, DC Contract: CA-G0098C0226

Rogers, E.M. (1995). <u>Diffusion of innovation</u> (4th ed.). New York: The Free Press

Shaeffer, J.M. & Farr, C.W. (1993). Evaluation: A key piece in the distance education puzzle. <u>T.H.E. Journal 20</u>, 79-82

Simpson, H., Pugh, H.L. & Parchman, S.W. (1992). An experimental two-way video teletraining system: Design development and evaluation. <u>Distance Education, 12</u>, 209-231

Stevens, K. (1994). Australian developments in distance education and their implications for rural schools. <u>Journal of Research in Rural</u> <u>Education, 10,</u> 78-83.

Stone, H.R. (1990). Economic development and technology transfer: Implications for video-based distance education. In Michael G. Moore (Ed.) <u>Contemporary Issues in American Distance Education</u> New York: Pergamon Press Thach, E.C. & Murphy, K.L. (1995). Competencies for distance education professionals. <u>ETR&D 43(1)</u>, 57-79.

Telg, R.W. (1996). The roles of television production specialists in distance education programming. <u>The American Journal of Distance</u> <u>Education, 10</u>, 50-61.

Van Manen, M. (1990). <u>Researching lived experience: Human science</u> for an action sensitive pedagogy. Albany: State University of New York Press.

Viljoen, J., Holt, D. & Petzall, S. (1991). Quality management in an MBA program by distance education. <u>Journal of Distance Education</u>, VI, 7-24 Wagner, E.D. (1994). In support of a functional definition of interaction. <u>The American Journal of Distance Learning</u>, 8, 6-29

Walsh, S.M. (1993). Attitudes and perceptions of university faculty toward technology based distance education. Unpublished dissertation, University of Oklahoma.

Wolcott, L.L. (1993). Faculty planning for distance teaching. <u>The</u> <u>American Journal of Distance Education</u>, 7, 26-36

Wolcott, L.L. (1995). The distance teacher as reflective practitioner. <u>Educational Technology</u>, 35, 39-43

Wolcott, L.L. (1997). Tenure, promotion, and distance education: Examining the culture of faculty rewards. <u>The American Journal of Distance</u> <u>Education, 11</u>, 3-18

Yocom, D.J., & Whitson, D. (1995). Compressed video delivery of a coaching/mentoring model for teacher education. <u>Journal of Educational</u> <u>Techonology Systems</u>, 23, 265-275

Zhang, S. & Fulford, C.P. (1994). Are interaction time and psychological interactively the same thing in the distance learning television classroom? <u>Educational Technology</u>, <u>34</u>, 58-64

APPENDICES

APPENDIX A

Informed Consent Form

You have been asked to participate in a project being conducted by Linda Wright-Smith, a graduate student at the University of Oklahoma. The purpose of this study is to collect and analyze data concerning participants' approaches to teaching and coping while using the ITV media. Additionally, I am exploring teacher perceptions about the medium of teaching. It is hoped that the results of this study will help support personnel understand the teachers' developing frame of reference so a solid, proactive, support base can help make the transition easier on new ITV teachers.

If you choose to participate in this project you will be interviewed throughout the course of your dual mode teaching experience for a semester. Your participation in this project is voluntary and there will be no penalty should you decide not to participate. However, we believe your participation will provide valuable insight for future teachers involved in teleconferencing classes. Should you change your mind about participating once you have begun, you may withdraw at any point without penalty. You should know there is no psychological or physical risk associated with your involvement in this project.

Your responses to interviews will be completely confidential. Your name will not appear on any of the response forms or in our report of the project. The response forms are not coded in any way that would identify you as a participant in the project. No one other than the researcher will see the raw interview data. Any reports of this project will omit personal identification.

After the course is finished, participants will have an opportunity to review and discuss the data findings to provide confirmation and additional input.

Please sign the form at the bottom of the page and indicate your decision with regard to participation in the project. If you have any questions about this project you may call me at 325-9967 or e-mail me at <u>smithll@in.netcom.com</u>. Thank you for your cooperation.

You will be offered a copy of this form to keep.

Sincerely,

Linda Wright-Smith

--- Yes, I am willing to participate and be interviewed over the 16 week course as part of data gathering for Linda Wright-Smith's research project.

--- No, I prefer not to participate in the research, and I realize that the decision will in no way prejudice my future relations with the researchers or the University of Oklahoma-Norman Campus.

Signature

Date

APPENDIX B

Initial Guideline for Teacher Interviews

General demographic questions

- 1. Age?
- 2. Gender?
- 3. Educational background?
- 4. How may years have you taught?
- 5. How many classes have you taught over a dual mode system?
- 6. How would you describe your teaching style?

Teaching Strategies

1. What teaching strategies do you regularly use in classroom instruction?

Teleconferencing Characteristics

- 1. Describe to me the characteristics of the teleconferencing system.
- 2. What are the major teaching advantages does the system give you?
- 3. Are there disadvantages in teaching over a compressed video system?
- 4. If so, what coping strategies are you using to overcome these problems?

Changes in teaching strategies

- 1. Are there differences in how you develop rapport with Bella ITV students and university ITV studio students?
- 2. How do you transcend the distance and promote student interaction?
- 3. Do you use any different teaching strategies in the ITV environment?

- 4. Do you also use the Internet, telephone or another form of telecommunications to exchange information and ideas with you ITV students?
- 5. Has the technology ever failed to operate during a class? If so, what did you do to overcome the temporary breakdown of your audio/video feed to your students?
- 6. What kind of changes in instructional design are you making to accommodate teaching over ITV?

Interaction

- Is there a problem with getting remotely located students to participate in discussions and interject with questions and ideas formulated during the course of lecture?
- 2. How do you encourage reticent students to contribute to class discussions and share ideas (traditionally and in the ITV classes)?
- 3. What do you define as effective interaction with your classroom students?
- 4. Does your definition of effective interaction change when you are teaching ITV students?
- 5. Do you use any tactics to increase effective interaction with your ITV students?
- 6. Are you developing more facilitation and group processing skills because of the technological interface?
- 7. How do you handle advising and counseling your ITV students?
- 8. Are there unique features of ITV that have affected your teaching style?
- 9. Have you developed any additional skills or plan to develop to succeed with ITV instruction?
- 10. What is most stressful about teaching over ITV?
- 11. What is the greatest reward(s) of teaching over ITV?
- 12. What kind of feedback do you get from your students about learning over ITV?







IMAGE EVALUATION TEST TARGET (QA-3)







© 1993, Applied Image, Inc., All Rights Reserved

