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Faculty Adoption of Distance Education Innovations In A Southwestern Rural Community College: A Longitudinal Study

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**FACULTY ADOPTION OF DISTANCE EDUCATION INNOVATIONS
IN A SOUTHWESTERN RURAL COMMUNITY COLLEGE: A
LONGITUDINAL STUDY**

BY

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A.A., Humanities, Eastern New Mexico University, 1974
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DISSERTATION

Submitted in Partial Fulfillment of the
Requirements for the Degree of

Doctor of Education

Educational Leadership

The University of New Mexico
Albuquerque, New Mexico
May, 2010

DEDICATION

This work is dedicated to my Mother, Hulda Klassen, and in memory of my

Father, Herman Peter Klassen, for their enduring patience, support, and encouragement

during my educational journey.

ACKNOWLEDGMENTS

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ABSTRACT OF DISSERTATION

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# FACULTY ADOPTION OF DISTANCE EDUCATION INNOVATIONS IN A SOUTHWESTERN RURAL COMMUNITY COLLEGE: A LONGITUDINAL STUDY

By

Diane June Klassen

**ASSOCIATE OF ARTS
BACHELOR OF SCIENCE
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DOCTOR OF EDUCATION

ABSTRACT

The purpose of this longitudinal case study was to examine the faculty adoption of distance education in a rural community college over a span of ten years in the southwestern United States, beginning in 1999 with the adoption and implementation of an instructional television (ITV) system and ending in 2009 with the adoption and implementation of an online distance education system. The conceptual framework for this study was derived from recent research that addressed the characteristics of the rural community college and how faculty prepares to adapt to the changes brought upon them by the adoption and implementation of distance learning. In addition, two theoretical foundations, stemming from the influential work of Everett Rogers and his theory of the diffusion of innovations (1962), and the Concerns-Based Adoption Model, or CBAM, originally proposed by Hall, Wallace, and Dossett (1973), were reviewed.

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CHAPTER 1

INTRODUCTION

The arrival and expansion of new communications technology has brought distance education to the attention of millions of potential distance learners in America and around the world (M. Moore & Kearsley, 2005). While distance education has been spreading in many contexts all over the world, in the United States it has been growing mainly in the context of educational systems for higher education. In fact, technology innovations have begun to move from the periphery to the center of higher education and in this process, the classic definition of the word college has been transformed. It is no longer essential to bring together faculty and students in a single place to make shared learning possible. Distance education conceptualizes the College as reaching out and delivering instruction to remote locations (Kirby & Fitch, 2002). The integration of several innovations has created new possibilities and new patterns of communication and learning. Therefore, it is important to study factors that contribute to the adoption of such systems in higher education.

The defining elements of distance education keep changing: students and faculty are in different places for all or most of the time that they learn and teach. Because they are in different places, they depend on technology to deliver information and facilitate interaction. Interaction can take place both in real time (synchronous) and delayed time (asynchronous). Although the basic idea is simple, the use of these new communications innovations depends on "using the kind of design and communications techniques that are special to those innovations, and different from what faculty normally use in the classroom" (M. Moore & Kearsley, 2005, p. 1). History shows that decisions facing users

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of new innovations were also faced by distance education predecessors who used printed

texts, broadcasting and teleconferencing innovations (M. Moore & Kearsley, 2005, p.

xvii).

It has been popular to classify the technologies of distance education into so

called 'generations' (D.R. Garrison, 1989; D. R. Garrison & Anderson, 2003; Taylor,

2001) based largely on the technological tools that support each generation. These and

other authors have argued that 'generational' classification systems help us understand

and describe the various components of a system at a given point in chronological space.

For example, Taylor (2001) theorizes distance education has evolved through five

generations: first the Correspondence Model based on print technology; second, the

Multimedia Model based on print, audio and video innovations; third, the Telelearning

Model based on applications of telecommunications innovations to provide opportunities

for synchronous communication; fourth, the Flexible Learning Model based on online

delivery via the Internet; and fifth, the Intelligent Flexible Learning Model, essentially a

derivation of the fourth generation which aims to capitalize on the features of the Internet

and the Web. Garrison and Anderson (2003) caution that any discussion that labels

particular systems as first generation, as opposed to later generations, "carries with it a

connotation of linear progress and supplantation of each previous generation by

subsequent ones" (p. 34). Such linear progress has not happened. There are still many

examples of first-and-second generation distance education systems and innovations

serving thousands of learners across the globe. Garrison and Anderson (2003) conclude

that all five generations exist simultaneously on the Web. E-learning takes components of

each generation, digitizes them and delivers them using a common interface (the Web browser) and common transportation protocol (TCP/IP).

The scope of this study concerns the fourth generation of distance education, based on the innovations of teleconferencing, and the fifth generation, capitalizing on the features of the Internet and the Web.

<div align="center">**Distance Education in Rural Settings**</div>

Understanding the development of the fourth generation and fifth generation of distance education in rural settings is necessary because they provide an impetus for isolated students in rural communities to access higher education.

Renaissance Community College[1] (RCC), located in King County[2] in the southwestern United States, was born out of the national junior college movement that started growing rapidly in the years following World War II. King County includes a sprawling land area of 6,090 square miles just three hours from the Mexican border. The county's population is 61,382 according to the 2000 Census and estimated at 62,000 in 2007 (U.S. Census Bureau, 2009). The population center is the community of Renaissance[3] where 46,694 persons reside. Forty-eight percent of the population is Hispanic, and forty-eight percent is White, one percent is Black or African American; and one percent is American Indian. The community college district served by RCC includes 22.3 percent of the people between the ages of 18-24 who lack a high school diploma. As a Hispanic-Serving Institution (HSI), RCC serves an average 44 percent Hispanic student population in its 4,000 students, with at least 50 percent of the students

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[1] This is a pseudonym for a community college in the southwestern United States.
[2] This is a pseudonym for a county in a state in the southwestern United States.
[3] This is a pseudonym for a city in a state in the southwestern United States.

enrolling as the first person in the family to enter college. Nationwide, 12.5% of the population lives below poverty level, but in the RCC region, 23.3 percent of all residents live below the poverty level and among Hispanic residents, more than 29.1 percent are below poverty level (U.S. Census Bureau, 2009). These extremely low income levels are coupled with equally dismal educational levels. For example, of the 585 first-time degree seeking students enrolled during the fall 2009 semester, 63 percent were under-prepared and had to take remedial courses in English, reading, and/or math.

The College's service area covers five school districts in King County. Each semester close to 4000 students register for credit and noncredit courses at RCC. Most reside in King County. There are no typical RCC students. The college attracts a diverse student population including high school graduates and senior citizens. The average age for full-time students is 31. Students attend RCC for a variety of reasons. Some are completing their first two years of college before transferring to another College. Some students are returning to college after being away from the classroom for many years, while others are taking a class or two between full-time work schedules to upgrade their job skills.

Need for the Study

This study fills several needs. First, there is a lack of studies on the adoption cycle of distance education. Second, there is a lack of studies where the same group has adopted two different innovations over time. Finally, there is a need to understand the challenges and issues that would impact such adoptions in rural community college contexts.

The application of distance education systems to reach dispersed audiences is affecting and redefining the role of the faculty in colleges and universities. For institutions of higher learning to remain competitive, some researchers say they must find ways to employ new models of instructional delivery and persuade faculty to adopt them (Dooley & Murphrey, 2000; Jones, Lindner, Murphy, & Dooley, 2002; Wolcott, 1997, 1999; Wolcott & Betts 1999; Wolcott & Shattuck, 2007). Distance education provides a powerful potential to provide increased access to higher education. "Although 21st-century community colleges have incorporated distance learning into their repertoires of instructional delivery, many educational opportunities provided through modern technology are yet to be realized" (Stumpf, McCrimon, & Davis, 2005).

There has been a rapid expansion of distance education at community colleges, universities, and in the mainstream public (Instructional Technology Council, 2007; Nelson & Thompson, 2005; Seaberry & Papa, 2006). For example, the 2007 Distance Education Survey Results (Instructional Technology Council, 2007) tracked the impact of e-learning at community colleges covering data from 154 respondents in the United States. They reported comparative enrollment trends in distance education from fall 2005 to fall 2006 (the most recent full year of data available for most colleges in November 2007). Campuses reported a 15 percent increase from fall-to-fall for distance education enrollments for the 2006 survey, substantially ahead of overall campus enrollments which averaged two percent nationally. For the 2007 survey, respondents reported an increase of 18 percent in e-learning enrollments from fall 2005 to fall 2006, which reflected a recurring robust pace for enrollment growth. Clearly, distance education is a viable strategy for increasing access for students that are not able to come to campus and it also

frees classroom space so as to provide additional access for on-campus students (Seaberry & Papa, 2006).

The literature review in chapter 2 will describe findings from studies conducted independently concerning the incentives that motivated faculty, as well as those factors that inhibited them from becoming involved in distance education. These studies examined the relationship between distance education and the institutional reward system and identified factors that either positively or negatively influenced faculty participation in distance education. "To recruit and sustain motivated faculty, institutions must offer valued incentives, eliminate disincentives, and provide equitable rewards for distance teaching" (Wolcott & Betts, 1999, p. 34).

Purpose of the Study

The purpose of this case study was to examine the faculty adoption of distance education in a rural community college over a span of ten years in the southwestern United States, beginning in 1999 with the adoption and implementation of an instructional television (ITV) system and ending in 2009 with the adoption and implementation on an online distance education system. The conceptual framework for this study was derived from recent research that addressed the characteristics of the rural community college and how faculty prepares to adapt to the changes brought upon them by the adoption and implementation of distance learning. In addition, two theoretical foundations, stemming from the influential work of Everett Rogers and his theory of the diffusion of innovations (1962), and the Concerns-Based Adoption Model, or CBAM, originally proposed by Hall, Wallace, and Dossett (1973), were reviewed. Chapter 2 expands upon these subjects and cites recent research utilizing these two frameworks.

The study identifies and delineates the strategies and practices that serve to advance the efforts of rural community-college faculty as they adopted distance-education innovations. This ten year case study traced the efforts of RCC faculty in the transition process from an exclusive use of a traditional classroom model to one that incorporated telecommunication innovations for distance education. The focus was the adoption of instructional television (ITV) and later, online learning. It included participants' perceptions of the adoption of the progressive teaching modes and innovations. The study included four stages:

1. Identifying the challenges and rewards encountered when moving from face-to-face teaching to the adoption of ITV;

2. Identifying the challenges and rewards encountered when moving from ITV to the adoption of online teaching;

3. Documenting the actual and perceived outcomes of the adoption of each mode of teaching;

4. Developing a conceptual framework of the distance education adoption cycle based on data from the study.

Research Questions

The study addressed the following research questions:

1. How did the community-college faculty characterize the process of adopting distance education through two distance education systems?

2. What advantages and challenges did faculty at the College encounter as they adopted two different distance education systems for delivering instruction?

3. How did faculty at the College rethink and restructure their plans for the two distance education systems to facilitate their adoption?

4. What emerges as a guiding conceptual framework for adopting distance education innovations?

5. What are the implications for faculty development?

How any innovation is launched affects its relative success. How was the adoption of distance education innovations by faculty handled in this rural community college which had had little, if any, prior experience with it? What training and faculty development activities were undertaken? How did the faculty respond to them? What adjustments did they need to make? Much can be learned by observing these processes and detailing what apparently worked, along with what did not work.

Methodology

A longitudinal mixed methods research design was chosen to explore the question of why and how faculty in a rural community college adopts distance-education innovations. This study used several methods (a) the Distance Education Survey Instrument (DESI) prepared and validated by Lucas (1995a), (b) the Concerns Based Adoption Model (CBAM) Stages of Concern (SoC) Questionnaire, (c) in-depth interviews, (d) focus groups, (e) non-participant observation by the researcher and (f) analysis of documents.

Renaissance Community College, where the researcher served as a tenured faculty member and administrator, was selected as the site of the study. The researcher served as a non-participant observer. This study used the Concerns-Based Adoption Model (CBAM), developed at the University of Texas-Austin, (Hord, Rutherford,

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Huling, & Hall, 2009; Hord, Rutherford, Huling, & Hall, 2008) to identify RCC faculty stages of concern and levels of adoption related to Instructional Television (ITV) and online distance education. The CBAM is a well-researched model which describes how people develop as they learn about an innovation and the stages of that process (Sweeny, 2003). The CBAM Stages of Concern defines human learning and development as going through 7 stages, during which a person's focus or concern shifts (Harris, Stanz, Zaaiman, & Groenewald, 2004). Since its development in the 1970s, researchers, evaluators, and change facilitators have been using the Stages of Concern (SoC) Questionnaire to assess faculty concerns about new programs and practices (G. E. Hall & S. M. Hord, 1987b). It is intended to assess their levels of concerns at various times during the adoption process. The researcher administered the CBAM SoC Questionnaire to assess RCC faculty concerns about the adoption of distance education systems at the beginning in 1998, five years later in 2003 and at the end of the study in 2009. During the time period that elapsed between the administration of the surveys, training and onsite experimentation with various distance education programs took place.

In-depth individual interviews were conducted by the researcher at the beginning (1999) and end (2009) of this study to gather perceptions of the community-college faculty about the process of adopting two distance education systems. The interviews also addressed the advantages and challenges faculty at the College encountered in the adoption process and how they rethought and restructured their plans to facilitate the adoption of the two distance education systems. Member checks were used by the researcher to verify the entirety and completeness of the findings and improve upon the

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research being performed. Transcripts were sent to the original participants to be

confirmed

Finally, the researcher used existing documents including newspapers,

magazines, books, websites, memos, and annual reports to explore how faculty engaged

in the adoption of innovations. This review of related literature builds the research

foundation in Chapter 2. This study employed data triangulation by using the several

methods discussed above.

Data Analyses

The data from the the Concerns Based Adoption Model (CBAM) Stages of

Concern (SoC) Questionnaire were used to create the background facet of the participant

case descriptions. ATLAS.ti, a powerful software package, was used by the researcher to

assist in the qualitative analysis of the textual, graphical, and audio data.

Participants

When this study was first begun in 1998, the researcher chose a purposive sample

composed of 30 postsecondary academic and technical faculty employed by Renaissance

Community College who were adopting and implementing a two-way audio, two-way

video telecommunication system in a rural community-college setting. This purposive

sampling approach was used to select faculty teaching within the College at different

career stages, and with different levels of experience. As the study progressed, the sample

number changed due to the attrition and retirement of study participants. For this reason,

the researcher chose to limit the study to 14 of the original 30 postsecondary academic

and technical faculty who would eventually work with two distance-education

innovations.

Demographic characteristics of participants were identified through responses to closed-ended questionnaires administered before staff development in May 1998. All fourteen individuals participated in the first staff development session and received and returned the questionnaires. All fourteen identified themselves as full-time faculty. Eight were female, and 6 were male. Ten had completed a master's degree, three had completed a PhD, and one had completed a bachelor's degree. Five had enrolled in technology training courses within the last three years. One had less than seven years work experience in an academic setting, while four had between 7 and 12 years of experience, and five had between 13 and 20 years of experience. Five of the individuals had spent more than 12 years in their current position. The identical questionnaire was administered and completed by the same 14 individuals midway through the study in 2003, and at the close of the study in 2009 (see Table 5).

The participants in this study were all full-time community college faculty at RCC. This sample was voluntary in nature, based on the faculty member's willingness to participate. The sample was convenient and met the interest of identifying faculty concerns about the adoption and implementation of an instructional television (ITV) system and the adoption and implementation of an online distance education system. The sample was found to be appropriate for collecting data, and the researcher was able to develop an understanding of how faculty felt about teaching using two different distance education technologies. Participants signed documents consenting to participate in the research that detailed information concerning the purpose of the study, procedures, potential risks and discomforts, potential benefits to participants and/or society, confidentiality, and participation and withdrawal (see Appendix E). Moreover, in terms

of human subject protection, an approval from the Institutional Review Board (IRB) at the College of New Mexico was obtained (see Appendix F).

Significance of the Study

This longitudinal case study will contribute to our understanding of how one rural community college's faculty adopted two distance-education learning systems over a ten year period. The mixed methods nature of the research has permitted the study to provide rich, detailed information about this complex process. This study has implications for all rural community college faculties that have been entrusted with the mission of adopting distance education via innovative, cutting-edge innovations such as telecommunications and the Internet. Adopting a distance-education system imposes an obligation for all faculty involved to master new innovations and new ways of teaching or learning. This study delineates factors crucial to faculty adopting distance-education innovations at a rural community college. It also contributes to the growing literature concerning the adoption of distance education systems in rural settings.

Delimitations

For this case study the researcher deliberately chose to examine only the perspectives of 14 members of the faculty at RCC as they adopted distance education in a rural southwestern United States community college over a span of ten years. The study began in 1999 with the adoption and implementation of an instructional television (ITV) system and ended in 2009 with the adoption and implementation of an online distance education system. The researcher did not make any attempt to conduct research on the differences between rural and urban colleges in implementing distance education. The term rural was used to characterize an important feature at the College whose service area

is a large geographic area without the transportation services available to students in urban settings. A lack of transportation services gives the rural college an additional motivation to reach out to potential students through distance education. Because the 14 faculty members involved in this study volunteered to participate, they may not be a representative sample of the entire College. Because these faculty respondents actually cared enough to participate in the study, this factor may have introduced the possibility of a self-selection error. This type of error sometimes makes it unlikely that the sample will accurately represent the broader population. For this reason, the sample in this study should be treated as a non-probability sample of the population, and the validity of the estimates of parameters based on them are unknown. This case study delineates factors crucial to faculty adopting distance-education innovations and focuses on the instrumentation, not on loose or tightly-coupled delivery. The researcher for this ten year study was the supervisor of the department of distance education at the College and was immersed in the setting as a non-participant observer. This factor may have affected perceptions or reactions of the participants involved in this study. Despite this relationship with the participants, the researcher attempted to maintain an objective approach while conducting the study.

Overview of Chapters

This research study is divided into five chapters. Chapter 1 has introduced the background of the study including the rural setting, history of the College and the need for the study. The theoretical foundation, stemming from Rogers' diffusion of innovation research is described, as well as the purpose of the study, and the research questions to be addressed. The methods employed in the study, including the Concerns-Based Adoption

Model (CBAM) used to identify faculty stages of concern and levels of innovation adoption are discussed. Chapter 1 concludes with the study's significance, delimitations, and a glossary of distance-education terminology.

To build a research foundation, Chapter 2 examines related literature that has addressed methods that have been used by faculty to adopt synchronous and/or asynchronous distance education. This research has investigated how community college faculty prepares to cope with the changes produced by the advent of distance-learning innovations. The literature review is organized into five main sections: 1) technological trends in distance learning, 2) characteristics of a rural community college, 3) faculty perspectives in the adoption of distance education, 4) a participant-based approach to change, and 5) research on longitudinal studies.

Chapter 3 presents concrete, specific details concerning the rationale and logic of the mixed methods genre in which the study was grounded, the overall strategy, and the specific design elements utilized. This chapter addresses eight major topics: (a) the mixed methods genre, overall strategy, and rationale; (b) site and population selection; (c) the researcher's role; (d) data-collection methods; (e) data management; (f) data-analysis strategy; (g) reliability and validity; and (h) the timeline.

Chapter 4 provides a description of the results of the study addressing the five research questions. To generate the overall findings, the researcher will analyze data obtained from close-ended questionnaires administered at the start of faculty development in 1998, again in 2003, and at the close of the study in 2009, and varied qualitative data collection sources.

Chapter 5 summarizes the study and links the critical processes together to describe a model of the Renaissance Community College faculty distance-education adoption process. Major conclusions are presented, and recommendations for implementing the results are outlined, along with recommendations for future research.

Glossary

Terms that are critical in communicating the case- study findings or that have special definitions are listed below.

Asynchronous Learning Network: Distance education based primarily on an asynchronous audio or video presentation in which interaction between parties does not take place simultaneously (Willis, 2002).

Blackboard: An online learning platform for virtual course delivery that enables universities, schools, and corporations to host their classes on the World Wide Web (Blackboard, 2009).

Electronic learning or **E-Learning:** a planned teaching/learning experience that uses a wide spectrum of technologies, mainly Internet or computer-based, to reach learners (Nagy, 2005).

Instructional television (ITV) system: Two-way electronic communication between two or more groups in separate locations via audio, video, and or computer systems (Willis, 2002). ITV allows two or more locations to interact via two-way video and audio transmissions simultaneously. It has also been called video-teleconference.

Online learning system (OLS): Any form of educational material which is readily available for distribution on the Web or privately over an internal network. Other names: VLE Virtual Learning Environment, Learning platform ("Toolbox for IT Wiki ", 2009).

Synchronous Learning Network: Distance education based primarily on an

synchronous audio or video presentation in which interaction between parties takes place

simultaneously (Willis, 2002).

WebCT: A tool and service for building online courses ("WebCT", 2002).

CHAPTER 2

LITERATURE REVIEW

Introduction

This longitudinal case study describes the strategies and practices used to advance the efforts of rural community-college faculty as they adopt distance-education innovations. The theoretical framework of this study is based primarily upon the Concerns-Based Adoption Model's (CBAM) theorized Stages of Concern (SOC), originally proposed by Hall, Wallace, and Dossett (1973). It also relies in part on elements and vocabulary from the influential work of Everett Rogers (2003) and his theory of the diffusion of innovations. The work of Rogers provides a framework for understanding the diffusion process, the decision-making process related to adoption, and the varying adoption categories within a social system. Concerns-theory (Hall, Wallace, & Dossett, 1973) and the change facilitation process in educational institutions (Hall & Hord, 1987) help in addressing specific interventions that serve to institutionalize an innovation.

The literature review is organized into five main sections: 1) technological trends in distance learning, 2) characteristics of a rural community college, 3) faculty perspective in the adoption of distance education, 4) a participant-based approach to change, and 5) research on longitudinal studies. The selection of research, in the form of books, journal articles, reports, and Web sites, was based on their currency and relevance to distance education. In addition, these research tools provided pertinent information

germane to the faculty adoption of distance-education innovations at Renaissance

Community College (RCC)[4].

Technological Trends in Distance Learning

The use of technology for education has been at the forefront of most distance

learning efforts. "Technology-supported media have helped enormously in virtually

overcoming the physical distance between teacher and student for the delivery of

education at a distance" (Malik, Belawati, & Baggaley, 2005, n.p.). Several researchers

have viewed this as an evolutionary process. For example, Taylor (2001) theorizes

distance education has evolved through five generations: first the Correspondence Model

based on print technology; second, the Multimedia Model based on print, audio and video

innovations; third, the Telelearning Model based on applications of telecommunications

innovations to provide opportunities for synchronous communication; fourth, the Flexible

Learning Model based on online delivery via the Internet; and fifth, the Intelligent

Flexible Learning Model, essentially a derivation of the fourth generation which aims to

capitalize on the features of the Internet and the Web. The scope of this study concerns

the fourth generation of distance education, based on the innovations of teleconferencing,

and the fifth generation, capitalizing on the features of the Internet and the Web.

The rapid growth of the Internet and the World Wide Web allow new

developments in the way instructors transfer knowledge to their students. Distance

education technology can be used to enhance the learning experience for students whose

circumstances require that they be asynchronous in time or space. Students can attend

class in real time via the Internet, or access asynchronously digitally stored video material

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[4] This is a pseudonym for a community college in the southwestern United States.

with hyperlinks to online training resources at any time. Many educators ask if distant

students learn as much as students receiving traditional face-to-face instruction. Research

comparing distance education to traditional face-to-face instruction indicates that

teaching and studying at a distance can be as effective as traditional instruction, when the

method and technologies used are appropriate to the instructional tasks, there is student-

to-student interaction, and when there is timely instructor-to-student feedback (M. G.

Moore, Thompson, Quigley, Clark, & Goff, 1990; Verduin & Clark, 2001).

Instructional Television (ITV)

Instructional television (ITV) is an effective distance education delivery system

that can be integrated into the curriculum at three basic levels: as a single lesson, as a

selected unit, or the full course (Willis, 1994). It may be either passive or interactive.

Passive ITV typically involves pre-produced programs which are distributed by video

cassette or by video-based technologies such as broadcast, cable, or satellite. In contrast,

interactive ITV provides opportunities for viewer interaction, either with a live instructor

or at a participating student site. For example, two-way television with two-way audio

allows all students to view and interact with the instructor. At the same time, cameras at

remote sites allow the instructor to view all participating students. It is also possible to

configure the ITV system so that all student sites may view one another. Because

instructors and students are physically separated by a distance when using ITV, the

instructor's challenge is to psychologically reduce the gap not only through the

appropriate use of technology but also through the use of effective teaching practices

(Willis, 2009). Good teaching ensures that a rapport develops between students and

instructor.

Online Learning

Online learning is an option for students who wish to learn in their own environment using technology and/or the Internet. The main difference between online and traditional courses is the delivery format, not the content. For example, at Renaissance Community College (RCC), the faculty focus is on developing Internet-based courses that parallel campus courses. Internet courses are taught by real instructors who work with students throughout the duration of the class. The instructors apply the same rigid standards for success in an Internet class as they do in their traditional classrooms. Online learning offers flexibility and convenience for learners. Students may access the class from a computer with an Internet connection 24 hours a day, seven days a week from home, work, or an on campus computer lab. Although in most cases there are weekly deadlines and assignments, there are no live courses to attend. Lectures, class assignments, tests, and discussions all take place online. Most of the online courses at RCC start at the beginning of a semester and finish by the end of that semester. Except for taking the tests and turning in the assignments when they are due, the students schedule is up to them. They must commit to certain time blocks to do their work.

Characteristics of a Rural Community College

The rural community college provides a flexible and adaptive form of higher education tailored to local needs. Community colleges enroll a diverse group of students, with various reasons for going to college, and have larger percentages of nontraditional, low-income, and minority students than 4-year colleges and universities. In 2006–07, there were 1,045 community colleges in the United States, enrolling 6.2 million students (or 35 percent of all postsecondary students enrolled that year). Community colleges rely

to a larger extent than 4-year institutions on part-time faculty and staff. In addition,

compared with the faculty and staff at 4-year institutions, the main activity of a greater

percentage of community college faculty and staff is teaching. On average annual

community college tuition and fees are less than half those at public 4-year colleges and

universities and one-tenth those at private 4-year colleges and universities. Some 95

percent of community colleges have an open admissions policy: they will not turn away

any student who has a high school diploma or has passed the tests of General Educational

Development (GED) (National Center for Education Statistics (NCES) 2008).

The open door policy, which ensures access to all who can benefit, is the

foundation upon which all other operations of the community college rest (Shannon &

Smith, 2006).

From their inception in the early 20th century, community colleges have

offered higher education to the masses. Until the late 1960s, attracting

academically prepared students was not a problem. In the late 1960s there

was a significant decline in the number of college-bound students. The

universities decided to relax admissions policies and offer financial aid to

attract academically prepared students. As the pool of academically

prepared students dwindled, the community colleges had to try a new

strategy. They implemented the open door policy to draw students and

increase their enrollment. (Cohen & Brawer, 2003)

"The potentially strongest agency to influence the livelihood of rural communities

is the rural community college" (Miller & Tuttle, 2009, p. 1). These colleges impact the

quality of life in rural America as they prepare the rural community workforce with the

technical skills necessary for employment in business and manufacturing. Today's rural

community colleges educate millions of first-generation college students, minorities,

women, and students with remedial needs (Shannon & Smith, 2006). Miller and Tuttle

(2009) find those living in communities with rural community colleges are likely to want

to remain in the rural township. These comprehensive community colleges provide (1)

general and liberal education, (2) vocational and technical education, (3) adult,

continuing, and community education, (4) developmental, remedial, and college-

preparatory education, and (5) counseling, placement, and student development services.

Their missions differ among geographic regions and vary over time. They are

characterized by a two-year curriculum that leads to either the associate degree or transfer

to a four-year college. The transfer program parallels the first two years of a four-year

college, while the degree program generally prepares students for direct entrance into an

occupation. Because of their low tuition, local setting, and relatively easy entrance

requirements, community colleges have been a major force in the post–World War II

expansion of educational opportunities in the United States (Higginbottom & Romana,

2006).

Nationally, community colleges enroll 47 percent of black undergraduate

students, 56 percent of Hispanic undergraduates, 48 percent of Asian/Pacific Islanders,

and 58 percent of Native American students (American Association of Community

Colleges, 2006). The Association of Community Colleges (1998) defines the role and

scope of the community college in this way:

> The network of community, technical, and junior colleges in America is
>
> unique and extraordinarily successful. It is, perhaps, the only sector of

higher education that can truly be called a "movement," one in which the

members are bound together and inspired by common goals. From the

very first, these institutions, often called "the people's colleges," have

stirred an egalitarian zeal among their members. The open door policy has

been pursued with an intensity and dedication comparable to the populist,

civil rights, and feminist crusades. While more elitist institutions may

define excellence as exclusion, community colleges have sought

excellence in service to many. (p. 5)

This study describes the strategies and practices used to advance the efforts of

rural community-college faculty as they adopt distance-education innovations. Student

access issues lead the reasons why institutions offer online courses and programs. Two-

year associate's institutions have the highest growth rates and account for over one-half

of all online enrollments for the last five years (Allen & Seaman, 2007).

Community colleges play a crucial and unique role in higher education,

serving as gateways of opportunity. They level the playing field by giving

anyone who works hard the chance to get a college education and allow

people of all ages at all stages of their lives to be lifelong learners.

Community colleges are a distinctly American creation, helping people

fulfill a very American value: the opportunity of people to better

themselves. (Maxwell, 2009)

Faculty Perspectives in the Adoption of Distance Education

As community colleges increase the use of technology to further distance

education initiatives, it is important to recognize the role that faculty perspectives play in

the adoption and implementation process. Wolcott and Shattuck (2007) identify two types of motivation for faculty participation in distance education: intrinsic and extrinsic. The term intrinsic motivation, refers to doing an activity for the inherent satisfaction of the activity itself, and thus, contrasts with extrinsic motivation which refers to the performance of an activity in order to attain some separable outcome (Ryan & Deci, 2000).

Intrinsic Motivators

Much of the research supports that intrinsic motivators are stronger than extrinsic motivators when it comes to participation of faculty in distance education teaching (Dooley & Murphrey, 2000; Maguire, 2005; C. Schifter, 2000; Schifter, 2002a; Wolcott & Shattuck, 2007). Five types of intrinsic motivating factors, classified by Wolcott and Betts (1999) as cited by Wolcott and Shattuck (2007) include: "personal or socially derived satisfactions, personal or professional growth, personal challenge, altruistic, and career enhancing" (p. 378). Other frequently cited intrinsic motives for faculty participation in distance education are: to reach new audiences, to develop new ideas, to use new technologies, intellectual challenges, and overall job satisfaction (Cook, 2003; Gupton, 2004; Hebert, 2003; O'Quinn, 2002; C. Schifter, 2000; Schifter, 2002a; C. C. Schifter, 2000).

Wolcott and Shattuck (2007) found faculty members motives for distance education participation to be similar across disciplines and institutions, and often related to self-improvement or professional development. Other categories of frequently cited intrinsic motives included: professional challenge, providing innovative instruction, developing and applying new teaching techniques and skills, keeping abreast of new

technologies, and fulfilling a personal desire to teach (C. B. Myers, Bennett, Brown, & Henderson, 2004; Tastle, White, & Shackleton, 2005). Student-centered factors that motivated faculty to adopt distance education were making courses more accessible and helping students who were underserved or geographically disadvantaged (Christo-Baker, 2004; Cook, 2003; Keen, 2001; Lin, 2002; Wilson, 2002). Maguire (2005) notes the interest faculty express in getting more of their students involved with technology, as they realize the importance of technology in all areas of the world. At the same time, faculty perceive teaching via distance learning as a benefit to them in that it is an opportunity to use technology more innovatively and to enhance course quality (Dooley & Murphrey, 2000; Gupton, 2004; Maguire, 2005; C. C. Schifter, 2000).

Extrinsic Motivators

Extrinsic motivators that play a role in faculty decisions to participate in distance education stem from external sources. Wolcott and Shattuck (2007) found some evidence of extrinsic motivation among community college faculty studied by Kirk and Shoemaker (1999), Shifter (2000), Lin (2002), and Cook (2003). These researchers found faculty to be motivated by the expectation of the college that the faculty participate in distance teaching as well as by chances of being promoted and receiving public recognition by their supervisors. Other incentives included course release time, tenure considerations, and additional financial considerations.

Although extrinsic motives play a role in faculty decisions to participate in distance education, Wolcott and Shattuck (2007) cited several studies (Miller & Husmann, 1999; C. B. Myers, Bennett, Brown, & Henderson, 2004; O'Quinn, 2002; Wilson, 2002; Wolcott & Betts, 1999) that assert faculty members involved in distance

teaching are not extrinsically motivated. These researchers cite the anticipation of merit pay, tenure, and promotion credit as the least motivating factors. Community college faculty surveyed by Miller and Husmann (1999) saw distance teaching as part of their jobs. Researchers Kirk and Shoemaker (1999) observed the motives of community college faculty varied according to personal and demographic characteristics such as career stage, age, and teaching experience. For example, in Schifter's (2002a) study, faculty 60 years old and over indicated more concern over monetary factors than did faculty of any other age category.

Incentives and Deterrents for Teaching at a Distance

Wolcott and Shattuck (2007) identify incentives with respect to distance education as "enhancers present in the environment or institutional climate, and inducements offered by the institution expressly to entice faculty to participate" (p. 380). A common theme among faculty is that institutions could do more to encourage participation in distance education (Kaml, 2001; Lee, 2002; Lindquist, 2004; Nelson & Thompson, 2005). For example, the availability of services designed to support the activities of teaching and learning are widely reported as incentives for faculty participation in distance education. Cited as major motivators are technological support and training in how to effectively teach at a distance (Bates, 2005; Bonk, Maher, Essex, & Halpenny, 2001) and design and development support for faculty who do not have the time to develop and maintain online courses (Bonk, Maher, Essex, & Halpenny, 2001; Dooley & Murphrey, 2000). In fact, Keen (2001) found "having support services in place had the highest correlation with faculty member's willingness to deploy distance education technology" (Wolcott & Shattuck, 2007, p. 381).

In addition to institutional support services, the degree of institutional commitment that faculty perceive is shown to distance education has an influence on their decisions (French, 2001; Hagovsky, 2002; Keen, 2001). Researchers found a strong association between faculty members belief that there was an organizational climate supportive of distance education and their willingness to use distance education" (Wolcott & Shattuck, 2007, p. 381). Inducements offered by institutions to faculty to encourage participation in distance education traditionally relate to issues of workload and salaries (Christo-Baker, 2004; Martin, 2003; Mlinek, 2002). These inducements include such things as release time, extra compensation, and favorable workload policies. Studies note that incentives stimulate faculty participation in distance education and the lack of incentives works against it (Dooley & Murphrey, 2000; French, 2001; Meyer, 2002).

Colagross (2000) found that although the majority of the highest level administrators were willing to provide training funds for faculty to learn to develop distance education courses, they believed faculty should be expected to undertake course development and teaching without incentives. Other researchers (Edwards, 2001; Hagovsky, 2002; Whicker, 2004) have also noted the lack of incentives for participating in distance education while Pina (2005) reported that offering incentives was the factor rated least successfully implemented in higher education.

Other obstacles cited by faculty as deterrents to teaching at a distance include lack of standards for online courses, the threat of fewer jobs, and a decline in usage of full-time faculty (Institute for Higher Education Policy, 2000; National Educational Association, 2000). In addition, faculty note lack of time, lack of institutional support,

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lack of scholarly respect in the areas of promotion and tenure, and a lack of training as obstacles to participating in distance education (Maguire, 2005; O'Quinn, 2002).

A Participant-based Approach to Change

The new technologies of distance education are not just enhancing the teaching and learning environment; they are changing it. The adoption and implementation of distance education presents higher education institutions with major philosophical, structural and financial challenges. Bates (2000) asserts, there must be a strategy for inclusion and buy-in from the faculty since no plan will work without their support. He suggests it is essential to explain the reason why a plan needs to be developed, and to seek the faculty's major participation in the process. "It may be seen as just another exercise by the bureaucracy to reduce expenditures or resources; it may be seen as diverting staff from current teaching or research activities; or it may be seen as an extra load or work, especially for key participants" (p. 233). In addition, he notes, there may be fears that even if developed, the plan will not be implemented.

Caravon and Karsh (2000) find the socio-technical issues that emerge when a change process is being undertaken can be a source of stress in itself by creating conditions of uncertainty. Birnbaum (2000) maintains faculty members are wary of new innovations and for this reason "waves of reform typically produce little impact because professionals often view any change in their surroundings as an annoying distraction from their chosen work" (p. 77). Other researchers suggest faculty members tend to resist new innovations, especially when they perceive a lack of empowerment in directing the impact of the innovation (Dooley & Murphrey, 2000; Petherbridge, 2007).

Research shows using a participant-based framework for adopting a distance education system, would likely decrease resistance to the innovation and establish the kinds of effective collaborations needed to promote and sustain an adoption of an innovation (Dooley & Murphrey, 2000). In this vein, the current study of the strategies and practices used to advance the efforts of rural community-college faculty as they adopt distance-education innovations will use a participant-based approach to technology adoption utilizing two participant-based frameworks. One, E. M. Rogers' (2003), gives insight into the concept of diffusion of innovations, provides a vocabulary for the change process and is often referenced in higher education literature (N.B. Adams, 2002; Bennett & Bennett, 2003; Birnbaum, 2000; Dooley & Murphrey, 2000; Hagner, 2001; D. L. Rogers, 2000). The other, the Concerns Based Adoption Model, or CBAM, originally proposed by Hall, Wallace, and Dossett (1973) and later updated and redesigned by Hord, Rutherford, Huling, and Hall (1987b) clearly focuses on an individual's perceptions and feelings in the change process and was framed to use in the study of educational innovations. Both provide a framework for change. Specifically, the Stages of Concern (SoC), Levels of Use (LoU), and Innovation Components (IC) of the CBAM framework, provide an understanding of how the implementation of an innovation may occur, and provide a framework for change facilitators to follow as they provide incentives and appropriate interventions to facilitate participant based change.

Roger's Diffusion of Innovations

Rogers' diffusion of innovation research (2003) provides a framework for understanding the diffusion process, the decision-making process related to adoption, and the varying adoption categories within a social system. Diffusion of innovation is a

theory of how, why, and at what rate new ideas and technology spread through cultures.

(E.M. Rogers, 1962). "Many technologists believe that advantageous innovations will sell

themselves, that the obvious benefits of a new idea will be widely realized by potential

adopters, and that the innovation will diffuse rapidly. Seldom is this the case" (E. M.

Rogers, 2003, p. 7).

Rogers defines an innovation as "an idea, practice or object that is perceived as

new by an individual or other unit of adoption" (p. 12). The innovation-decision process

is the "process through which an individual (or other decision-making unit) passes from

first knowledge of an innovation, to forming an attitude toward the innovation, to a

decision to adopt or reject, to implementation of the new idea, and to confirmation of this

decision" (p. 20). There are also influences on the process, such as the prior conditions,

characteristics of the decision-making unit, the perceived characteristics of the

innovation, and communication channels (Dooley & Murphrey, 2000). When

encountering obstacles in innovation diffusion, this framework and its principles, can

assist change facilitators leading an innovation in understanding key issues involved in

the innovation process, including "the attributes of innovations that help or hinder their

adoption, categories of adopters, the innovation-decision process that occurs in using an

innovation, and the power of opinion leaders in the adoption process" (Petherbridge,

2007, p. 39).

According to Rogers a technology is "a design for instrumental action that

reduces the uncertainty in the cause-effect relationships involved in achieving a desired

outcome" (E. M. Rogers, 2003, p. 13). He associates two elements with technology: a

hardware aspect which is the material or tool and a software aspect which is the

information base of the tool. While it is often easy to visualize and even count the hardware aspect of an innovation (i.e. the number of computers in a faculty members office), the software aspect and the way information is exchanged using the hardware is more difficult to observe (Petherbridge, 2007).

Rogers' (2003) theory of innovation diffusion holds that at whatever point an innovation-decision is made, there will be an increased rate of diffusion and adoption depending on how the potential adopter perceives the following five attributes of the innovation: 1) relative advantage, 2) compatibility, 3) complexity, 4) trialability, and 5) observability. "Relative advantage is the degree to which an innovation is perceived as being better than the idea it supersedes" (p. 229). Many change agencies award incentives to clients in order to speed up the rate of adoption of innovations. In the case of RCC, monetary incentives were paid to faculty at the time of the ITV system and online system adoption. The main function of an incentive is to increase the degree of relative advantage. The second attribute, compatibility, "is the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters" (p. 240). The third attribute, complexity, "is the degree to which an innovation is perceived as relatively difficult to understand and use" (p. 257). The rate of adoption is slower with more complex innovations. The fourth, trialability, "is the degree to which an innovation may be experimented with on a limited basis. New ideas that can be tried on the installment plan are generally adopted more rapidly than innovations that are not divisible" (p. 258). The last attribute, observability, "is the degree to which the results of an innovation are visible to others" (p. 258).

While the attributes of an innovation will influence the rate of adoption, so will the characteristics of individuals involved in the process (Petherbridge, 2007). Rogers (2003) suggests an individual's personal traits or predispositions affect the way they react to change and the length of time they require to pass through the innovation-decision making process. He developed a classification scheme of individual innovativeness of potential adopters based on their willingness to accept change (Hagner, 2001). The adopter categories are: 1) innovators, 2) early adopters, 3) early majority, 4) late majority, and 5) laggards. As the first to adopt a new idea, innovators are considered venturesome and play "a Gatekeeping role in the flow of new ideas into the system" (E. M. Rogers, 2003, p. 283). They are able to cope with a high degree of uncertainty about an innovation at the time of adoption. The second adopter category, early adopters, is respected by their peers and has the highest degree of opinion leadership in most systems. Those in this category speed the diffusion process and are considered by many to be "the individuals to check with before adopting a new idea" (p. 283). The third adopter category, early majority, adopts new ideas just before the average member of a system. They seldom hold positions of opinion leadership and occupy a "unique location between the very early and relatively late to adopt" (p. 284) making them an important link in the diffusion process. The early majority makes up one third of the members of a system and seldom leads the way. They may deliberate longer than innovators and early adopters but eventually follow willingly. Members of the fourth category, late majority, are considered to be skeptics who adopt new ideas just after the average member of a system. Like the early majority, they make up one third of the members of a system. The pressure of peers is necessary to motivate their adoption of an innovation. "...most of the uncertainty about

a new idea must be removed before the late majority feel that it is safe to adopt" (p. 284). The fifth and final category, laggards, is the last in a social system to adopt an innovation. "The point of reference for the laggard is the past" (p. 284). They hold relatively traditional values and interact with others who hold similar values. They must be certain a new idea will not fail before they adopt it.

An individual's decision about an innovation is a process that occurs over time and consists of a series of different actions. Rogers (2003) describes a mental process with five distinct stages in the innovation-decision making process: 1) knowledge, 2) persuasion, 3) decision, 4) implementation, and 5) confirmation. The first stage in this sequential process, knowledge, "occurs when an individual is exposed to an innovation's existence and gains an understanding of how it functions" (p. 171). At the second stage in the process, persuasion, "the individual forms a favorable or unfavorable attitude towards the innovation" (p. 174). Forward planning is involved at the persuasion stage when the individual mentally applies the new idea to his or her anticipated future situation before deciding whether or not to try it. At the third stage in the process, decision, the individual engages in activities that lead to a choice to adopt or reject an innovation. "Adoption is a decision to make full use of an innovation as the best course of action available. Rejection is a decision not to adopt an innovation" (p. 177). At the fourth stage in the process, implementation, the individual puts an innovation to use. "Implementation involves overt behavior change as the new idea is actually put into practice" (p. 179). At the fifth and final stage, confirmation, the individual "seeks reinforcement for the innovation-decision already made, and may reverse this decision if exposed to conflicting messages about the innovation" (p. 189).

The expansion of new communications technology in distance education have made the implementation of systemic initiatives and the management of innovations increasingly important (Dooley & Murphrey, 2000). "The view of distance education as an innovation provides an important means for understanding the phenomena of distance education, particularly from the perspective of those upon whom its acceptance depends: the faculty" (Dillon & Walsh, 2001, p. 6). How community college faculty perceive and react to these new innovations will affect their adoption or rejection of distance education.

Concerns Based Adoption Framework

The Concerns-Based Adoption Model, or CBAM, (B. Hall, Wallace Jr., & Dosset, 1973), a participant-based change framework that has been used a number of times in studying the adoption of educational innovations, seems an appropriate framework for the examination of technological change for faculty adopting distance education innovations. CBAM is widely accepted in educational research due to its participant-based focus on understanding individual's attitudes, perceptions, thoughts, and considerations toward using new innovations (N.B. Adams, 2002; Casey & Rakes, 2002; Harris, Stanz, Zaaiman, & Groenewald, 2004; Hord, Rutherford, Huling, & Hall, 2009; Rakes & Casey, 2002; Sweeny, 2003; Talab & Newhouse, 1993). The CBAM framework has been described as a comprehensive tool for empowering individuals to address changes in educational settings and is noted for its inclusive perspective that pays attention to individuals and the organization that are involved in the change process (Petherbridge, 2007). Key to the CBAM framework is the notion that facilitating change means understanding the existing attitudes and perceptions of those involved in the change

process, with the central underlying assumption asserting that the single most important factor in any change process is the people involved (G. Hall & S. Hord, 1987; G.E. Hall & Hord, 2001).

Sashkin and Egermeier (1992) examine the 30-year history of educational change to identify differing perspectives, strategies, and adoptable principles. Their examination observes CBAM to be "a major tool that has contributed to research and improved management of changes in educational settings" (p. 17). The conceptual framework describes, explains, and predicts probable instructor concerns and behaviors throughout the educational change process using three principal diagnostic dimensions: Stages of Concern (SOC), Levels of Use (LOU), and Innovation Configurations (IC) (Hord, Rutherford, Huling, & Hall, 2009; Hord, Rutherford, Huling-Austin, & Hall, 1987). CBAM is a systemic approach for finding and fixing barriers to adoption and effective use of "fix-the-parts" technical innovations in educational institutions. It helps users to become actively and effectively engaged in implementing innovations, starting with gaining access to information and leading, step by step, to operational use. Training in the use of CBAM is now widely available. CBAM has broad applicability that goes beyond the successful introduction of technical innovations. It can help people understand and control many of the factors that stimulate or stifle effective change. CBAM empowers people to make change while supporting their rational assessment of needs and means, and bringing them together to deal with change as an organized group. "It is, then, a tool for integrating the three perspectives on change, reason, political power, and organizational culture, and making them work in concert to support effective educational change" (Sashkin & Egermeier, 1992, p. 17).

The CBAM framework, which was developed to look into educational change and improvement processes in an effort to understand how change could become a successful enterprise (Hord, Rutherford, Huling, & Hall, 2008) provides the primary theoretical underpinning for this study. For more than a decade they, along with other colleagues, engaged in federally funded research at the Research Center for Teacher Education (R&DCTE), at the University of Texas at Austin, to learn how schools might go about the process of changing. Their goal was to learn about "the school improvement process, what it is, whom it involves, what are its effects, and how might it be managed" (p. 4).

The assumptions that form the basis for the Concerns-Based Adoptions Model (CBAM), first conceptualized by (G. E. Hall, R. D. Wallace, & W. A. Dossett, 1973) are: 1) change is a process occurring over time, usually a period of several years., 2) change is accomplished by individuals and their role in the process is of utmost importance, 3) change is a highly personal experience and will be most successful when geared to the diagnosed needs of the individual users, 4) change involves developmental growth and feelings and skills tend to shift with respect to the new program or practice as individuals pass through an ever-greater degree of experience, 5) change is best understood in operational terms and instructors will relate to change or improvement in terms of what it will mean to them or how it will affect their current classroom practice, and 6) the focus of facilitation should be on individuals, innovations, and the context (wherein change takes place) (Hord, Rutherford, Huling, & Hall, 2008, pp. 5-6).

Stages of Concern (SoC)

The CBAM framework provides tools for measuring and describing various aspects of change. One tool, the Stages of Concern Questionnaire (SoCQ), designed by

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Hall, George, and Rutherford (1979/1986), is a quantitative, 35-question Likert scale

instrument that focuses on the individual's personal concerns about the change. Hall,

George, and Rutherford (1998) describe the development and testing of the SoCQ, which

began with 544 items written by the Concerns Based Adoption Model (CBAM) research

development staff. Of these, 195 were incorporated into a pilot instrument that was sent

in 1974 to K-12 teachers and college faculty. Of those, 359 were returned. The resulting

data was used to create the 35-item questionnaire that assists in evaluating an individual's

reactions, feelings, and attitudes about an innovation and generates stages of concern

profiles for individuals experiencing an innovation. The power of this questionnaire is

that it was constructed to apply to all educational innovations (G.E. Hall & Hord, 2001,

pp. 56-79).

Many educators think of change as a new program or practice, such as

cooperative learning, standards-based science and math, or restructuring schools.

Although these represent significant examples of change, they are more precisely

examples of content change. "CBAM is about the parallel process of change, the natural

development process that each of us goes through whenever we engage in something new

and different"(Horsley & Loucks-Horsley, 1998, p. 4).

Stages of Concern describe the affective dimension of change: how people feel

about doing something new or different, and their concerns as they engage with a new

program or practice. This is the part of CBAM that many people think is most helpful for

professional development purposes. The framework holds that people considering and

experiencing change evolve in the kinds of questions they ask and in their use of

whatever the change is. In general, the early questions are more self-oriented: What is it?

And how will it affect me? When these questions are resolved, questions emerge that are more task oriented. How do I do it? How can I use these materials efficiently? How can I organize myself? And why is it taking so much time? Finally, when self-and task concerns are largely resolved, the individual can focus on impact. Educators ask: Is this change working for my students? And is there something that will work even better? (Horsley & Loucks-Horsley, 1998). The SOC asserts that understanding concerns from the point of view of the people affected, and understanding change as a process and not a one time event, is valid and important (Petherbridge, 2007; Surry & Land, 2000).

The concerns framework identifies three general categories of concern – Self, Task, and Impact – which encompass seven distinct stages (awareness, informational, personal, management, consequence, collaboration, and refocusing). Self concerns refer to the questions we ask when we hear about something new. (Stage 0, unconcerned) describes a person who either is not aware of the change being proposed or does not want to learn about it. (Stage 1, informational), and how it might affect us (Stage 2, Personal). Task concerns emerge as we engage with new skills, time demands, materials, etc. (Stage 3, Management). Impact concerns describe our thoughts on how we can make a program work better for students (Stage 4, Consequence), how to make it work better by actively working on it with colleagues (Stage 5, Collaboration), and, finally, being successful with the program and seeking out a new better change to implement (Stage 6, Refocusing) (see Table 1).

Table 1. The Stages of Concern About an Innovation

I M P A C T	**6**	**Refocusing**	The individual focuses on exploring ways to reap more universal benefits from the innovation, including the possibility of making major changes to it or replacing it.
	5	**Collaboration**	The individual focuses on coordinating and cooperating with others regarding use of the innovation.
	4	**Consequence**	The individual focuses on the innovation's impact on students in his or her immediate sphere of influence.
T A S K	**3**	**Management**	The individual focuses on the processes and tasks of using the innovation and best use of information and resources. Issues related to efficiency, organizing, managing, and scheduling dominate.
S E L F	**2**	**Personal**	The individual is uncertain about the demands of the innovation, his or her adequacy to meet those demands, and/or his or her role with the innovation. The individual is analyzing his or her relationship to the reward structure of the organization, determining his or her part in decision making, and considering potential conflicts with existing structures or personal commitment.
	1	**Informational**	The individual indicates a general awareness of the innovation and interest in learning more details about it. The individual does not seem to be worried about him or herself in relation to the innovation. Any interest is in impersonal, substantive aspect of the innovation, such as its general characteristics, effects, and requirements for use.
	0	**Unconcerned**	The individual indicates little concern about or involvement with the innovation.

Note. **From Measuring Implementation in Schools: The Stages of Concern Questionnaire," by A. A. George, G. E. Hall, and S. M. Stiegelbauer, p. 8. Copyright 2006 by SEDL. Adapted with permission of the author.**

The CBAM framework proposes that individuals, regardless of the particular change or innovation must pass through all seven basic levels as they integrate new information or skills into actual practice (Hord, Rutherford, Huling-Austin, & Hall, 1987). These stages have major implications for professional development. Loucks-Horsley (1996) notes the importance of attending to where people are and addressing the questions they are asking when they are asking them. "Often we get to the how-to-do-it before addressing self-concerns. We want to focus on student learning before teachers are comfortable with the materials and the strategies" (p. 44). This framework suggests the importance of paying attention to innovation implementation for several years, because research shows it takes at least three years for early concerns to be resolved and later ones to emerge. For example, instructors need to have their self-concerns addressed before they are ready to attend to hands-on workshops. The SOC are not mutually exclusive as it is possible for an individual to express concerns at more than one stage at the same time, for example, an individual can have personal concerns about how the innovation will affect him on a daily basis, and impact concerns regarding how the innovation will change the way he works with his colleagues or students. However, an individual's concerns will differ in intensity depending on a variety of factors, such as experience with the innovation and participation in professional development activities related to the innovation (N.B. Adams, 2002; Casey & Rakes, 2002; G.E. Hall & Hord, 2001; Petherbridge, 2007; Rakes & Casey, 2002).

The Level of Use (LoU)

A second strategy employed by the CBAM is The Level of Use (LoU) that entails eight different levels of change that faculty experience when they are implementing a

new program. Although the Stages of Concern is the most important tool in the change

framework because it measures faculty concerns about the program they are expected to

implement (Christou, Eliophotou-Menton, & Philippou, 2004), the LoU provides distinct

levels of change that can be used to determine where a faculty member stands in relation

to the change process. There are three levels of use that describe nonusers of a program:

Level 0, Nonuse – A person is taking no action with regard to the program or practice;

Level I, Orientation – A person seeks information about the program or practice; and

Level II, Preparation – A decision has been made to adopt the new practice, and the

person is actively preparing to implement it. Before CBAM research, the literature on

change implied that once people had decided to use a new practice and were trained in its

use, they established a suitable routine fairly quickly. CBAM research revealed that there

are significantly different levels of mastery (Loucks-Horsley, 1996). The researchers

identified five distinct Levels of Use among users: Level III, Mechanical – This reflects

the early attempts to use new strategies, techniques and materials. Level IVa, Routine – A

satisfactory pattern of behavior has been established. Level IVb, Refinement – People go

beyond the routine by assessing the impact of their efforts and making changes to

increase that impact. Level V, Integration – People are actively coordinating with others

to use the innovation. And Level VI, Renewal – People seek more effective alternatives

to the established use of the innovation (Hord, Rutherford, Huling, & Hall, 2008).

Innovation Components Map

The CBAM Innovation Components (also called Configurations) (IC) Map is

another dimension of CBAM that is used to develop and apply descriptions of what the

use of innovation looks like in practice. This dimension of the CBAM recognizes the

importance of identifying the specific parts of change, and providing staff developers with hands-on tools for making those identifications. These tools are also called Practice Profiles (Loucks-Horsley, 1996). Each IC Map has a number of components and each component has a number of variations. There are three key questions to ask when developing an IC Map:

1) What does the innovation look like when it is in use?

2) What would I see in classrooms where it is used well (and not so well)?

3) What will faculty and students be doing when the innovation is in use?

(G.E. Hall & Hord, 2001)

The Practice Profile calls on leaders of an innovation to formally define how it should look when it is used. CBAM developers have created manuals that include detailed examples of instruments for assessing the major components of the framework.

Why use the Concerns Based Adoption Model as a framework for change?

While Roger's theory of diffusion of innovation describes the profile of the innovation adopters (from early adopters to laggards) and the factors critical to innovation adoption, a common criticism is an implied pro-innovation bias (Javeri & Persichitte, 2007). The pro-innovation bias is described as "the implication in diffusion research that an innovation should be diffused and adopted by all members of a social system, that it should be diffused more rapidly, and that the innovation should be neither re-invented nor rejected" (E. M. Rogers, 2003, p. 106). A number of researchers suggest that pro-innovation bias can be circumvented by grounding research in the Concerns-based Adoption Model (CBAM) (G.E. Hall & Hord, 2001; G. E. Hall, R. C. Wallace, & W. A. Dossett, 1973; Javeri & Persichitte, 2007). While no change framework is

completely free of bias, the SOQ dimension of the CBAM, derived from research on educational innovations, "seems attuned to the fact that change (or a decision not to change) truly does occur at the individual level" (Petherbridge, 2007, p. 49). Despite pressures from the system, the change is ultimately the user's choice as "in the end, each individual determines for herself or himself whether or not change will occur" (G. E. Hall, George, & Rutherford, 1979, p. 157). Technology integration is inherently an innovation adoption decision for faculty. In higher education, where faculty autonomy and academic freedom are at issue, respect for individual faculty member's attitudes and beliefs regarding technology is paramount, and the selection of an appropriate, participant-based change framework is important (Petherbridge, 2007).

There are several basic premises underlying the CBAM framework which apply to technology integration in distance education (G.E. Hall & Hord, 2001; Heck, Steigelbauer, Hall, & Loucks, 1981; Javeri & Persichitte, 2007; Mills & Ragan, 2000; Petherbridge, 2007). These include: 1) change is a process and not an event, 2) understanding the change process in organizations requires an understanding of what happens to individuals as they are involved in change, 3) for the individual, change is a highly personal experience, 4) for the individual, change entails developmental growth in terms of feelings about and skill in using the innovation, and 5) information about the change process collected on an ongoing basis can be used to facilitate the management and implementation of the change process.

Appropriate professional development activities and interventions cannot be designed without an understanding of user concerns (Dooley & Murphrey, 2000). For this reason, when determining the diffusion of an innovation within an educational context, a

natural place to start is with the individuals involved. The Stages of Concern (SOC) of the CBAM framework help make sense of the change process as people engage with a new program or practice. In addition, CBAM provides tools for advancing the process and continually evaluating the progress of change as it impacts the individuals and the organization (Horsley & Loucks-Horsley, 1998). This framework "empowers people to make change while supporting their rational assessment of needs and means and, perhaps more important, bringing them together to deal with change as an organized group" (Sashkin & Egermeier, 1992, p. 15). "One of the greatest strengths of the CBAM is that it gives credence to, and supplies a precise language for, the feelings each of us has when we are expected to embark on yet another new program or practice" (Loucks-Horsley, 1996).

Measuring Concerns

As noted earlier in the literature review, the CBAM framework provides tools for measuring and describing various aspects of change. The Stages of Concern Questionnaire (SoCQ), designed by Hall, George, and Rutherford (1979/1986), provides a broad understanding of the personal concerns experienced by individuals adopting an innovation. Hall and Hord (1987) grounded their theory in the earlier research of Fuller (Dooley, 1999), using the tenets of concerns research to address factors that inhibit change management. The concept of "concerns" is described as

> [T]he composite representation of feelings, preoccupation, thought and
> consideration given to a particular issue or task. Depending on the
> personal make-up, knowledge and experience, each person perceives and

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mentally contends with a given issue differently; thus there are different

kinds of concerns. (Hall & Hord, 1987, p. 59)

The Stages of Concern Questionnaire (SoCQ) yields Stages of Concern (SOC)

profiles and provides insight into the concerns for individuals experiencing an innovation

(Petherbridge, 2007). The SoCQ was originally validated in 1979 (G. E. Hall, George, &

Rutherford, 1979), and a variety of studies have since utilized the SOC dimension of the

CBAM framework and the SoCQ to examine correlations between selected

characteristics and individuals' concerns (Alfieri, 1998; Ansah & Johnson, 2003; Dobbs,

2004; Newhouse, 2001; Petherbridge, 2007; Rakes & Casey, 2002; Soorma, 2008;

Vaughan 2002). The SoCQ is intended as a self-report instrument which produces a

Concerns Profile indicating an individual's level of concern about a particular

educational innovation. In effect, the SoCQ provides a "snapshot" of a participant's

concerns at any given time during the adoption process. As a research instrument and

within the context of education technology, composite Concerns Profiles generated from

the SoCQ can provide useful insights into education technologies. "The SoCQ can also

be used as one tool to inform and guide decisions that affect faculty preparation and

professional development programs related to the adoption and use of education

technology as powerful learning tools" (Southwest Educational Laboratory (SEDL),

2007, n.p.).

Selected Studies Employing CBAM

The Concerns Based Adoption Model (CBAM) framework has been applied to

research in many types of educational innovations. In this section, tables summarizing

these studies will be provided. Table 2 summarizes studies relevant to the current

research that have utilized the CBAM framework. Table 3 summarizes studies relevant to the current research that did not use the CBAM framework. Subsequently, selected research relative to the current study will be discussed.

Table 2. Outline of selected studies utilizing the SOC framework and the SoCQ

Title	Publication	Year	Author	Limitations in context of current research	Findings relevant to current research
Stages of concern of defense systems management college faculty about technology-based education and training	Virginia Polytechnic Institute and State College	1998	Alfieri, P.A.		Validated Concerns Theory. Higher Ed setting
Time will tell on issues concerning faculty and distance education	Online Journal of Distance Learning Administration	2003	Ansah, A.O. Johnson, J.T.	Quantitative study	Validated concerns theory Affirmed the value of professional development
Effects of training in a distance education telecommunications system upon the stages of concern of faculty and administrators	International Journal of Instructional Technology and Distance Learning	2004	Dobbs, R.L.G.	Quantitative study	Validated professional development can be effective in impacting the levels of concern about an innovation Validation of Concerns Theory.
Applying the concerns-based adoption model to research on computers in classrooms	Journal of Research on Technology in Education	2001	Newhouse, C.P.	Middle and high school teachers Quantitative study	Number of hours of staff development was significant to the stage of concern score (more training=higher order concerns)
A concerns-based approach to the adoption of Web-based learning management systems	Dissertation Abstracts International	2007	Petherbridge, D.T.		

Title	Publication	Year	Author	Limitations in context of current research	Findings relevant to current research
An analysis of teacher concerns toward instructional technology	International Journal of Educational Technology	2002	Rakes, G.C. Casey, H.B.	Analyzed pre-kindergarten through secondary school teachers Technology in the classroom	Used the Stages of Concern Questionnaire,
A study of faculty concerns and developmental use of web based course tools	American Association for Higher Education Conference on Faculty Roles and Rewards ERIC Document Reproduction Service No. ED 443399	2001	Signer, B. Hall, C. Upton, J.	Quantitative study	Validated concerns theory in exploring concerns of higher education innovation adoption with web-based course tools
Teacher concerns and attitudes during the adoption phase of one-to-one computing in early college high schools	North Carolina State College	2008	Soorma, Y.		
Professional development and the adoption and implementation of new innovations: Do teacher concerns matter?	International Electronic Journal For Leadership in Learning	2002	Vaughan , W.		

Table 3. Outline of selected studies addressing faculty distance education adoption concerns but not employing CBAM

Title	Publication	Year	Author	Limitations in context of current research	Findings relevance to current research
Factors motivating and inhibiting faculty in offering their courses via distance education	Online Journal of Distance Learning Administration	2007	Brunner, J.	Did not employ CBAM. Study was conducted using one survey, one time, and not over a period of years.	Factors that motivate or inhibit faculty participation in distance education.
Effects of training in a distance education telecommunications system upon the stages of concern of faculty and administrators	Online Journal of Distance Learning Administration	2000	Dooley, K.E. Murphrey, T.P.	Did not employ CBAM.	Foundation for this study stemmed from Rogers' diffusion of innovation research. Examined the strengths, weaknesses, opportunities, and threats associated with using distance education (DE) technologies from the perspective of administrators, faculty, and support units within higher education.

Alfieri (1998) studied faculty at a state College in Virginia, within the U.S. Department of Defense, as they began to transition from traditional face-to-face teaching methods to on-line course delivery. The Stages of Concern (SoC) Questionnaire was distributed to 135 faculty members with a (93%) response rate. Of the 126 respondents, eighty-one (64%) reported no experience with online teaching. As hypothesized by the SOC dimension of the CBAM, the most intense concerns during the initial transition to online learning were personal. No significant differences in Stages of Concern were found between groups of faculty when divided by common demographic criteria such as years of teaching experience, civilian or military status, and experience with educational technology. The majority of respondents displayed a negative attitude toward the innovation. Alfieri noted faculty concerns including lack of proper technology training, mistrust of management, and fear of job loss. He subsequently recommended the need for better communication, technology training, and an online distance learning technology implementation plan. The findings Alfieri's study are relevant to the current research because he utilized qualitative methods in a higher education setting and validated the Concerns Theory.

Ansah and Johnson (2003) used the SoCQ to compare concerns among institutions and examined the differences in the concerns expressed by instructional faculty of three comparable universities. This study investigated faculty concerns at various stages of implementation on the premise that concerns vary over time and sought to illuminate some of the concerns expressed by faculty at various phases of implementing technology-based distance education. All three institutions in this study had received similar funding from the Pew Grant Program in Course Redesign over a

three year period. One thousand surveys were distributed to faculty at the three universities with a 33.4% response rate. The results showed statistically significant differences among the universities' faculty concerns. The findings were congruent with one facet of the Concerns–Based-Adoption Model which states that "stage or stages where concerns are more (and less) intense will vary as the implementation of change progresses" (Hord, Rutherford, Huling-Austin, & Hall, 1987, p. 30). They also reflected the "implementation dip" that postulates that conditions often get worse temporarily before they improve in a change process (Fullan, 1996). This study affirmed the value of professional development but did not identify other variables such as administrative support and colleague's use of technology.

Dobbs (2004) studied the effects of training upon the concerns of college faculty and administrators regarding the implementation of instructional television at their technical college in east Texas. The CBAM Stages of Concern Questionnaire (SoQ) was administered both as a pretest and as a posttest to the 27 participants. The population volunteered to participate in one of three groups who received classroom training, classroom and lab training, or no training. Based on the findings of the study, it was determined that classroom training combined with laboratory experiences was most effective for addressing concerns of college faculty and administrators about the innovation of interactive television. Results of this study are relevant to the current study because they indicate that professional development can be effective in impacting the levels of concern about an innovation.

Newhouse (2001) conducted a longitudinal study addressing the impact of student-owned portable computers on students, teachers, the curriculum and the

classroom learning environment at a secondary school in Western Australia. Data were collected over a three year period using the three diagnostic dimensions of the CBAM: Innovation Configuration (IC), Level of Use (LoU), and Stages of Concern (SoC). Late in the third year of the interpretive study, when the entire teaching staff was surveyed, seventy percent responded. The majority, fifty-three percent, still had concern profiles in between 0-4 (in the self and task stages), indicating they were just becoming aware of the innovation. "For some, this appeared to be a lack of interest in the portable computer program either because it did not fit their teaching style or it was not seen as relevant to their curriculum area" (n.p.). A few teachers had concerns at the collaboration (8%) and refocusing (10%) stages (5 and 6). Newhouse concluded the CBAM methods were useful in developing an understanding of the innovation and its effects on teachers.

Petherbridge (2007) explored the influence of selected variables on the concerns of higher education faculty in the adoption of a learning management system (LMS). The researcher used a cross-sectional survey design incorporating her own original questions and the Stages of Concern Questionnaire (SoCQ). Faculty members were asked to identify professional development opportunities, support, and interventions that would help them utilize an LMS. By employing stepwise regression analysis, potential variables predictive of concerns regarding the use of an LMS were identified. The highest concerns of the faculty were those in the categories of unrelated, self, and task concerns. Individual variables found to be potentially predictive of their concerns included: age, years teaching at the college level, attitude toward teaching with technology, and prior use of an LMS. Faculty expressed the need for technical and administrative support, release time, and technical training. They also wanted to be shown evidence that LMS

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technologies support student learning. As a result of the study findings, the researcher recommended administrators facilitate a climate conducive to using a learning management system, that they place value on teaching with technology, and that they implement incentives for faculty who adopt this technology.

Using the Stages of Concern Questionnaire, Rakes and Casey (2002) analyzed the concerns of pre-kindergarten through secondary school teachers toward the use of instructional technology. Results indicated that personal concerns and personal consequences were the most prevalent. Rakes and Casey gave a possible explanation to the lack of success in the use of technology in the classroom as teacher training being viewed as just simple skill acquisition instead of as a change process that affected the behavior of individuals.

In preparation to develop a faculty training program, Signer, Hall and Upton (2001) sought to identify College faculty concerns towards the use of Web-based course tools. The researchers distributed the Stages of Concern Questionnaire (SoQ) to 928 faculty members at a large College, with a response rate of 16%. Results showed participating faculty members had conflicting feelings about the use of technology in teaching. Sixty-five of the respondents then chose to attend workshops on how to use Web-based course tools. Following the training, the SoQ was administered a second time, yielding a response rate of 37%. Results indicated the majority of the faculty members were at the beginning stages of the change process and that they had high unrelated (awareness) and self (informational and personal) concerns. The researchers determined organizational incentives and technical support for early adopters would be crucial to the success of online course development. Like the current study, Signer, Hall and Upton

(2001) borrowed from both the Diffusion of Innovations Model (E.M. Rogers, 1997) and the Concerns Based Adoption Model (G. Hall & S. Hord, 1987) in their efforts to develop a faculty support program that would help early adopters implement Web-based courses.

Soorma (2008) conducted a qualitative study at an early initiative high school in an effort to understand faculty beliefs, attitudes and concerns towards one-to-one computing, and the use of computers in classrooms. Data were collected using the tools of the Concerns Based Adoption Model (CBAM), in-depth interviews and a focus group. Research analysis revealed that although the teachers had a positive attitude towards the one-to-one computing initiative and its impact on students, their pedagogical beliefs differed. In addition, the teachers expressed concerns related to hardware and software support, professional development, classroom management, communication, and personal anxieties. Some implications for practice included the need for developing a communication plan, restructuring of the professional development plan to meet core curriculum technology standards, and teacher specific concerns. The study concluded that professional development for teachers is critical to the process of adoption of an innovation.

Vaughan (2002) examined the importance of taking teacher concerns into consideration when planning professional development activities for new innovations. He used a sample of seventy-nine teachers from two rural school districts in Ohio who elected to participate in a two-week training session on SchoolNet computers and networking applications. The Stages of Concern Questionnaire (SoCQ), teachers' weekly reflections, and journal responses provided the data. Results suggested that as teachers became more familiar with SchoolNet technology, there was a shift in concerns from

personal to task and impact concerns. The results of this study suggest that the key to successful intervention is to personalize the innovation by taking the concerns of those engaged in the change process and accepting those concerns as crucial components and legitimate reflections of the change process.

Selected Studies Addressing Faculty DE Concerns but not Employing CBAM

Brunner (2007) studied factors that may motivate or inhibit faculty adoption of distance education at small, private liberal arts colleges. The college in the study was a relative latecomer to the distance education arena where the majority of faculty members had had limited experience teaching and learning using distance education technologies. Data was collected using a survey instrument created by Brunner and administered to faculty members at a regularly scheduled meeting. Faculty participated on a voluntary basis. Responses were based on a five-point Likert scale. Results cited as deterrents to the adoption of distance education technologies were the time and effort required to implement distance education, the potential for frequent frustrations with technology, and increased faculty workload. Opportunity to reach more students and potential financial gain for the institution were cited as reasons to support the adoption of distance education. Brunner's research of factors that motivate or inhibit faculty participation in distance education is relevant to the current research for this study. Limitations are that it did not employ the tools of the Concerns Based Adoption Model. In addition, the study was conducted using one survey, one time, and not over a period of years.

Dooley and Murphrey (2000) examined the strengths, weaknesses, opportunities, and threats associated with using distance education (DE) technologies from the perspective of administrators, faculty, and support units within higher education. The

theoretical foundation for this study stemmed from Rogers' diffusion of innovation

research. The higher education institution under investigation was a major Research 1

College that had been engaged in distance education delivery for over ten years. In

determining the perceptions and reactions of administrators, faculty, and support units,

the researchers chose to use a SWOT (strengths, weaknesses, opportunities, and threats)

Analysis (Goodstein, Nolan, & Pfeiffer, 1993). Analysis revealed that respondents

recognized the opportunity to utilize DE technologies to improve instruction and reach

new audiences through collaboration and new courses/programs, however, needs were

expressed to expand policies/procedures to address critical issues (e.g., incentives,

support, training, quality control, careers, and communication channels). The

perspectives of administrators, faculty and support units were not found to be

dramatically different, in fact many of the perspectives were the same. Each group

recognized the potential for DE and that intervention strategies are necessary to alter how

people perceive and react to distance education technologies. Based on Rogers' attributes

(1997), it was concluded that the rate of adoption of DE technologies could be enhanced

through revised policies/procedures and the development of strategies to address critical

issues. The results of this study indicated three major areas that required consideration: 1)

administrative support, 2) training, and 3) incentives.

Research on Longitudinal Studies

Longitudinal studies can be utilized to enhance the understanding of a

community, region, society, culture, or other unit(s). Examples of studies that employed

the longitudinal method are summarized in Table 3 and subsequently discussed.

Danner (2008) assessed the association between hours of television (TV) viewing and the trajectory of body mass index (BMI) growth from Kindergarten to Grade 5 among a national longitudinal cohort of 7,334 children in the United States. Multilevel growth curve modeling was used to estimate children's BMI growth trajectories as a function of hours of TV viewing over time while controlling for gender, race/ethnicity, birth weight, and baseline age. Results showed that hours of TV viewing were significantly positively associated with the acceleration of BMI growth from Kindergarten to Grade 5. Danner concluded that hours spent watching TV may be contributing to the recent dramatic increase in the prevalence of overweight and obesity among children.

Fries (2000) and his research group followed aging seniors in two cohorts longitudinally over 16 years to identify the factors which postpone the onset of morbidity, the magnitude of the postponement, and the effects of lifestyle health risks. In this College of Pennsylvania Study they followed 1741 College attendees studied in 1939 and 1940, surveyed again in 1962, and followed annually since 1986. Health risk strata were developed for persons at high, moderate, or low risk, based upon cigarette smoking, body mass index, and lack of exercise, and assigned by risk status in 1962 (average age 43 years). Persons with high health risks in 1962 or in 1986 had twice the cumulative disability of these in the low risk strata. Deceased low risk subjects had only one-half the cumulative lifetime disability of high risk subjects and also had only one-half the amount of disability in the last one or two years of life. The same results were obtained in males and in females. The researchers concluded that the human aging process, when not prematurely stopped by trauma or disease, moves towards multiple organ system

frailtyThe immediate cause of death shifts from external towards intrinsic factors. The formally assigned "cause of death" becomes increasingly irrelevant compared with the underlying frailty, the inability of the aging organism to withstand even a minor perturbation. "Frailty is like an old curtain rotted by the sun, where an attempt to repair a tear in one place is followed by a tear in another" (p. 1587).

Pettigrew (1990) conducted a longitudinal study on change. This paper revealed the author's theory of method for conducting longitudinal field research on change and discussed a range of practical problems in carrying out time-series research in organizational settings. The practical problems included dealing with time in longitudinal research; issues of site selection; choices about data collection and degrees of involvement; the importance of clarifying research outputs, audience, and presentation; and finally handling problems of complexity and simplicity associated with longitudinal comparative case study research on change. The paper concluded by discussing some ethical issues of longitudinal research, field research, and managing a community of researchers.

A longitudinal study conducted by Zhao, Alexander, Perreault, and Waldman (2007) identified and compared the online learning experiences of faculty and students in 2000 and 2006 at business schools accredited by the Association to Advance Collegiate Schools of Business (AACSB). The first part of the study compared 2006 faculty and student online learning experiences. The second component of the study compared those experiences to the experiences noted in a 2000 study. Data were collected from 81 professors in 2000 and 140 professors in 2006 at AACSB-accredited business colleges across the nation. Specifically, the areas of research studied included (a) faculty and

student satisfaction with online learning, (b) faculty and student concerns with online learning, and (c) faculty and student perceptions of the motivational factors influencing enrollment in online learning offerings. The findings indicated that although faculty and students in both 2000 and 2006 reported satisfaction with the online learning experience, students in 2006 reported significantly higher satisfaction levels than did faculty for online administrative support. Faculty and students in both 2000 and 2006 reported few serious concerns with online learning courses. Faculty and students agreed in both years that important reasons for enrolling in online learning courses were flexibility and increased learning opportunities.

Summary of Literature Review

The literature review has provided pertinent information concerning the adoption of distance education technologies. As these technologies become more widespread on community college campuses, it is important to recognize the role that faculty perspective plays in the adoption process. In planning for an innovation diffusion and adoption such as distance education, institutions may consider relying on a participant model of change. The theories of Rogers (2003) and Hall and Hord (G. E. Hall & S. M. Hord, 1987a) offer strong possibilities for informing the practice of faculty developers working to promote technology integration on their campuses. In addition, the literature contains a number of studies in a variety of fields that used the CBAM framework to understand user concerns during an innovation adoption. This study, that sought to understand the concerns of faculty members undergoing the adoption of distance education innovations, can be of value in understanding adoption patterns on the campus undergoing the adoption process and to others facing similar challenges.

Chapter 3 describes the rationale and logic of the mixed methods approach in which the study was grounded, the overall strategy, and the specific design elements. It focuses on describing the data-collection methods and associated procedures, data sources and analysis processes and the role that change and the Concerns Based Adoption Framework (CBAM) plays in planning for the staff development that accompanies an educational innovation. The evolution of the study and the writer's role as participant-observer are also described, as are the limitations of the study.

CHAPTER 3

METHODOLOGY

Introduction

When this study was first begun, the researcher's purpose was to document and analyze how distance-education programs were adopted and implemented by faculty via a two-way audio, two-way video telecommunication system in a rural community-college setting. As technology advanced and the college added on-line classes to its distance-education offerings, the scope of the study changed. A longitudinal case study approach, supported by mixed methods data collection, was applied to examine the faculty adoption of distance education in a rural community college over a span of ten years, beginning in 1999 with the adoption and implementation of an instructional television (ITV) system and ending in 2009 with the adoption and implementation of an online distance education system. This chapter discusses the research design, the participants and the role of the researcher, details the process for data collection and analysis, and describes the sequence of the study.

Purpose of the Study

The purpose of this case study was to examine the faculty adoption of distance education in a rural community college over a span of ten years in the southwestern United States, beginning in 1999 with the adoption and implementation of an instructional television (ITV) system and ending in 2009 with the adoption and implementation on an online distance education system. The conceptual framework for this study was derived from recent research that addressed the characteristics of the rural community college and how faculty prepares to adapt to the changes brought upon them

by the adoption and implementation of distance learning. In addition, two theoretical foundations, stemming from the influential work of Everett Rogers and his theory of the diffusion of innovations (1962), and the Concerns-Based Adoption Model, or CBAM, originally proposed by Hall, Wallace, and Dossett (1973), were reviewed. Chapter 2 expanded upon these subjects and cited recent research utilizing these two frameworks.

The study identifies and delineates the strategies and practices that serve to advance the efforts of rural community-college faculty as they adopted distance-education innovations. This ten year case study traced the efforts of RCC faculty in the transition process from an exclusive use of a traditional classroom model to one that incorporated telecommunication innovations for distance education. The focus was the adoption of instructional television (ITV) and later, online learning. It included participants' perceptions of the adoption of the progressive teaching modes and innovations. The study included four stages:

1. Identifying the challenges and rewards encountered when moving from face-to-face teaching to the adoption of ITV;

2. Identifying the challenges and rewards encountered when moving from ITV to the adoption of online teaching;

3. Documenting the actual and perceived outcomes of the adoption of each mode of teaching.

4. Developing a conceptual framework of the distance education adoption cycle based on data from the study.

Research Questions

The study addressed the following research questions:

1. How did the community-college faculty characterize the process of adopting distance education through two distance education systems?

2. What advantages and challenges did faculty at the College encounter as they adopted two different distance education systems for delivering instruction?

3. How did faculty at the College rethink and restructure their plans for the two distance education systems to facilitate their adoption?

4. What emerges as a guiding conceptual framework for adopting distance education innovations?

5. What are the implications for faculty development?

How any innovation is launched affects its relative success. How was the adoption of distance education innovations by faculty handled in this rural community college which had had little, if any, prior experience with it? What training and faculty development activities were undertaken? How did the faculty respond to them? What adjustments did they need to make? Much can be learned by observing these processes and detailing what apparently worked, along with what did not work.

Research Design

A longitudinal mixed methods case study design was chosen to explore the question of why and how faculty in a rural community college adopts distance-education innovations.

Mixed methods research is a research design with philosophical

assumptions as well as methods of inquiry. As a methodology, it involves

philosophical assumptions that guide the direction of the collection and

analysis of data and the mixture of qualitative and quantitative approaches

in many phases in the research process. As a method, it focuses on

collecting, analyzing, and mixing both quantitative and qualitative data in

a single study. Its central premise is that the use of quantitative and

qualitative approaches in combination provides a better understanding of

research problems than either approach alone. (Creswell & Clark, 2007, p.

5)

The basic premise of the definition is that the combination of quantitative and

qualitative approaches provides a better understanding of research problems than either

approach alone. A composite list of the value that mixed methods research adds is

provided by Creswell:

1) Mixed methods provide strengths that offset the weaknesses of both
   quantitative and qualitative research.

2) Mixed methods provide more comprehensive evidence for studying a
   research problem than either quantitative or qualitative research.

3) Mixed methods help answer questions that cannot be answered by
   quantitative or qualitative research alone.

4) Mixed methods encourage researchers to collaborate across the sometime
   adversarial relationship between quantitative and qualitative researchers.

5) Mixed methods encourage the use of multiple worldviews or paradigms.

6) Mixed methods are practical in the sense that the researcher is free to use all methods possible to address a research problem. (pp. 9-10)

Support of the Use of Mixed Methods

Support of the use of mixed methods in research is shared by investigators across a variety of disciplines (Aldridge, Frasier, & Huang, 1999; Jenkins, 2001; K. K. Myers & Oetzel, 2003; A. Rogers, Day, Randall, & Bentall, 2003). Mixed methods were particularly useful for this research study where the variations in the adoption and implementation of distance education at the College were examined. Events that happened in the instructional television and online distance learning programs varied over time as participants and conditions changed.

The interest in mixed methods as a separate research design is a recent phenomenon that has grown steadily since the mid-1990's (Creswell & Clark, 2007). By using a combination of quantitative and qualitative data gathering techniques, "investigators can clarify subtleties, cross-validate findings, and inform efforts to plan, implement, and evaluate intervention strategies" (p. 33). A mixed methods design is preferred when a quantitative design can be enhanced by qualitative data. Mixed methods provide a systematic way of looking at events, collecting data, analyzing information, and reporting the findings. "This method may also improve a study's persuasiveness, because its rhetoric includes both numbers and narrative" (p. 175).

Background

In November of 1997 the researcher was selected by the Dean of Instruction to facilitate the College's distance education project. A bond issue that provided funding for the project was passed by the citizens residing in the College's service area in 1996. In

her role as an employee of the College the researcher conducted preplanning for the project between 1997 and 1998. She facilitated a technology team that addressed the major challenges of integrating technology tools into the educational community; studied modes of distance education; participated in site visits to educational institutions in eastern New Mexico and eastern Montana; organized the bid process for purchase of the distance-education equipment; and supervised the installation and implementation of the distance-education network.

<p style="text-align:center;">**Role of the Researcher**</p>

This actual case study commenced in February of 1998. A tenured faculty member and administrator employed by the College since 1980, the researcher served as the supervisor of the department of distance education at the College and was immersed in the setting as a non-participant observer. This may have affected perceptions or reactions of those involved; however, she developed trusting relationships with the faculty participants during that time period. In this role, the researcher asked faculty members to participate in this research study that would contribute quantitative and qualitative insight into the process of change that occurs as distance education is implemented in the community college environment, and in particular, into the effect of distance education upon individuals who serve as faculty.

The researcher created a staff-development plan for preparing to implement the distance education network; drafted instruments used in the study to determine resources and needs, selected participants and evaluation instruments; shared resources relevant to the delivery of distance education via video-conferencing delivery systems; and administered and analyzed evaluations of the innovations after they had been adopted and

implemented. In Chapter 4, events occurring before the actual study commenced in January of 1998 will be recapped while the data collected during the study will be reviewed and analyzed.

The researcher facilitated the implementation of the Instructional Television Network (the innovation) by:

1) Creating a staff development plan;

2) Producing the instruments described in this study that were used to

   a) help determine resource needs and select participants,

   b) characterize the perceived attitudes, concerns, and self-efficacy of the faculty and

   c) prepare the evaluation instruments;

3) Acting as co-trainer for staff development activities provided to participants; and

4) Obtaining and sharing resources relevant to the delivery of distance education via instructional television and online learning.

All instruments were administered to the participants by the researcher. As a non-participant observer, the researcher conducted document review and employed a collection of quantitative and qualitative research instruments to gain insight and gather descriptive information on the (1) adoption process and its outcomes, (2) barriers to the adoption process, (3) perceived attitudes, concerns, and self-efficacy of the faculty, and (4) ways in which faculty members redefined the process in order to optimize the adoption of distance education technologies.

Methods

To generate the overall findings, the researcher analyzed data obtained from both the quantitative and qualitative instruments employed in this study.

The methods used for gathering data for this study included:

1) A close-ended questionnaire (distributed in 1998, 2003, and 2009) that included the Distance Education Survey Instrument (DESI) prepared and validated by Lucas (1995a), the Concerns Based Adoption Model (CBAM) Stages of Concern (SoC) Questionnaire prepared and validated by Hord, Rutherford, Huling-Austin, & Hall (1987) and the Self Efficacy Survey Instrument prepared and validated by Lucas (1995a);

2) Faculty development training sessions;

3) Focus group interviews administered in November 2005;

4) Fourteen in-depth interviews conducted with participants in 2009;

5) Field notes and comments as an observer obtained from:

   a) Interviews of key participants

   b) Site visits

   c) Faculty development workshops

   d) Face-to-face, telephone, and e-mail correspondence throughout the study; and

6) Analysis of documents.

A timeline that represents the progression of this study is displayed in Table 5. More detailed information about the history of distance education at the College, the role of the researcher and the faculty members, and the progress of the innovation is provided in Table 4.

Table 4. Study Timeline

	98	99	00	01	02	03	04	05	06	07	08	09
Study Commences	√											
DESI/CBAM Questionnaires	√					√						√
Document Analysis	√	√	√	√	√	√	√	√	√	√	√	√
E-mail communication	√	√	√	√	√	√	√	√	√	√	√	√
Face-to-face communication	√	√	√	√	√	√	√	√	√	√	√	√
Faculty Participants Recruited	√											
Faculty Development Workshops	√			√								√
Focus Group Interviews								√				
In-depth Interviews		√										√
Telephone communication	√	√	√	√	√	√	√	√	√	√	√	√
Study Ends												√

Based on the review of literature described in Chapter 2, the researcher prepared a plan, acquired resources, and developed material for staff development activities targeted to the needs of participating community college faculty members. Staff development for teaching with instructional television began in August 1998; three formal sessions were conducted between that time and January 1999. A small group format was used for training the participants in hands-on workshops. Chapter 4 provides a description of the model used for these staff development activities.

Site Selection

Renaissance Community College[5] (RCC), located in King County[6] in the southwestern United States, was selected as the site of the study. King County includes a sprawling land area of 6,090 square miles just three hours from the Mexican border. The county's population is 61,382 according to the 2000 Census and estimated at 62,000 in 2007 (U.S. Census Bureau, 2009). The population center is the community of

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[5] This is a pseudonym for a community college located n a state in the southwestern United States.
[6] This is a pseudonym for a county in a state in the southwestern United States.

Renaissance[7] where 46,694 persons reside. The College's service area covers five school districts in King County. Each semester close to 4000 students register for credit and noncredit courses at RCC. Most reside in King County. There are no typical RCC students. The college attracts a diverse student population including high school graduates and senior citizens. The average age for full-time students is 31. Students attend RCC for a variety of reasons. Some are completing their first two years of college before transferring to another College. Some students are returning to college after being away from the classroom for many years, while others are taking a class or two between full-time work schedules to upgrade their job skills.

The reasons the College site was suitable were (a) entry was possible because this was the researcher's place of employment; (b) there was a high probability that a rich mix of processes, people, programs, interactions, and structures of interest were present; (c) the researcher already had built trusting relationships with the participants in the study; and (d) the quality of data and the credibility of the study were reasonably assured.

Distance Learning Technologies

Instructional Television

The instructional television equipment on which the faculty was to be trained was received at RCC in July of 1998. At that time, RCC administrators expected that instruction via the distance-education network would begin during the last week of August. Six high schools were connected via T-1 (high speed digital channel) lines to the College's asynchronous transfer mode (ATM) network. Distance-learning classrooms at each site were equipped with identical audiovisual equipment (monitors, cameras,

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[7] This is a pseudonym for a city in a state in the southwestern United States.

microphones, and speakers), as well as a means of transmitting information between sites. Numerous technical difficulties delayed the completion of the network and phone line installations from August until December 1998. Following a period of on-site experimentation and faculty training, the ITV network finally became operational in January 1999.

The videoconferencing system at each participating school allowed each site to serve as an originating site or as a receiving site. In addition, each school had point-to-point transmission capability. Multipoint transmission required the intervention of a bridge, which was housed at the College. Auto-tracking cameras, which allowed the camera to focus on the instructor and each individual speaker, were available at all sites, as was access to a fax machine. Staff at the College provided technical support. The ITV system operated over T1 telephone lines to provide broadcast capabilities on a 24-hour per-day basis. Each site had the ability to transmit programming to any of the other sites or to receive programming from any of them. These transmissions could be done simultaneously, with RCC serving as the control site to link the transmitting and receiving sites electronically.

On-Line Learning

A technology enhanced E-learning[8] training program (WebCT) was implemented for RCC faculty and staff during the spring and summer of 2001. First time training sessions helped prepare faculty who had no experience teaching online to design, create, and teach an online course. The workshops covered how to adapt course content for online learning and how to create, teach, and manage an online course.

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[8]Definition of this word may be found in the Glossary at the end of Chapter 1.

In December 2008, Blackboard Inc. was selected as the College's new Learning Management System (LMS). This meant that current RCC online faculty members needed to be retrained to use new technology tools to develop, migrate, share, and offer online courses. Six faculty members were recruited to be "trained as trainers" to teach others in their divisions how to migrate existing courses to Blackboard and teach novice faculty members to use the new LMS. These six faculty members conducted workshops with others in their divisions from January – May 2009.

Population

When this study was first begun in 1998, the researcher chose a purposive sample composed of 30 postsecondary academic and technical faculty employed by Renaissance Community College who were adopting and implementing a two-way audio, two-way video telecommunication system in a rural community-college setting. This purposive sampling approach was used to select faculty teaching within the College at different career stages, and with different levels of experience. As the study progressed, the sample number changed due to the attrition and retirement of study participants. For this reason, the researcher chose to limit the study to 14 of the original 30 postsecondary academic and technical faculty who would eventually work with two distance-education innovations.

Demographic characteristics of participants were identified through responses to closed-ended questionnaires administered before staff development in May 1998. All fourteen individuals participated in the first staff development session and received and returned the questionnaires. All fourteen identified themselves as full-time faculty. Eight were female, and 6 were male. Ten had completed a master's degree, three had

completed a PhD, and one had completed a bachelor's degree. Five had enrolled in technology training courses within the last three years. One had less than seven years work experience in an academic setting, while four had between 7 and 12 years of experience, and five had between 13 and 20 years of experience. Five of the individuals had spent more than 12 years in their current position. The identical questionnaire was administered and completed by the same 14 individuals midway through the study in 2003, and at the close of the study in 2009 (see Table 5).

The participants in this study were all full-time community college faculty at RCC. This sample was voluntary in nature, based on the faculty member's willingness to participate. The sample was convenient and met the interest of identifying faculty concerns about the adoption and implementation of an instructional television (ITV) system and the adoption and implementation of an online distance education system. The sample was found to be appropriate for collecting data, and the researcher was able to develop an understanding of how faculty felt about teaching using two different distance education technologies. Participants signed documents consenting to participate in the research that detailed information concerning the purpose of the study, procedures, potential risks and discomforts, potential benefits to participants and/or society, confidentiality, and participation and withdrawal (see Appendix E). Moreover, in terms of human subject protection, an approval from the Institutional Review Board (IRB) at the College of New Mexico was obtained (see Appendix F).

Table 5. Participant Characteristics

Characteristic	1998		2003		2009	
	N	**Percent**	**N**	**Percent**	**N**	**Percent**
Gender						
Female	**8**	57%	**8**	57%	**8**	57%
Male	**6**	43%	**6**	43%	**6**	43%
Total	**14**	100%	**14**	100%	**14**	100%
Education						
Bachelors	**1**	7%	**0**	0	**0**	0
Masters	**10**	71%	**11**	78%	**11**	78%
Doctorate	**3**	22%	**3**	22%	**3**	22%
	14	100%	**14**	100%	**14**	100%
Technology Training in Past 3 Years						
Yes	**5**	36%	**14**	100%	**14**	100%
No	**9**	64%				
	14	100%	**14**	100%	**14**	100%
Years in Academic Setting						
0-2	**0**	0%	**0**	0%	**0**	0
3-6	**1**	7%	**1**	7%	**0**	0
7-12	**4**	29%	**5**	35%	**0**	0
13-20	**5**	35%	**4**	29%	**7**	50%
21-30	**4**	29%	**4**	29%	**6**	43%
>30	**0**	0%	**0**	0%	**1**	7%
Total	**14**	100%	**14**	100%	**14**	100%
Years in Current Position						
0-2	**4**	29%	**0**	0	**0**	0
3-6	**1**	6%	**1**	6%	**0**	0
7-12	**4**	29%	**4**	29%	**5**	36%
13-20	**5**	36%	**4**	29%	**2**	14%
21-30	**0**	0	**5**	36%	**5**	36%
>30	**0**	0	**0**	0	**2**	14%
Total	**14**	100	**14**	100	**14**	100

Theoretical Basis for Study and the Questionnaire

The Concerns Based Adoption Model Project developed in the 1970s at the Research and Development Center for Teacher Education at the University of Texas at Austin and Roger's (1962) general model of the diffusion of innovations served as the theoretical basis for this dissertation. The faculty's perceived advantages that encouraged them to adopt and deliver instruction via distance education and the challenges that discouraged them from doing so were determined by analyzing the results of the attitude component of the 31-item Distance Education Survey (DESI) prepared and validated by Mark Lucas (1995) (Appendices A, Section I) for implementing distance education into high schools and the self-efficacy component of the survey (Appendices A, Section III) composed of 28 items that addressed skills and competencies associated with the implementation of distance education at RCC.

The DESI component of the questionnaire was also used by Jean P. McNeal (1999) for exploring how eight rural Virginia school systems implemented a regional telecommunications system. The 31 items related to the five characteristics of innovations that influence the decision to adopt an innovation identified by Rogers and Shoemaker (1971) are: relative advantage, compatibility, complexity, trialability, and observability. The questions in the survey (Appendices A, Section I) presented respondents with a five-point Likert scale (1-5: Strongly Disagree, Disagree, Undecided, Agree, and Strongly Agree) that they were asked to use in response to statements regarding attributes of the innovation.

For this study, statements that related to "relative advantage" addressed the value of the innovation as an enhancement to the division's academic programs for providing

equity to students. Rogers (2003) postulates the greater the perceived relative advantage of an innovation, the more rapid its rate of adoption will be. "Compatibility" related to the degree to which the ITV innovation was perceived as being consistent with the existing values, past experiences, and needs of potential adopters. According to Rogers (2003) "an idea that is incompatible with the values and norms of a social system will not be adopted as rapidly as an innovation that is compatible" (p. 15). Statements that addressed "complexity" pertained to the degree to which the ITV innovation was perceived as difficult to understand and use. According to Rogers (2003) new ideas that are simpler to understand are adopted more rapidly than innovations that require the adopter to develop new skills and understandings. Statements that addressed "trialability" related to the degree to which the ITV innovation could be experimented with on a limited basis. Roger's (2003) assumes an innovation that is trialable represents less uncertainty to the individual who is considering it for adoption, as "it is possible to learn by doing" (p. 16). Statements that addressed "observability" pertained to whether or not the ITV innovation was perceived by faculty and students to provide resources to meet the different learning styles, heighten student interest, and demonstrate use of technology in the community college setting. According to Rogers (2003) the easier it is for individuals to see the results of an innovation, the more likely they are to adopt.

In order to ascertain the faculty's perceived concerns towards the adoption of distance education at RCC the researcher used the diagnostic dimensions of the Concerns-Based Adoption Model (CBAM) Project that evolved out of the work of Frances Fuller (1969) and others "in response to the innovation focus approach to educational change common in the diffusion and adoption era of the 1960s and 1970s"

(G.E. Hall, Dirksen, & George, 2008, p. 1). This investigation of what happened when individuals were asked to adopt an innovation was conducted at the Research and Development Center for Teacher Education at the University of Texas at Austin to learn more about the changes in school improvement processes (Hord, Rutherford, Huling-Austin, & Hall, 1987). Its purpose is to serve both as a diagnostic tool that identifies an individual's stage(s) of concern, and as an intervention mechanism for program managers to use so as to proscribe appropriate interventions for resolving these concerns. Section II of the questionnaire administered in this study contained the first component, The Stages of Concern (SoC), of the CBAM model. The questionnaire (Appendix A) consisted of 35 statements, each expressing a certain concern about the Instructional Television innovation. Respondents indicated the degree to which each concern was true for them by marking a number on a 0-7 scale next to each statement. High numbers indicated high concern; low numbers, low concern; and 0 indicated very low concern or completely irrelevant items.

The CBAM researchers hypothesized that individuals who were implementing new innovations would progress through a set of developmental stages and levels as they became more sophisticated and skilled at using an innovation. Seven stages of concern "describe the dynamics of an individual innovation adopter" (G. Hall, George, & Rutherford, 1979/1986, p. 4). These include: 0 = Awareness; 1 = Informational; 2 = Personal; 3 = Management; 4 = Consequence; 5 = Collaboration; and 6 = Refocusing. Stages of concern for individuals asked to implement an innovation, according to Hord, Rutherford, Huling-Austin, and Hall (1987), move through three levels of concern. These concerns evolve from an initial level involving concerns about SELF, to the TASK level

and finally to the IMPACT level. During the initial stages of implementation of an innovation, faculty members are generally at the SELF stages. (Please see the Stages of Concern about an Innovation definitions presented as Table 1 in Chapter 2).

In this study, the Stage 0 category described participants who were not using the instructional television innovation, but exhibited "Awareness" of it. The Stage 1 and Stage 2 categories represented individuals whose personal concerns were primary. These individuals were concerned with acquiring information (Stage 1) or had concerns regarding the impact of the innovation upon themselves, their personal concerns, or on their ability to work with it (Stage 2). Stages 0, 1, and 2 are part of the SELF level. The TASK-related concerns category (Stage 3) described individuals whose major concerns rested with the managerial and organizational impact of instructional television. Individuals who are identified as having IMPACT-related concerns are interested in the "Consequences" of implementation of distance education via ITV, i.e. how it would affect students (Stage 4). In addition, they are interested in the "Collaborative" aspects (Stage 5) or "Refocusing" concerns (Stage 6) that involve rethinking or reviewing other ideas that might be able to achieve the same goal.

Once faculty concerns begin to focus on the innovation itself and its impact on students, they have reached the IMPACT level. According to Hall, George, and Rutherford (1979/1986), movement towards the higher levels of concern depends not only upon an individual, but also upon the innovation and the environment.

George, Hall, and Stiegelbauer (2008) suggest Stage 0 (Unconcerned) scores provide an indication of the degree of priority the respondent is placing on the innovation and the relative intensity of concern about the innovation. A high score in Stage 1

(Informational) indicates the respondent would like to know more about the innovation. Stage 2 (Personal) concerns deal with SELF concerns. A high Stage 3 (Management) score indicates intense concern about management, time, and logistical aspects of the innovation. Stage 4 (IMPACT) concerns relate to the impact of the innovation on students. A profile that peaks at Stage 5 (IMPACT) indicates the respondent is interested in coordinating use of the innovation with others. Profiles that peak at Stage 6 (IMPACT) indicate the respondent is concerned about obtaining other ideas about an innovation, drastically altering or replacing it.

According to George, Hall, and Stiegelbauer (2008) Stages of Concern Questionnaire (SoCQ) data can be displayed either graphically or in different kinds of tables. Data from the Stages of Concern Questionnaire (SoCQ) can be interpreted at several levels of detail and abstraction. Scoring the questionnaire requires calculating raw scores for each of the seven stages (or scales) of concern. Once the seven raw scores are obtained, they are converted to percentile scores before they can be interpreted.

The Stages of Concern Raw Score: Percentile Conversion Chart for the Stages of Concern Questionnaire can be found in Appendix D, Section II, Table 1. The percentiles are based on responses of 830 individuals who completed the 35-item questionnaire in the fall of 1974. The individuals were a carefully selected stratified sample from both elementary schools and higher-education institutions who had a range of experience with the innovation of teaming or modules. The percentiles in this table have proved to be representative of other innovations (George, Hall, & Stiegelbauer, 2008).

For this study, the researcher used the Quick Scoring Device for the Stages of Concern Questionnaire developed by Parker and Griffen (1979/1986). Individual item

responses, raw scores, and percentile scores are illustrated in Appendix D, Section II,

Tables 2-15. George, Hall, & Stiegelbauer (2008) suggest "the emergence and resolution

of Concerns about innovations appear to be developmental, in that earlier concerns must

first be resolved (lowered in intensity) before later concerns can emerge (increase in

intensity)" (p. 8).

The statements on the SoCQ were carefully selected by the original CBAM

developers according to concerns theory (George, Hall, & Stiegelbauer, 2008) to

represent the seven fundamental Stages of Concern (Appendices A, Section II). There are

five statements for each stage. Table 6 groups the statements according to the stages to

which they correspond.

Table 6. Statements on the Stages of Concern Questionnaire Arranged According to Stage

Item	Statement
Stage 0 (Unconcerned)	
3.	I am more concerned about another innovation.
12.	I am not concerned about this innovation at this time.
21.	I am preoccupied with other things other than the innovation.
23.	I spend little time thinking about the innovation.
30.	Currently, other priorities prevent me from focusing my attention on the innovation.
Stage 1 (Informational)	
6.	I have very limited knowledge about the innovation.
14.	I would like to discuss the possibility of using the innovation.
15.	I would like to know what resources are available if we decide to adopt this innovation.
26.	I would like to know what the use of this innovation will require in the immediate future.
35.	I would like to know how this innovation is better than what we have now.
Stage 2 (Personal)	
7.	I would like to know the effect of the innovation on my professional status.
13.	I would like to know who will make the decisions in this new system.
17.	I would like to know how my teaching or administration is supposed to change.
28.	I would like to have more information on time and energy commitments required by this innovation.
33.	I would like to know how my role will change when using the innovation.
Stage 3 (Management)	
4.	I am concerned about not having enough time to organize myself each day.
8.	I am concerned about conflicts between my interests and my responsibilities.

16.	I am concerned about my inability to manage all the innovation requires.
25.	I am concerned about time spent working with nonacademic problems related to this innovation.
34.	Coordination of tasks and people is taking too much of my time.

Stage 4 (Consequence)	
1.	I am concerned about students' attitudes towards this innovation.
11.	I am concerned about how this innovation affects students.
19.	I am concerned about evaluating my impact on students.
24.	I would like to excite my students about their part in this approach.
32.	I would like to use feedback from students to change the program.

Stage 5 (Collaboration)	
5.	I would like to help other faculty in their use of the innovation.
10.	I would like to develop working relationships with both our faculty and outside faculty using this innovation.
18.	I would like to familiarize other departments or persons with the progress of this new approach.
27.	I would like to coordinate my effort with others to maximize the innovation's effects.
29.	I would like to know what other faculty are doing in this area.

Stage 6 (Refocusing)	
2.	I know of some other approaches that might work better.
9.	I am concerned about revising my use of the innovation.
20.	I would like to revise the innovation's approach.
22.	I would like to modify our use of the innovation based on the experiences of students.
31.	I would like to determine how to supplement, enhance, or replace the innovation.

Data Collection

A longitudinal mixed methods design was chosen to explore the question of why and how faculty in a rural community college adopts distance-education innovations. As stated earlier in this chapter, this study used several methods (a) a survey instrument composed of the DESI prepared and validated by Lucas (1995a) and the CBAM SoC Questionnaire prepared and validated by Hord, Rutherford, Huling-Austin, & Hall, (1987), (b) staff development activities, (c) in-depth interviews, (c) focus groups, (d) non-participant observation by the researcher and (e) analysis of documents.

Close-ended Questionnaire

The survey instrument composed of the DESI prepared and validated by Lucas (1995a) and the CBAM SoC Questionnaire prepared and validated by Hord, Rutherford, Huling-Austin, & Hall, (1987), (see Appendix A), consisted of four parts: Section I – Attitudes Towards the Innovation; Section II – Stages of Concern; Section III – Self-Efficacy; and Section IV – Demographics. This questionnaire was used to explore issues regarding perceived attitudes, stages of concern, and self-efficacy towards the innovation. For the purpose of this research, the innovation was defined as was the adoption of instructional television (ITV) and later, online learning, by rural community college faculty members.

Section I: Attitude toward the Innovation

This instrument was a modification of the 31 item Distance Education Survey Instrument (DESI) prepared and validated by Lucas (1995a) for implementing distance education into high schools and used again by McNeal (1999) for exploring how eight rural Virginia school systems implemented a regional telecommunications system. Lucas

(personal communication March 2003) granted permission for use of this survey

instrument. The questions in the survey represented those developed by Rogers (2003)

and Rogers and Shoemaker (1971) in earlier studies regarding the diffusion of

innovations. The questions in the survey presented respondents with a five-point Likert

scale (1-5: Strongly Disagree, Disagree, Undecided, Agree, and Strongly Agree) that they

were asked to use in response to statements regarding attributes of the innovation.

As described in detail in Chapter 2, Rogers (2003) identified five characteristics

of innovations that influence the decision to adopt an innovation: relative advantage,

compatibility, complexity, trialability, and observability. The Cronbach's Alpha

computed by Lucas (1995a) for each subscale of the DESI using the statistical tool,

Statistical Package for Social Science for PCs (SPSS/PC), were as follows:

Relative Advantage (7 items)	.79
Compatibility (6 items)	.79
Complexity (6 items)	.81
Trialability (6 items)	.71
Observability (6 items)	.77

A relatively high Alpha value (above .70) attests to the homogeneity of items, a

characteristic of the "reliability" of the items selected to measure a particular construct

(Gable, 1986).

Section II: Level of Adoption of the Innovation

For the purpose of identifying faculty concerns about the adoption and

implementation of distance education innovations at RCC, the Stages of Concern

Questionnaire (SoCQ) (Hord, Rutherford, Huling-Austin, & Hall, 1987) (see Appendix

A) was used. Permission to use the CBAM was obtained from the copyright holder, Southwest Educational Development Laboratory (SEDL) in Austin, Texas in March 2003 (see appendices L-P). The Concerns-Based Adoption Model (CBAM), applies to anyone experiencing change, that is, policy makers, faculty, parents, students (G. E. Hall & S. M. Hord, 1987a; Hord, Rutherford, Huling, & Hall, 2009; Hord, Rutherford, Huling, & Hall, 2008). The model holds that people considering and experiencing change evolve in the kinds of questions they ask and in their use of whatever the change is.

The SoC questionnaire consists of 35 items. Subjects were asked to respond to a seven point Likert scale (1: "Not true of me now" to 7: "Very true of me now;" plus "0" = "irrelevant") that represented their current feelings on the concerns of individuals involved in the change (Hord, Rutherford, Huling-Austin, & Hall, 1987). These are summarized in Table 6.

Table 7. Stages of Concern: Typical Expressions of Concern about the Innovation

Stage of Concern	Expression of Concern
6. Refocusing	I have some ideas about something that would work even better.
5. Collaboration	How can I relate what I am doing to what others are doing?
4. Consequence	How is my use affecting learners? How can I refine it to have more impact?
3. Management	I seem to be spending all my time getting materials ready.
2. Personal	How will using it affect me?
1. Informational	I would like to know more about it.
0. Awareness	I am aware of the innovation but not concerned about it.

From *Taking Charge of Change* by Shirley M. Hord, William L. Rutherford, Leslie Huling-Austin, and Gene E. Hall, (2008). Adapted with permission of the author.

The reliability of the SoC Questionnaire was determined by Hall, George, and Rutherford (1979/1986). The test-retest correlations of the stage scores ranged from 0.65 to 0.86; four of the seven correlations were above 0.80. Internal reliability ranged from 0.64 to 0.83. A series of validity studies resulting from its use in longitudinal studies "provide increased confidence that the SoC Questionnaire measures the hypothesized Stages of Concern" (p. 20).

Section III: Self-efficacy

The third section of the instrument used in this study measured self-efficacy of community college faculty towards the innovation. Two components were adapted from items included on surveys developed by Delcourt and Kinzie (1993) and Kinzie, Delcourt, and Powers (1994) for measuring attitudes and self-efficacy toward distance education technologies. Dr. Mable B. Kinzie granted this permission in February 2003 (see Appendix P). These sub-sections included questions on comfort level/anxiety towards distance education involving compressed video and the use of electronic mail.

Two other measures of self-efficacy covered items concerned with the operation of hardware associated with distance education delivery systems: (a) the use of fax machines to transmit and receive information and (b) the use of a compressed video system. The final two measures for examining self-efficacy were adapted from Talab and Newhouse (1993) and included items regarding individuals' self-assessment of their roles as (a) change facilitators and (b) potential users of the system to deliver programming and information to a designated audience. A five-point Likert scale (1-5 Strongly Disagree, Disagree, Undecided, Agree, Strongly Agree) was used. According to George, Hall, and

Stiegelbauer (2008), the self-efficacy section was reviewed for validity by a panel of experts who were practitioners in the field of distance education.

Section IV: Descriptive Information

The final section of the instrument asked for descriptive and demographic data that profiled the characteristics of the community college faculty members.

Open-ended Questionnaires

Open-ended questionnaires (see Appendix B) were distributed following each of the three scheduled faculty training sessions in November 1998. These training sessions were held on three consecutive Fridays. Community college faculty members were asked to comment on what they thought was positive, negative, and interesting regarding the session, as well as to list any comments or suggestions for improvement.

Narrative

An open-ended questionnaire (Appendix H) was distributed to the Division Chairs of Business/Science, Career and Technical, Health, and Liberal Arts in November 2005. Items on the questionnaire addressed current and future use of the telecommunications system including:

What future plans do you have for the System? Please be as specific as possible.

--for dual enrollment courses?

--for high school courses?

--for WebCT courses?

--for staff development?

--other uses (co-curricular, community, etc.)?

What comments/concerns do you have regarding the System?

Focus Group Interviews

Three focus group interviews (Appendix I) were conducted in November 2005 concerning the instructional television distance education system. This was six years into the actual implementation period and the System was fully operational. Based upon the review of literature, document analysis, results of the initial closed and open-ended questionnaires, and direct observation, focus group questions were developed and categorized into the following domains:

    1) Value/Effect of the Three Workshops

    2) Current Status of System Equipment

    3) Development of College and Community Awareness of the System

    4) Plans for Future Use of the System

    5) Current Utilization of the System

Individual Interviews

During a five month period, January through May 2009, final interviews were conducted with the fourteen College faculty members who participated in this longitudinal case study. They were among the first to use the instructional television system in 1999 and subsequently adopt online teaching with WebCT in the spring of 2001 and online teaching with Blackboard in the spring of 2009. Their attitudes and experiences with both distance teaching mediums and both online learning management systems were explored. The twenty-nine questions they were asked are available in Appendix C.

Each interview lasted approximately one hour and resulted in approximately 20 pages of transcript. The data were coded and analyzed in terms of the participant's

feelings related to adopting Instructional Television and Online Learning. The concepts

explored in the interview questions provided an a priori framework that was supported by

the other data sources. The codes were determined as they emerged from the data.

Procedures

Administration of Questionnaires

Prior to the beginning of the study in February of 1998, the researcher shared the

intent of the investigation with 14 faculty members who attended the first informational

meeting that was held in the Learning Resource Center at RCC. They were each provided

with a consent form to sign as participants in the research that served as written assurance

of confidentiality of all information conducted in the study (Appendix E). A close-ended

pre-assessment questionnaire (Appendix A) was distributed and completed using paper

and pencil by each faculty member. This questionnaire included the (DESI) prepared and

validated by Lucas (1995a) and the CBAM SoC Questionnaire prepared and validated by

Hord, Rutherford, Huling-Austin, & Hall (1987). The same questionnaire was

administered five years later in 2003 and at the end of the study in 2009. During the time

period that elapsed between the administration of the surveys, training and onsite

experimentation with various distance education programs took place. In 2003 and 2009

the surveys were administered electronically.

Faculty Development Workshops

During the fall of 1998 (August – December) the researcher and a liberal arts

faculty member Maureen O'Berry,[9] co-taught three hands-on instructional television

(ITV) workshops, providing faculty with the basic concepts of ITV teaching: how to use

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[9] This is a pseudonym for a faculty member.

the equipment, differences between teaching in a traditional and an ITV classroom, effective teaching strategies for ITV technology, and opportunity to practice using ITV when "linking" to a distant-site classroom.

The model used to plan and develop these three distance education staff development activities had four major components. These were similar to elements associated with the implementation plans for other innovations, but contained features that were specific to the introduction of Instructional Television (ITV) at RCC. Plans for staff development associated with this innovation included:

1. Selection of RCC faculty participants.

2. Completion of needs and resource assessment by each participant prior to training and implementation, and again, during the training/implementation process.

3. A continuous program of staff development with numerous opportunities for feedback, interaction, and learning, followed by an on-site trial period.

4. A plan for continuous evaluation that included survey, observational, and interview data that was analyzed using qualitative or quantitative methodologies, as appropriate. This included end of study questionnaires and focus group interviews as part of the evaluation process.

Each component is discussed below in further detail.

Faculty Participants

The 14 participants in these sessions were all full-time community college faculty at RCC. This sample was voluntary in nature, based on the faculty member's willingness to participate in learning about ITV in a classroom that was outfitted with cameras,

microphones, and multimedia equipment, all designed to enhance their instruction and provide convenient, interactive learning for students at various locations. Although these faculty respondents actually cared enough one way or another to participate in the study, this introduced the possibility of self-selection error. This type of error sometimes makes it unlikely that the sample will accurately represent the broader population. For this reason, the sample in this study should be treated as a non-probability sample of the population, and the validity of the estimates of parameters based on them unknown.

Staff development training would allow these participants to:

- Become knowledgeable about distance education and the use of Instructional Television equipment,

- Observe distance learning practices that other faculty found effective for their needs, and

- Experiment with distance education delivery on a trial basis.

Needs Assessment

In regards to the training needs of instructional television faculty, Kromholz and Johnstone (1998) suggest effective staff development should be based on a profile of the intended audience. The researcher developed an assessment form (Appendix Q) that identified the critical components needed to operate an ITV classroom.

Continuous Program of Staff Development

Despite its importance, technology professional development is an often overlooked component of the cost of introducing an innovation. Research shows a stand-alone workshop has less than a 5% chance of actually changing teacher practice in the classroom. However, if you add on-going professional development, and ensure on-going

support from coaches and administrative staff, the chance of really affecting teaching and learning increases dramatically -- to nearly 90% (Joyce & Showers, 2002).

In this study, faculty received training opportunities over a period of several months. Within RCCs faculty was a wide range of attitudes towards and experiences with technology, both in and out of the classroom. Some faculty had great expertise regarding the use of technology, while others harbored great trepidation about using it.

The three faculty development sessions conducted by the researcher and liberal arts faculty member were: 1) Distance Education: History, Theory, and Instructional Format; 2) Video Conferencing and Other Equipment: Instructions and Practice; and 3) Sample Lesson. Each participant was asked to fill out an open-ended survey (Appendix B) following the workshops. The Goals and Objectives of the Staff Development Workshops can be found in Appendix J.

Focus Group Interviews

Three focus group interviews concerning the instructional television distance education system were conducted with the fourteen participants on three consecutive Fridays in November 2005. Guiding questions for the interviews may be found in Appendix I.

In-Depth Interviews

During a five month period, January through May 2009, final interviews were conducted with the fourteen College faculty members who participated in this longitudinal case study. Guiding questions for the in-depth interviews may be found in Appendix C.

Collection of Additional Qualitative Data

Qualitative information regarding the adoption and implementation of both the instructional television system and the online learning management systems were collected by the researcher through interviews of key participants, site visits, faculty development workshops, face-to-face, telephone, and e-mail correspondence throughout the study; and the analysis of documents.

The researcher collected information regarding the adoption of the innovations, and the concerns of the individuals involved in the change process through observations, personal interviews, focus group interviews, document analysis, and the review of open-ended surveys. She attended classes delivered via the distance education network. In addition to observer notes, the researcher developed a second component of field notes that contained reflective comments and included thoughts and ideas that provided a context for the observed activities and possible relationships with previous observations. This process has been recommended by Bogdan and Bilken (1992).

Provision for Treatment of Human Subjects

Faculty members were asked to participate in this research study prior to the beginning of data collection in 1998 (Appendix E). They were informed that this research would contribute to quantitative and qualitative insight into the process of change that occurs as distance education is implemented in the community college environment, and in particular, into the effect of distance education upon individuals who serve as faculty. Participants were told that all responses to data collected would be completely anonymous and that the overall results would be shared with them and with the Vice President for Academic Affairs.

Analysis of Data

The advantages that encouraged faculty to adopt and deliver instruction via distance education and the challenges that discouraged them from doing so were determined by analyzing the results of the attitude component of the 31-item Distance Education Survey (DESI) prepared and validated by Mark Lucas (1995) (Appendices A, Section I) for implementing distance education into high schools and the self-efficacy component of the survey (Appendices A, Section III) composed of 28 items that addressed the skills and competencies associated with the implementation of distance education at RCC. The 31 items related to the five characteristics of innovations that influence the decision to adopt an innovation identified by Rogers and Shoemaker (1971) are: relative advantage, compatibility, complexity, trialability, and observability. The questions in the survey (Appendices A, Section I) presented respondents with a five-point Likert scale (1-5: Strongly Disagree, Disagree, Undecided, Agree, and Strongly Agree) that they were asked to use in response to statements regarding attributes of the innovation.

Section II of the questionnaire administered in this study (Appendix A) contained The Stages of Concern Questionnaire (SoCQ) consisting of 35 statements, each expressing a certain concern about the Instructional Television innovation. Respondents indicated the degree to which each concern was true for them by marking a number on a 0-7 scale next to each statement. High numbers indicated high concern; low numbers, low concern; and 0 indicated very low concern or completely irrelevant items. The researcher interpreted data from the SoCQ at several levels of detail and abstraction. Scoring the questionnaire required calculating raw scores for each of the seven stages (or

94

scales) of concern; locating the percentile score for each scale in the Stages of Concern Raw Score: Percentile Conversion Chart (Appendix D, Section II, Table 1); and plotting the results on the Stages of Concern Profile charts (Tables 9, 10, and 11). The researcher used the Quick Scoring Device for the Stages of Concern Questionnaire developed by Parker and Griffen (1979/1986) to calculate the individual item responses, raw scores, and percentile scores illustrated in Appendix D, Section II, Tables 2-15.

The percentile scores for the initial (1998), midpoint (2003) and final (2009) surveys are displayed for each individual in Tables 9, 10, and 11, illustrating the predominant concerns and the diversity concerns within the group at each of the seven stages. In these tables, the researcher examined highest scores (Peak Stage Score Interpretation). The bottom rows in Tables 9, 10, and 11 illustrate group data calculated by combining and averaging individual percentile scores.

In Tables 12, 13, and 14 the researcher highlights the group data collected from the Stages of Concern Questionnaire (SoCQ) over the life of study. In order to provide a concise display of the distribution of peak scores within the group, the researcher tallied the number of individuals who had their peak stage in each area of concern. To develop additional insight into the dynamics of the concerns of the RCC faculty, the researcher analyzed group data for the second highest stage score in addition to the peak score for each administration of the Stages of Concern Questionnaire (SoCQ) for 1999, 2003, and 2009 (Table 15, 16, and 17).

Table 18 arranges the statements on the Distance Education Survey Instrument (DESI) according to category and illustrates the initial (1998), midpoint (2003), and final (2009) means, and changes in means. Columns one and two show the item number and

category for each statement from the survey; data from 1998 represents data obtained prior to research; data from 2003 represents data collected midway through the research, and data from 2009 represents data collected at the close of the study. The final three columns show the mean changes between 1998 and 2003, 2003 and 2009, and 1998 and 2009. The raw data used to calculate these scores can be found in Appendix D.

The self-efficacy component of the survey (Appendices A, Section III) was composed of 28 items that addressed skills and competencies associated with the implementation of Instructional Television at RCC. These items were classified into five sub-categories: comfort/anxiety towards the innovation, comfort/anxiety levels regarding use of electronic mail, fax machine, and videoconferencing equipment; and serving as a change agent in helping students learn via instructional television. Participants responded to a 5-point Likert scale (1=Strongly Disagree; 2=Disagree; 3=Undecided; 4=Agree; and 5=Strongly Agree). Items with negative stems were reversed scored.

For each of the statements associated with self-efficacy, the researcher determined the means and standard deviations. Those values, calculated at the start, midpoint, and at the close of the study, are presented in Table 20, as well as the amount of change that occurred over the ten year period. Columns one and two show the item number and category for each statement from the survey; data from 1998 represents data obtained prior to research; data from 2003 represents data collected midway through the research, and data from 2009 represents data collected at the close of the study. The final three columns show the mean changes between 1998 and 2003, 2003 and 2009, and 1998 and 2009. The raw data used to calculate these scores can be found in Appendix D.

Finally, the researcher determined where the study participants were in the developmental sequence through plotting and interpreting their complete concerns profiles (Chapter 4, Tables 24-37). Table 38 illustrates what emerges as a guiding conceptual framework for adopting distance education innovations.

Descriptive statistics were used to analyze the demographic information in Section IV. Focus group interviews and one-on-one interviews were taped and transcribed. ATLAS.ti was used to link, code, and merge, the data

Chapter 4 contains both descriptive and analytical findings associated with this study. The process of adopting and implementing distance education by faculty in a rural community college is detailed in this chapter. The impact of staff development, coupled with on-site experimentation, on perceived attitudes, level of adoption, and self-efficacy of the faculty is reported. Descriptions of the context, setting, and activities of the participants are included. In addition, this chapter includes suggestions and recommendations for use of the instructional television network and online learning that were provided by the participants.

CHAPTER 4

RESULTS

Introduction

This chapter presents the findings of the longitudinal case study that examined the faculty adoption of distance education in a rural community college over a span of ten years in the southwestern United States, beginning in 1998 with the adoption and implementation of an instructional television (ITV) system and ending in 2009 with the adoption and implementation of an online distance education system.

The five research questions that framed this study are:

1. How did the community-college faculty characterize the process of adopting distance education through two distance education systems?

2. What advantages and challenges did faculty at the College encounter as they adopted two different distance education systems for delivering instruction?

3. How did faculty at the College rethink and restructure their plans for the two distance education systems to facilitate their adoption?

4. What emerges as a guiding conceptual framework for adopting distance education innovations?

5. What are the implications for faculty development?

A longitudinal mixed methods case study design was chosen to explore the question of why and how faculty in a rural community college adopts distance-education innovations. Table 8 summarizes the data sources used to answer each of the five research questions that framed this study.

Table 8. Research Questions and Data Sources Used to Answer Them

Research Questions	Data Sources								
	Questionnaires			Interviews			Field Notes		
	DESI	Stages of Concern	Self Efficacy	Focus Groups	Individual	Workshops	Site Visits	Communication	Documents
1. How did the community-college faculty characterize the process of adopting distance education through two distance education systems?		■							
2. What advantages and challenges did faculty at the College encounter as they adopted two different distance education systems for delivering instruction?	■	■	■	■	■	■	■	■	■
3. How did faculty at the College rethink and restructure their plans for the two distance education systems to facilitate their adoption?	■	■	■	■	■	■	■	■	■
4. What emerges as a guiding conceptual framework for adopting distance education innovations?	■	■	■	■	■	■	■	■	■
5. What are the implications for faculty development?	■	■	■	■	■	■	■	■	■

Research Question One: "How did the community-college faculty characterize the process of adopting distance education through two distance education systems?"

Community-college faculty involved in this ten year longitudinal study characterized the process of adopting distance education through two distance education systems as adding value to the programs the College offered. Results of analysis of the quantitative and qualitative instruments indicated that faculty members recognized the potential for enhancing learning opportunities through participation in teaching at a distance.

Findings from Stages of Concern Questionnaire

Section II of the questionnaire administered in this study (Appendix A) contained The Stages of Concern Questionnaire (SoCQ) consisting of 35 statements, each expressing a certain concern about the Instructional Television innovation. Respondents indicated the degree to which each concern was true for them by marking a number on a 0-7 scale next to each statement. High numbers indicated high concern; low numbers, low concern; and 0 indicated very low concern or completely irrelevant items. The researcher interpreted data from the SoCQ at several levels of detail and abstraction. Scoring the questionnaire required calculating raw scores for each of the seven stages (or scales) of concern; locating the percentile score for each scale in the Stages of Concern Raw Score: Percentile Conversion Chart (Appendix D, Section II, Table 1); and plotting the results on the Stages of Concern Profile charts (Tables 9, 10, and 11). The researcher used the Quick Scoring Device for the Stages of Concern Questionnaire developed by

Parker and Griffen (1979/1986) to calculate the individual item responses, raw scores, and percentile scores illustrated in Appendix D, Section II, Tables 2-15.

The percentile scores for the initial (1998), midpoint (2003) and final (2009) surveys are displayed for each individual in Tables 9, 10, and 11, allowing the researcher to discern both the predominant concerns and the diversity concerns within the group at those stages. The percentile scores for the surveys are displayed for each individual illustrating the predominant concerns and the diversity concerns within the group at each of the seven stages. In these tables, the researcher examined highest scores (Peak Stage Score Interpretation). The highest stage scores for each individual were identified by underlining these scores. If another stage score was within one or two percentile points of the highest score, both scores were underlined. Interpretation of the peak score is based directly on the Stages of Concern about an Innovation definitions presented as Table 1 in Chapter 2. The percentile score indicates the relative intensity of concern at each stage. The higher the score, the more intense the concerns are at that stage. The lower the score, the less intense the concerns are at that stage. The percentile figures are not absolute; instead they are relative to the other stage scores for that individual. The researcher combined individual data by developing a profile that presented the mean percentile scores of the individuals in the group. The bottom rows in Tables 9, 10, and 11 illustrate group data calculated by combining and averaging individual percentile scores.

Table 9. Listing of Individual Stages of Concern Percentile Scores for 1998*

Faculty Member	Stages of Concern Percentile Scores						
	SELF			TASK	IMPACT		
	0	1	2	3	4	5	6
	Unconcerned	Informational	Personal	Management	Consequence	Collaboration	Refocusing
Albright	**99**	**98**	97	90	59	22	9
Anderson	55	43	35	**83**	63	36	34
Binx	**99**	90	78	94	**98**	55	77
Briggs	75	**80**	72	65	27	31	30
Candelaria	69	**75**	**72**	69	27	36	30
Crump	40	**60**	25	52	**63**	52	38
Jaramillo	99	**88**	**89**	69	30	36	38
Lamure	75	**80**	70	60	30	36	26
Landers	**99**	96	95	94	63	14	9
Madrid	40	51	67	**80**	76	48	38
Ramirez	14	**90**	21	23	24	**91**	38
Torres	**99**	69	76	43	21	14	26
Wright	**99**	31	12	34	82	36	5
Zamora	**87**	**88**	85	92	38	40	9
	0	1	2	3	4	5	6
Average	75	74	64	68	50	39	29
*You will note that some faculty has two scores highlighted. These represent what is essentially a tie (a difference of only 1 or 2 points) for the person's most intense Stage of Concern.							

In Table 9, the highest Stages of Concern for Mary Albright are Stages zero and one. These peak scores suggest that she was most concerned about how the change would affect her. Was she up to the challenge? Could she learn what she needed in order to succeed with the ITV system? How would the innovation affect her, her job, her future? Would she be able to do what was required? Of the 14 faculty participating in this 1998 survey, 12 scored at this initial level involving concerns about SELF. Zachary Binx, Helen Crump, and Lloyd Ramirez scored both at the SELF level and at the IMPACT level indicating that while they were concerned about how the change would affect them personally, they were also concerned about how the innovation would affect students in

their immediate sphere of influence. Ramirez was also interested in coordinating and

cooperating with others regarding use of the innovation. Kate Anderson and Kathy

Madrid scored at the TASK level indicating they focused more on the processes and tasks

of using the innovation.

Table 10. Listing of Individual Stages of Concern Percentile Scores for 2003*

Faculty Member	Stages of Concern Percentile Scores						
	SELF			TASK	IMPACT		
	0	**1**	**2**	**3**	**4**	**5**	**6**
	Unconcerned	Informational	Personal	Management	Consequence	Collaboration	Refocusing
Albright	40	47	65	**78**	74	50	37
Anderson	25	27	12	44	**74**	50	67
Binx	40	27	39	30	9	16	**65**
Briggs	31	19	28	15	21	68	**84**
Candelaria	40	30	57	**85**	71	52	77
Crump	22	16	12	27	71	27	**77**
Jaramillo	0	27	35	52	86	**91**	57
Lamure	7	12	12	18	82	**97**	**97**
Landers	31	27	31	34	76	36	**97**
Madrid	61	54	41	**90**	76	48	52
Ramirez	7	12	12	11	76	16	**99**
Torres	31	27	31	18	82	**97**	60
Wright	30	23	35	52	76	**84**	65
Zamora	22	23	18	23	**76**	68	38
	0	**1**	**2**	**3**	**4**	**5**	**6**
Average	**28**	**27**	**31**	**41**	**67**	**57**	**69**

* You will note that some faculty has two scores highlighted. These represent what is essentially a tie (a difference of only 1 or 2 points) for the person's most intense Stage of Concern.

When study participants completed the Stages of Concern Questionnaire (SoCQ)

for a second time in 2003, three faculty scored at the TASK level and 11 scored at the

IMPACT level (Table 10). Mary Albright, Jim Candelaria and Kathy Madrid were all

focused on management concerns including the processes and tasks of using the

innovation and the best use of information and resources. Their dominant issues related to

efficiency, organizing, managing, and scheduling the ITV innovation. The 11 faculty who

scored at the IMPACT level were concerned with consequences of using the innovation,

collaborating with others, and refocusing their efforts on changing or replacing the ITV

innovation.

Table 11. Listing of Individual Stages of Concern Percentile Scores for 2009*

Faculty	Stages of Concern Percentile Scores						
	SELF			TASK	IMPACT		
Member	0	1	2	3	4	5	6
	Unconcerned	Informational	Personal	Management	Consequence	Collaboration	Refocusing
Albright	31	5	5	23	76	59	**87**
Anderson	**99**	5	5	18	15	3	9
Binx	**98**	25	25	24	23	21	**99**
Briggs	87	5	5	5	5	1	**99**
Candelaria	14	12	14	94	16	16	**99**
Crump	**98**	12	14	23	16	16	**99**
Jaramillo	14	12	14	15	86	16	**99**
Lamure	87	30	28	27	30	16	**99**
Landers	**99**	5	5	23	16	4	9
Madrid	**94**	90	95	23	30	36	38
Ramirez	**98**	23	25	23	30	36	**99**
Torres	**99**	17	19	23	9	12	90
Wright	**97**	30	25	23	24	25	**99**
Zamora	**99**	19	17	9	2	5	90
	0	1	2	3	4	5	6
Average	79	21	21	25	27	19	80

*You will note that some faculty has two scores highlighted. These represent what is essentially a tie (a difference of only 1 or 2 points) for the person's most intense Stage of Concern.

By 2009 when the study participants completed the Stages of Concern

Questionnaire (SoCQ) for the final time, the majority of the faculty's SoCQ profiles

(9/14) illustrated unconcerned users of the ITV innovation (high Stage 0). Table 11

shows that four of those nine (Zachary Binx, Helen Crump, Lloyd Ramirez, and Brian

Wright) scored both at the unconcerned stage (SELF level) and at the refocusing stage

(IMPACT level). The remaining five faculty members scored at the IMPACT level only. These 2009 results showed that nine of the 14 survey respondents were focusing on exploring the possibility of making major changes to the ITV innovation or replacing it with a more powerful alternative such as online learning. It appears that the RCC faculty user's concerns about the ITV innovation progressed over the life of the study toward the later, higher-level stages (IMPACT concerns) with time, successful experience, and the acquisition of new knowledge and skills.

Highlights of Group Data from SoCQ Over the Life of the Study

In Tables 12, 13, and 14 the researcher highlights the group data collected from the Stages of Concern Questionnaire (SoCQ) over the life of study. In order to provide a concise display of the distribution of peak scores within the group, the researcher tallied the number of individuals who had their peak stage in each area of concern. George, Hall, & Stiegelbauer (2008) advised against averaging percentile scores, "because such averaging allows the extreme values to influence the results more than might be appropriate (p. 34). The proper procedure is to average the raw scores for each Stage of Concern and refer those averages to the percentile score table (Appendix D, Section II, Table 1). In addition, the authors recommend that users of the SoC Questionnaire always use the raw scale scores in statistical analysis.

Table 12. Frequency of Highest Concerns Stage for the Faculty Displayed in Table 9

Highest Stage of Concern 1998								
	SELF			TASK	IMPACT			
	0	1	2	3	4	5	6	Total
Number of Faculty	6	3	1	2	1	1	0	14
Percent of Faculty	43	22	7	14	7	7	0	100

Table 13. Frequency of Highest Concerns Stage for the Faculty Displayed in Table 10

Highest Stage of Concern 2003								
	SELF			TASK	IMPACT			
	0	1	2	3	4	5	6	Total
Number of Faculty	0	0	0	3	2	3	6	14
Percent of Faculty	0	0	0	21.5	14	21.5	43	100

Table 14. Frequency of Highest Concerns Stage for the Faculty Displayed in Table 11

Highest Stage of Concern 2009								
	SELF			TASK	IMPACT			
	0	1	2	3	4	5	6	Total
Number of Faculty	5	0	0	0	0	0	9	14
Percent of Faculty	36	0	0	0	0	0	64	100

The group averages in Tables 12, 13, and 14 reflect the dominant high and low Stages of Concern of the composite group in 1998, 2003, and 2009. When the SoC Questionnaire was completed prior to the beginning of the study in 1998, the majority of early Concerns were at the SELF level. Some faculty members indicated little concern about their involvement with the innovation while others indicated a general awareness of the innovation and an interest in learning more about the details. Still others expressed concern about the demands of the innovation and their adequacy to meet those demands. By 2003, the faculty's earlier concerns about the innovation had been resolved and new concerns had emerged at the TASK and IMPACT levels. Concerns at the TASK level related to efficiency, organizing, managing, and scheduling the ITV innovation while concerns at the IMPACT level related to the consequences of using the innovation, collaborating with others, and refocusing their efforts on changing or replacing the ITV innovation. By 2009 when the study participants completed the Stages of Concern Questionnaire (SoCQ) for the final time, the majority of the faculty was unconcerned users of the ITV innovation (high Stage 0). Others were focusing on exploring the possibility of making major changes to the innovation or replacing it with a more powerful alternative such as online learning (Stage 6). Over time, following successful experience and the acquisition of new knowledge and skills faculty user's concerns about the ITV innovation progressed toward the later, higher-level stages (IMPACT concerns).

First and Second Highest Stage Scores Interpretation

To develop additional insight into the dynamics of the concerns of the RCC faculty, the researcher analyzed group data for the second highest stage score in addition

to the peak score for each administration of the Stages of Concern Questionnaire (SoCQ)

for 1999, 2003, and 2009 (Table 15, 16, and 17).

According to George, Hall, & Stiegelbauer (2008), because of the developmental

nature of concerns, the second highest Stage of Concern will often be adjacent to the

highest one. Across the group of RCC faculty, there were individuals who did not

conform to that general pattern. To identify the most frequent second highest Stage of

Concern, select one of the highest stages from the left-hand column and read across. The

frequencies listed show how the individuals were distributed on their second highest

stages.

Table 15. Percent Distribution of Second Highest Stage of Concern in Relation to First Highest Stage of Concern for 1998

Highest Stage of Concern	Second Highest Stage of Concern								
	SELF			TASK	IMPACT				
	0	1	2	3	4	5	6	Row Pct.	Row No.
0.Unconcerned	0	3	1	0	2	0	0	43	6
1. Informational	1	0	3	0	1	1	0	43	6
2. Personal	0	0	0	0	0	0	0	0	0
3. Management	0	0	0	1	1	0	0	14	2
4. Consequence	0	0	0	0	0	0	0	0	0
5. Collaboration	0	0	0	0	0	0	0	0	0
6. Refocusing	0	0	0	0	0	0	0	0	0
							Total	100	14

The highest Stages of Concern for most individuals in 1998 tended to be Stages 0

and 1. That indicated that many of the individuals were not sure what the innovation was

(Stage 0 – Unconcerned and Stage 1 – Informational). Noting the relation of the highest

and second highest stages (adjacent to the highest) individuals who did not conform to

that general pattern were Zachary Binx, Helen Crump, Lloyd Ramirez, and Brian Wright.

Zachary Binx scored highest on Stage 0 and second highest on Stage 4. His high stage 0 score (99) indicated that there were a number of other initiatives, tasks, and activities that were of concern to him. In other words, the innovation was not the only thing that Binx was concerned about. His second highest Stage 4 concerns (98) indicated that he was concerned about the consequences and effects the innovation would have on students. Helen Crump scored highest on Stage 4 and second highest on Stage 1. Like Binx, her high Stage 4 score (63) indicated she was concerned about the consequences the innovation would have on students and her high Stage 1 score (60) indicated she wanted more information about what the innovation was, what it would do, and what it would involve. Ramirez scored highest on Stage 5 and second highest on Stage 1. His high Stage 5 score (91) indicated that he was intensely concerned about working with others in relation to the innovation. His second highest Stage 1 concerns (90) indicated he was also concerned about the structure and function of the innovation. Brian Wright scored highest on Stage 0 and second highest on Stage 4. His high Stage 0 (99) score indicated that he was not sure what the innovation was and his second highest Stage 4 score (82) indicated that like Binx and Crump, he was concerned about the consequences the innovation would have on students.

Table 16. Percent Distribution of Second Highest Stage of Concern in Relation to First Highest Stage of Concern for 2003

Highest Stage of Concern	Second Highest Stage of Concern								
	SELF			TASK	IMPACT				
	0	1	2	3	4	5	6	Row Pct.	Row No.
0. Unconcerned	0	0	0	0	0	0	0	0	0
1. Informational	0	0	0	0	0	0	0	0	0
2. Personal	0	0	0	0	0	0	0	0	0
3. Management	0	0	0	0	2	0	1	21	3
4. Consequence	0	0	0	0	0	1	1	14	2
5. Collaboration	0	0	0	0	3	0	0	21	3
6. Refocusing	1	0	0	0	3	2	0	44	6
							Total	100	14

The highest Stages of Concern for most individuals in 2003 tended to be Stages 4, 5, and 6. That indicated that many of the individuals were concerned about the time and/or management the ITV innovation would require (Stage 4), working with others in relation to use of the innovation (Stage 5), and had ideas about how to change the innovation or do something else instead (Stage 6). Again, noting the relation of the highest and second highest stages (adjacent to the highest) the individual who did not conform to that general pattern was Jim Candelaria. He scored highest on Stage 3 and second highest on Stage 6. His high Stage 3 score (85) indicated he had intense concerns about management, time, and logistical aspects of the innovation. Candelaria's second highest Stage 6 score (77) indicated that he was exploring ways to reap more universal benefits from the ITV innovation.

Table 17. Percent Distribution of Second Highest Stage of Concern in Relation to First Highest Stage of Concern for 2009

Highest Stage of Concern	Second Highest Stage of Concern								
	SELF			TASK	IMPACT				
	0	1	2	3	4	5	6	Row Pct.	Row No.
0. Unconcerned	0	1	0	2	0	0	2	36	5
1. Informational	0	0	0	0	0	0	0	0	0
2. Personal	0	0	0	0	0	0	0	0	0
3. Management	0	0	0	0	0	0	0	0	0
4. Consequence	0	0	0	0	0	0	0	0	0
5. Collaboration	0	0	0	0	0	0	0	0	0
6. Refocusing	6	0	0	1	2	0	0	64	9
							Total	100	14

The highest Stages of Concern for most individuals in 2009 tended to be Stages 0 (Unconcerned) and 6 (Refocusing). That indicated that the majority of individuals (64%) had ideas about how to change the innovation or do something else instead (Stage 6). Individuals who did not conform to the general pattern of the relation of the highest and second highest stages (adjacent to the highest) were Jim Candelaria and Mary Jaramillo. Both scored highest on Stage 6 indicating they were interested in replacing the ITV innovation. Candelaria continued to have intense concerns about the management, time, and logistical aspects of the innovation as indicated by his second highest Stage 3 score (94). Mary Jaramillo's second highest concern was about the time and/or management the ITV innovation required (Stage 4).

Conclusion

RCC faculty characterized the innovation adoption process as difficult because each technology required a lengthy period from the time they became available until the time when they were widely adopted. The researcher believed both innovations were advantageous and would sell themselves if the benefits were widely recognized by the

faculty. This was not the case. Each innovation diffused at a slow rate but was eventually well received. Since distance education was a new paradigm at Renaissance Community College (RCC) many faculty were unprepared for the fundamental differences in the roles required for teaching at a distance. Prior to 1999, faculty at RCC delivered courses and programs in only a traditional, face-to-face manner. Over a span of ten years (1999-2009) they modified existing courses and programs for distance delivery because new technologies enabled them to tap new markets in a cost-effective manner.

Results of the Stages of Concern (SoC) Questionnaire completed by RCC participants in 1998 (Chapter 4, Tables 7 - 16) indicated a general awareness of the ITV innovation and interest in learning more about it. The emergence and resolution of concerns about the ITV innovation was developmental in that participants' earliest concerns, which were lower in intensity, had to be resolved before higher intensity concerns could emerge. For example, in 1998 the majority (12/14) of faculty participants were most concerned about how the ITV innovation would affect them personally. Three of the 12 were also concerned about how the innovation would affect students in their immediate sphere of influence. Only one of the 12 was also interested in coordinating and cooperating with others regarding use of the ITV innovation and only two were interested in the processes and tasks of using the innovation. Faculty was uncertain about the role they would play and the demands that would be placed upon them by the innovation. This included analysis of their role in relation to the reward structure of the College, decision making and consideration of potential conflicts with existing structures and commitments. Financial and status implications of the distance education program for individuals and for colleagues at the College were also reflected. When faculty

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participants completed the SoCQ for a second time in 2003, attention was on the processes and tasks of using the ITV innovation and the best use of information and resources. The focus was on issues related to efficiency, organizing, managing, scheduling, and time demands. For example, three of 14 were focused on management concerns including the processes and tasks of using the innovation. In addition, 11 of the 14 faculty were concerned with consequences of using the innovation, collaborating with others, and refocusing their efforts on changing or replacing it. The highest Stages of Concern for most individuals in 2009 tended to be Stages 0 (Unconcerned) and 6 (Refocusing). This indicated that the majority of individuals (64%) had ideas about how to change the innovation or do something else instead (Stage 6).

Summary for Research Question One

Research Question One was: "How did the community-college faculty characterize the process of adopting distance education through two distance education systems?" By looking at one types of analysis, the Stages of Concern Questionnaire (SoCQ), it can be concluded that these are the major findings for this question:

Faculty was open to participating in distance education and wanted more information on

- Analysis of their role

- How the innovations would affect them personally

- Demands of the innovation

- Advantages and Disadvantages

- Cost-effectiveness

Faculty were interested in technical training and support

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Faculty wanted to know about the opportunities available at RCC

Faculty wanted to know about participation incentives

- Financial incentives

- Release time

Research Question Two: "What advantages and challenges did faculty at the College encounter as they adopted two different distance education systems for delivering instruction?"

The advantages that encouraged faculty to adopt and deliver instruction via distance education and the challenges that discouraged them from doing so were determined by analyzing the results of (1) the attitude component of the 31-item Distance Education Survey (DESI) (Appendices A, Section I, (2) the self-efficacy component of the questionnaire (Appendices A, Section III), (3) focus group interviews, (4) individual interviews, (5) workshops, (6) site visits, (7) communications, and (8) documents.

The 31 items related to the five characteristics of innovations that influence the decision to adopt an innovation identified by Rogers and Shoemaker (1971) are: relative advantage, compatibility, complexity, trialability, and observability. The questions in the survey (Appendices A, Sections I and III) presented respondents with a five-point Likert scale (1-5: Strongly Disagree, Disagree, Undecided, Agree, and Strongly Agree) that they were asked to use in response to statements regarding attributes of the innovation.

Findings from Distance Education Survey Instrument (DESI)

Table 18 arranges the statements on the Distance Education Survey Instrument (DESI) according to category and illustrates the initial (1998), midpoint (2003), and final (2009) means, and changes in means. Columns one and two show the item number and category for each statement from the survey; data from 1998 represents data obtained prior to research; data from 2003 represents data collected midway through the research, and data from 2009 represents data collected at the close of the study. The final three

columns show the mean changes between 1998 and 2003, 2003 and 2009, and 1998 and

2009. The raw data used to calculate these scores can be found in Appendix D.

Table 18. Statements on the Distance Education Survey (DESI) Arranged According to Category with Mean, Standard Deviation & Changes in Means

Item	Category	Mean	SD	Mean	SD	Mean	SD	Mean Change	Mean Change	Mean Change
		1998		2003		2009		98/03	03/09	98/09
	Relative Advantage									
1.	Distance education can be a valuable addition to the programs my division/ department offers.	**4.14**	0.53	**4.43**	0.51	**4.78**	0.42	**+0.29**	**+0.35**	**+0.64**
6.	Costs outweigh the potential benefits of distance education.	**3.21**	0.57	**3.93**	0.82	**3.21**	1.05	**+0.72**	**-0.72**	**0.00**
11.	Distance education will expand and enhance our curricular offerings.	**3.14**	0.77	**4.07**	0.82	**4.42**	0.85	**+0.93**	**+0.35**	**+1.28**
16.	Distance education can do little to supplement and enhance my division's course offerings.	**2.57**	0.51	**1.93**	0.26	**1.57**	0.51	**-0.64**	**-0.36**	**-1.0**
21.	Distance education can help provide equity for school districts.	**3.07**	0.61	**2.93**	1.14	**2.86**	1.40	**-0.14**	**-0.07**	**-0.21**
26.	Distance education is effective in preparing	**3.21**	0.42	**3.29**	0.91	**3.64**	1.15	**+0.08**	**+0.35**	**+0.42**

Item	Category	Mean	SD	Mean	SD	Mean	SD	Mean Change	Mean Change	Mean Change
		1998		2003		2009		98/03	03/09	98/09
	students for learning in the "information age."									
31.	Distance education can assist students in becoming more effective learners.	3.14	0.36	3.21	0.89	3.57	1.22	+0.07	+0.36	+0.42
	Compatibility									
4.	Distance education is a current fad.	2.57	0.51	2.00	0	1.64	0.49	-0.57	-0.36	-0.92
9.	Distance education can provide valuable enrichment to courses at the College.	3.00	0.39	3.64	0.84	4.07	0.61	+0.64	+0.43	+1.07
14.	Distance-education programs are hard to coordinate when they involve more than one school system.	2.93	0.61	3.29	1.32	4.29	0.82	+0.36	+1.00	+1.35
19.	Distance-education technology is compatible with the goal of maximizing learning for each individual student.	2.57	0.64	2.64	1.08	3.07	1.38	+0.07	+0.43	+.50
24.	The public is in favor of	3.43	0.64	3.29	0.99	3.50	1.16	-0.14	+0.21	+0.07

Item	Category	Mean	SD	Mean	SD	Mean	SD	Mean Change	Mean Change	Mean Change
		1998		2003		2009		98/03	03/09	98/09
	distance education being initiated in the school districts that the College serves.									
30.	I do not feel that instructors will view distance education as a threat to their job security.	3.14	0.94	3.64	0.92	4.07	0.82	+0.50	+0.43	+0.92
	Complexity									
5.	Distance education is not difficult to understand.	2.36	0.92	3.50	1.01	4.00	0.78	+1.14	+0.50	+1.64
10.	It is very difficult to find non-technical articles or reports about distance-education technology.	2.86	0.36	2.14	0.53	1.86	0.66	-0.72	-0.28	-1.00
15.	It is difficult to know where to begin when you want to start a distance-education program.	3.36	0.84	4.07	0.73	4.21	0.69	+0.71	+0.14	+0.85
20.	Distance education stresses technology more than educational principles.	2.86	0.36	2.50	0.85	2.07	0.73	-0.36	-0.43	-0.79

Item	Category	Mean	SD	Mean	SD	Mean	SD	Mean Change	Mean Change	Mean Change
		1998		2003		2009		98/03	03/09	98/09
25.	I feel comfortable with distance-education technology.	2.43	1.22	3.71	0.91	4.50	0.51	+1.28	+0.79	+2.07
29.	I am often confused by technical terms in distance education.	2.36	1.33	1.79	0.80	1.29	0.82	-0.57	-0.50	-1.07
	Trialability									
7.	It is not necessary to have a trial period before purchasing distance-education equipment.	2.5	0.75	1.86	0.36	1.79	0.42	-0.64	-0.07	-0.71
2.	Distance education should be tried on a small scale first.	3.71	0.82	4.57	0.51	4.64	0.49	+0.86	-0.07	+0.93
12.	If distance-education programs are unsuccessful, there should be a way to terminate them within a short period of time.	2.21	1.31	2.36	1.33	2.57	1.39	+0.15	+0.21	+0.36
17.	It is not necessary to involve school administrators in distance-education in-	2.43	0.85	1.50	0.51	1.29	0.46	-0.93	-0.21	-1.14

Item	Category	Mean	SD	Mean	SD	Mean	SD	Mean Change	Mean Change	Mean Change
		1998		2003		2009		98/03	03/09	98/09
	service programs.									
22.	Distance-education programs belong more in developing countries than in the United States.	1.29	0.72	1.07	0.26	1	0	-0.22	-0.07	-0.29
27.	Distance education is too hard to institute without a trial period.	3.43	0.51	4.14	0.36	4.29	0.46	+0.71	+0.15	+0.86
Observability										
3.	Distance education can motivate instructors to use a variety of resources in the classroom to address different learning styles.	3.07	0.47	3.57	0.93	3.71	1.20	+0.50	+0.14	+0.64
8.	Distance education can show instructors and students how institutions can utilize technology effectively to aid learning.	3.07	0.26	3.86	0.66	4.29	0.61	+0.79	+0.43	+1.22
13.	Distance education will not lead to increased student interest in	2.93	0.26	2.93	0.99	3.07	1.20	0	-1.73	+0.14

Item	Category	Mean	SD	Mean	SD	Mean	SD	Mean Change	Mean Change	Mean Change
		1998		2003		2009		98/03	03/09	98/09
	classroom learning.									
18.	I do not believe that I will see more interaction between teacher and student when distance education is used in the classroom.	2.93	0.61	2.79	0.97	2.50	1.28	-0.14	-0.29	-0.43
23.	I will expect to see both students and teachers using distance education in the classroom.	3.43	0.64	4.00	0.55	4.36	0.63	+0.57	+0.36	+0.93
28.	I do not feel that instructors will respond positively to distance education in the classroom.	2.71	0.46	2.14	0.36	1.79	0.42	-0.57	-0.35	-0.92
This survey used a five-point Likert scale (1-5: Strongly Disagree, Disagree, Undecided, Agree, and Strongly Agree)										

Some items on the questionnaires were worded such that a given response represented a desirable or positive response for one question, but a less desirable response for another. In order to compare items or combine items into a numeric subscale, certain items needed to be "reverse scored" for consistency. When reverse scoring an item, the highest and lowest numerical values were substituted for each other, the next highest and next lowest values were substituted for each other, and so on.

Prior to the beginning of the study in 1998, the most positive response to the statements on the Distance Education Survey Instrument (DESI) were obtained for statement number one: "Distance education can be a valuable addition to the programs my division/department offers" (mean = 4.14). This result indicated that faculty members recognized the potential for enhancing learning opportunities through participation in teaching via Instructional Television. Faculty felt strongly that distance education should be tried on a small scale first as illustrated by their response to statement number two (mean = 3.71). Faculty scores were identical on statements addressing three different categories "observability," "compatibility," and "trialability." These were statement number 23, "I will expect to see both students and teachers using distance education in the classroom," number 24, "The public is in favor of distance education being initiated in the school districts that the College serves," and number 27, "Distance education is too hard to institute without a trial period," (mean = 3.43). Faculty respondents were concerned that "costs outweigh the potential benefits of distance education" as illustrated by their response to statement number 6 (mean = 3.21). Faculty respondents felt strongly that distance education could expand their division course offerings as measured by their positive response to statement number

11: "Distance education will expand and enhance our curricular offerings" (mean =

3.14). They also felt that ITV would be a positive addition to their teaching methods as

illustrated by their response to statement number 9: "Distance education can provide

valuable enrichment to courses at the College" (mean = 3.0). As noted by their response

to statement number 15 (mean = 3.36) faculty also perceived that "it is difficult to know

where to begin when you want to start a distance-education program."

Prior to the beginning of the study in 1998, the lowest initial level of positive

response to the statements on the (DESI) were obtained for statements addressing

"trialability" of the ITV innovation in particular for statement number 12, "If distance-

education programs are unsuccessful, there should be a way to terminate them within a

short period of time," (mean = 2.21) and statement number 22, "Distance-education

programs belong more in developing countries than in the United States," (mean =

1.29).

Midway through the study in 2003 the most positive response to the statements

on the (DESI) was obtained for statement number two: "Distance education should be

tried on a small scale first" (mean = 4.57). In addition, faculty members continued to

recognize the potential for enhancing learning opportunities through participation in

teaching via ITV, as illustrated by their response to statement number one: "Distance

education can be a valuable addition to the programs my division/department offers"

(mean = 4.43). Respondents scores were identical on statements addressing two

different categories "relative advantage" and "complexity" as measured by their positive

responses to statement number 11, "Distance education will expand and enhance our

curricular offerings" and statement number 15, "It is difficult to know where to begin

when you want to start a distance-education program" (mean = 4.07). As noted by their response to statement number 27 (mean = 4.14) faculty also perceived that it was difficult to institute distance education without a trial period. Faculty respondents expected "to see both students and teachers using distance education in the classroom," as illustrated by their positive response to statement number 23 (mean = 4.00). Respondents felt strongly there was a need for involving administrators in the in-service training involving distance education as measured by their positive response to statement number 17 (reverse scored): "It is not necessary to involve school administrators in distance-education in-service programs" (mean = 1.50).

The lowest level positive responses to statements on the (DESI) in 2003 were obtained for those addressing "relative advantage," "compatibility," and "trialability." Relating to "relative advantage:"

"16. Distance education can do little to supplement and enhance my division's course offerings" (mean = 1.93).

Relating to "compatibility:"

"4. Distance education is a current fad' (mean = 2.00).

And relating to "trialability:"

"7. It is not necessary to have a trial period before purchasing distance-education equipment" (mean = 1.86). And

"17. It is not necessary to involve school administrators in distance-education in-service programs" (mean = 1.50).

At the close of the study in 2009 the most positive response to statements on the (DESI) was obtained for statement number one: "Distance education can be a valuable

addition to the programs my division/department offers" (mean = 4.78). This statement also received the most positive responses from faculty prior to the beginning of the study in 1998 indicating that faculty members continued to recognize the potential for enhancing learning opportunities through participation in teaching via distance education. In addition, as measured by their positive response to statement number seven (mean = 4.64), faculty continued to feel strongly that distance education should be tried on a small scale first.

Positive mean changes greater than 1.0 between the start and the close of the study (Table 17) were found for individual statements relating to "relative advantage," "compatibility," and "trialability." Relating to "relative advantage:"

"11. Distance education will expand and enhance our curricular

offerings." Change in mean +1.28).

Relating to "compatibility":

"9. Distance education can provide valuable enrichment to courses at

the College." (Change in mean +1.07) and

"14. Distance-education programs are hard to coordinate when they

involve more than one school system" (Change in mean +1.35).

Relating to "complexity":

"5. Distance education is not difficult to understand." (Change in mean

+1.64) and

"25. I feel comfortable with distance-education technology." (Change in

mean +2.07) and

Relating to "trialability":

"8. Distance education can show instructors and students how

institutions can utilize technology effectively to aid learning." (Change in

mean +1.22).

The largest negative change in means was calculated for the statement addressing

administrators and distance education:

17. (reverse-scored): It is not necessary to involve school administrators

in distance-education in-service programs. (Change in mean -1.14).

At the close of the study this statement received the most negative response, 1.29/5.00.

The category means relating to perceived attitudes for the DESI questionnaires

obtained at the start, midpoint, and the close of the study are listed in Table 19. Four of

the five category means, "relative advantage," "compatibility," "complexity," and

"observability," showed essential changes between the start, midpoint, and the close of

the study.

Table 19. Category Means and Changes in Means for Attitudes towards Distance Education delivered via ITV

Category	1998 Mean	2003 Mean	2009 Mean	Category Mean Change	Category Mean Change	Category Mean Change
N=14				98/03	03/09	98/09
Relative Advantage	3.21	3.39	3.43	+0.18	+0.04	+0.22
Compatibility	2.44	3.08	3.44	+0.64	+0.36	+1.00
Complexity	2.70	2.95	2.98	+0.25	+0.03	+0.28
Trialability	2.59	2.58	2.59	-0.01	+0.01	0
Observability	3.02	3.21	3.28	+0.19	+0.07	+0.26
Average	2.79	3.04	3.14	+0.25	+0.10	+0.35

Using data obtained from the initial attitude component of the questionnaire (1998), the researcher found the most positive level of responses to be for the three attributes: "relative advantage" (mean = 3.21), "complexity" (mean = 2.70), and "observability" (mean = 3.02). When the attitude component of the questionnaire was completed for a second time in 2003, the most positive level of responses were again for the attributes "relative advantage" (mean = 3.39) and "observability" (mean = 3.21). However, the third highest ranking category was for "compatibility" (mean = 3.08) instead of "complexity" (mean 2.95). Results of the attitude component of the questionnaire in 2009 once again showed the most positive level of responses for the three attributes "relative advantage" (mean 3.43), "compatibility' (mean 3.44), and "observability" (mean 3.28).

During the life of the study, the change in means for the attitude component of the questionnaire varied between -0.01 and +1.00. The category mean that showed the largest change was related to the degree to which the ITV innovation was perceived as

consistent with the existing values, past experiences, and needs of potential adopters ("compatibility"). This mean had a positive gain of +1.00, from 2.44 to 3.44. Rogers (2003) theorizes since any new idea is evaluated in comparison to existing practice, compatibility is related to the rate of adoption of an innovation. At the start and the end of the study, the most positive response categories were "relative advantage" (mean = 3.21 at beginning of study and 3.43 at end of study) and "observability" (mean = 3.02 at beginning of study and 3.28 at end of study). These values indicated that faculty members recognized that ITV distance education would be a valuable addition their division's educational program and that they felt distance-education technology was compatible with the goal of maximizing learning. According Rogers (2003) diffusion scholars have found relative advantage to be "one of the strongest predictors of an innovation's rate of adoption" (p. 233). He postulates "relative advantage" is a ratio of the expected benefits and costs of adoption of an innovation. In addition, Rogers argues that "observability" of an innovation, as perceived by members of a social system, is "positively related to its rate of adoption" (p. 258).

Findings from the Self-Efficacy Survey Instrument

The self-efficacy component of the survey (Appendices A, Section III) was composed of 28 items that addressed skills and competencies associated with the implementation of Instructional Television at RCC. These items were classified into five sub-categories: comfort/anxiety towards the innovation, comfort/anxiety levels regarding use of electronic mail, fax machine, and videoconferencing equipment; and serving as a change agent in helping students learn via instructional television. Participants responded to a 5-point Likert scale (1=Strongly Disagree; 2=Disagree;

3=Undecided; 4=Agree; and 5=Strongly Agree). Items with negative stems were reversed scored.

For each of the statements associated with self-efficacy, the researcher determined the means and standard deviations. Those values, calculated at the start, midpoint, and at the close of the study, are presented in Table 20, as well as the amount of change that occurred over the ten year period. Columns one and two show the item number and category for each statement from the survey; data from 1998 represents data obtained prior to research; data from 2003 represents data collected midway through the research, and data from 2009 represents data collected at the close of the study. The final three columns show the mean changes between 1998 and 2003, 2003 and 2009, and 1998 and 2009. The raw data used to calculate these scores can be found in Appendix D.

Table 20. Individual Statements for Items Dedicated to Self-Efficacy towards Distance Education delivered via ITV Arranged According to Category with Mean, Standard Deviation & Changes in Means

Item	Category Statements	Mean	SD	Mean	SD	Mean	SD	Mean Change	Mean Change	Mean Change
		1998		2003		2009		98/03	03/09	98/09
	Comfort/Anxiety									
1.	I feel at ease learning about distance-education technologies.	**3.35**	0.84	**4.28**	0.61	**4.42**	0.51	**+0.93**	**+0.14**	**+1.07**
2.	The thought of using distance-education technologies frightens me.	**2.64**	1.39	**2.23**	2.97	**1.42**	0.51	**-0.41**	**-0.81**	**-1.22**
3.	I am not the type to do well with electronic technologies such as compressed video.	**2.42**	1.08	**2.00**	1.03	**1.85**	1.23	**-0.42**	**-0.15**	**-0.57**
4.	I feel comfortable about my ability to work with distance-education technologies.	**3.35**	0.84	**3.92**	1.07	**4.14**	1.02	**+0.57**	**+0.22**	**+0.79**
5.	Distance-education technologies are confusing to me.	**3.21**	0.97	**2.07**	0.73	**1.92**	0.99	**-1.14**	**-0.15**	**-1.29**
6.	I am anxious about using distance-education technologies because I don't know what to do if something goes wrong.	**3.42**	1.01	**2.07**	0.73	**1.64**	0.84	**-1.35**	**-0.43**	**-1.78**

Item	Category Statements	Mean	SD	Mean	SD	Mean	SD	Mean Change	Mean Change	Mean Change
		1998		2003		2009		98/03	03/09	98/09
	Electronic Mail									
7.	I feel confident logging onto e-mail.	**3.14**	0.86	**4.35**	0.49	**4.42**	0.51	**+1.21**	**+0.07**	**+1.28**
8.	I feel confident reading mail messages on e-mail.	**3.07**	0.82	**4.42**	0.51	**4.64**	0.49	**+1.35**	**+0.22**	**+1.57**
9.	I feel confident responding to messages on e-mail.	**3.00**	0.96	**4.42**	0.51	**4.42**	0.51	**+1.42**	**0**	**+1.42**
10.	I feel confident deleting messages received on e-mail.	**3.00**	0.67	**4.21**	0.42	**4.42**	0.51	**+1.21**	**+0.21**	**+1.42**
11.	I feel confident sending mail messages on e-mail.	**3.00**	0.67	**4.35**	0.49	**4.42**	0.51	**+1.35**	**+0.07**	**+1.42**
12.	I feel confident sending the same message to more than one person on e-mail.	**3.14**	0.86	**4.21**	0.42	**4.42**	0.51	**+1.07**	**+0.21**	**+1.28**
13.	I feel confident logging off e-mail.	**3.42**	0.82	**4.42**	0.51	**4.64**	0.49	**+1.00**	**+0.22**	**+1.22**
	Fax Machine									
14.	I feel confident connecting to a number at a receiving site.	**2.64**	0.74	**4.28**	0.61	**4.42**	0.51	**+1.64**	**+0.14**	**+1.78**
15.	I feel confident faxing a one-page document.	**2.64**	0.74	**3.92**	1.07	**4.14**	1.02	**+1.28**	**+0.22**	**+1.50**
16.	I feel confident faxing a	**2.42**	0.75	**4.07**	0.26	**4.14**	0.36	**+1.72**	**+0.07**	**+1.72**

Item	Category Statements	Mean	SD	Mean	SD	Mean	SD	Mean Change	Mean Change	Mean Change
		1998		2003		2009		98/03	03/09	98/09
	multiple-page document.									
	Videoconferencing									
17.	I feel confident dialing remote sites.	**2.35**	0.92	**4.00**	0.39	**4.42**	0.51	**+1.65**	**+0.42**	**+2.07**
18.	I feel confident adjusting the camera for receiving site.	**1.78**	0.57	**3.42**	0.64	**4.42**	0.51	**+1.64**	**+1.00**	**+2.64**
19.	I feel confident adjusting the camera for viewing remote sites.	**1.71**	0.72	**4.00**	0.39	**4.21**	0.42	**+2.29**	**+0.21**	**+2.50**
20.	I feel confident using the microphone appropriately to speak to remote sites.	**2.35**	0.92	**4.00**	0.39	**4.42**	0.51	**+1.65**	**+0.42**	**+2.07**
21.	I feel confident recording sessions using the integrated VCR.	**2.00**	0.78	**4.00**	0.39	**4.42**	0.51	**+2.00**	**+0.42**	**+2.42**
22.	I feel confident operating the document camera effectively.	**2.14**	0.86	**4.00**	0.39	**4.14**	0.36	**+1.86**	**+0.14**	**+2.00**
	Change Agent									
23.	I feel confident helping students learn using distance-education technologies.	**3.00**	0.78	**4.00**	0.39	**4.21**	0.42	**+1.00**	**+0.21**	**+1.21**
24.	I feel confident	**2.92**	0.47	**4.00**	0.39	**4.42**	0.51	**+1.08**	**+0.42**	**+1.50**

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Item	Category Statements	Mean	SD	Mean	SD	Mean	SD	Mean Change	Mean Change	Mean Change
		1998		2003		2009		98/03	03/09	98/09
	conducting a discussion session or collaborative activities using materials provided by the distance-learning instructor.									
25.	I feel confident helping students communicate with the instructor and students at other remote sites using the videoconferencing system.	**2.64**	0.63	**3.85**	0.53	**4.21**	0.42	**+1.21**	**+0.36**	**+1.57**
26.	I feel confident managing a distance-education course.	**2.00**	0.78	**4.07**	0.47	**4.14**	0.36	**+2.07**	**+0.07**	**+2.14**
27.	I feel confident helping to implement distance education at Renaissance Community College.	**3.14**	0.53	**4.28**	0.61	**4.71**	0.46	**+1.14**	**+0.43**	**+1.57**
28.	I feel confident using the distance-education system to deliver programming to a community audience.	**2.64**	0.49	**3.85**	0.53	**4.42**	0.51	**+1.21**	**+0.57**	**+1.78**
This survey used a five-point Likert scale (1-5: Strongly Disagree, Disagree, Undecided, Agree, and Strongly Agree)										

At the start of the study in 1998 the most positive results for items dedicated to self-efficacy towards distance education delivered via ITV were found for statements associated with "comfort/anxiety" towards instructional television.

"1. I feel at ease learning about distance-education technologies." (Mean = 3.35) and

"4. I feel comfortable about my ability to work with distance-education technologies." (Mean = 3.35).

The strongest negative response was also found in this category.

"6. I am anxious about using distance-education technologies because I don't know what to do if something goes wrong." (Mean = 3.42).

Faculty respondents were undecided about their ability to use electronic mail with mean scores in this category ranging between 3.00 and 3.42. Negative responses were also calculated for statements that addressed use of the video teleconferencing system (items number 17 through 22; means = 1.71 to 2.35) and confidence levels for serving as potential change agents who would use or manage a distance education program (items number 23 through 28; means = 2.00 to 3.14). The three statements receiving the lowest means in the latter category included:

"25. I feel confident helping students communicate with the instructor and students at other remote sites using the videoconferencing system." (Mean = 2.64),

"26. I feel confident managing a distance-education course." (Mean = 2.00) and

"28. I feel confident using the distance-education system to deliver

programming to a community audience." (Mean = 2.64).

Midway through the study in 2003 positive results were found for items dedicated

to all five self-efficacy categories, "comfort/anxiety," "electronic mail," "fax machine,"

videoconferencing," and "change agent." The mean changes for the "comfort/anxiety"

category ranged between -1.35 and +0.93. It was evident by their responses to statements

number one and four that faculty felt at ease learning about ITV technologies:

"1. I feel at ease learning about distance-education technologies." (Mean

= 4.28) and

"4. I feel comfortable about my ability to work with distance-education

technologies." (Mean = 3.92).

Survey respondents were less frightened by the thought of using distance-

education technologies as illustrated by their response to statement number two (mean =

1.42) and less confused by the prospect of learning to teach at a distance as shown by

their response to statement number 5 (mean = 1.92). Faculty felt confident in their ability

to use electronic mail as illustrated by their responses to statements 7-13 (means ranged

from 4.21 to 4.35) and in their ability to use the fax machine (statements 14-16) where

the mean ranged from 3.92 to 4.28. They were also much more comfortable using the

videoconferencing system as illustrated by their responses to statements 17-22 (mean

scores ranged from 3.42 to 4.00).

The lowest level positive responses for items dedicated to self-efficacy towards

distance education delivered via ITV in 2003 were found for statements associated with

"comfort/anxiety" towards instructional television.

"2. (reverse-scored): The thought of using distance-education technologies frightens me." (Change in mean -0.41).

"3. (reverse-scored) I am not the type to do well with electronic technologies such as compressed video." (Change in mean -0.42).

"5. (reverse-scored) Distance-education technologies are confusing to me."(Change in mean -1.14).

And

"6. (reverse-scored) I am anxious about using distance-education technologies because I don't know what to do if something goes wrong."(Change in mean -1.35).

At the close of the study, gains were found for 24 of the 28 statements associated with self-efficacy. The most positive changes related to statements associated with use of the video teleconferencing equipment:

"17. I feel confident dialing remote sites. (Mean = +2.07),

"18. I feel confident adjusting the camera for receiving site." (Mean = +2.64),

"19. I feel confident adjusting the camera for viewing remote sites." (Mean = +2.50),

"20. I feel confident using the microphone appropriately to speak to remote sites." (Mean = +2.07),

"21. I feel confident recording sessions using the integrated VCR." (Mean = +2.42), and

"22. I feel confident operating the document camera effectively." (Mean =

+2.00).

The category means representing the five sub-categories associated with self-

efficacy for the faculty towards instructional television at the start of the study in 1998,

midpoint in 2003, and the close of study in 2008 were calculated and are listed in Table

21 along with the changes in category means.

Table 21. Category Means and Changes in Means for Items Dedicated to Self-Efficacy towards Distance Education delivered via ITV

Category	1998	2003	2009	Category Mean Change	Category Mean Change	Category Mean Change
N=14				98/03	03/09	98/09
Comfort/Anxiety	3.06	2.76	2.56	-0.30	-0.20	-0.50
Electronic Mail	3.11	4.34	4.48	+1.23	+0.14	+1.37
Fax Machine	2.56	4.09	4.23	+1.53	+0.14	+1.67
Video Conferencing	2.05	3.90	4.33	+1.85	+0.43	+2.28
Change Agent	2.72	4.00	4.35	+1.28	+0.35	+1.63
Average	2.70	3.81	3.99	+1.11	+0.18	+1.29
This survey used a five-point Likert scale (1-5: Strongly Disagree, Disagree, Undecided, Agree, and Strongly Agree)						

Prior to the beginning of the study in 1998, the lowest level of perceived self-

efficacy was reported by faculty in the category involving use of video teleconferencing

equipment (mean = 2.05). At the close of the study the change in means for all categories

varied between -0.50 and +2.28. Interestingly, the category mean that showed the largest

change was related to the use of video teleconferencing equipment. This mean had a

positive gain of +2.28, from 2.05 to 4.33. At the start and the end of the study, the most

positive response categories were for "electronic mail" (mean = 3.11 at beginning of study and 4.48 at end of study) and "comfort/anxiety" (mean = 3.06 at beginning of study and 2.56 at end of study). These values indicated that faculty members became more comfortable about their ability to work with distance-education technologies after staff development and their teaching experiences.

There was much greater variability in responses in Section III of the questionnaire related to self-efficacy (Table 20) as compared to questions from Section I of the questionnaire that addressed attitudes (Table 18). The mean standard deviations for all questions involving attitude and all questions involving self-efficacy for 1998, 2003, and 2009 are presented in Table 22.

Table 22. Mean Standard Deviations for all Statements Involving Section I and Section III of the Questionnaire

Section I – Attitude				Section III – Self-Efficacy			
Category	**1998 SD**	**2003 SD**	**2009 SD**	**Category**	**1998 SD**	**2003 SD**	**2009 SD**
N=14				N=14			
Relative Advantage	0.54	0.76	0.94	**Comfort/ Anxiety**	1.02	1.19	0.85
Compatibility	0.62	0.86	0.88	**Electronic Mail**	0.81	0.47	0.50
Complexity	0.84	0.55	0.53	**Fax Machine**	0.80	0.43	0.47
Trialability	0.83	0.55	0.53	**Video Conferencing**	0.80	0.43	0.47
Observability	0.45	0.74	0.89	**Change Agent**	0.61	0.44	0.45
Average	0.66	0.69	0.75	**Average**	0.80	0.59	0.55

Both sections I and III of the questionnaire used the same scale (1-5), with positive responses represented by higher values. The mean standard deviation for all questions involving attitude was +0.66 at the start of the study in 1998, whereas the mean standard deviation for all questions involving self-efficacy was +.80. Midway through the

study in 2003, the mean standard deviation for all questions involving attitude was +0.69

and the mean standard deviation for all questions involving self-efficacy was +.59. At the

close of the study in 2009, the mean standard deviation for all questions involving

attitude was +0.75 and the mean value for the standard deviation of self-efficacy was

+0.55. These results might be explained by the varied backgrounds and technology

experiences of the participants involved in the study.

  The general set of findings from the analysis of the quantitative and qualitative

data in this study for this question concerning the advantages and challenges faculty at

RCC encountered as they adopted two different distance education systems are illustrated

in Table 23 which shows a triangulation of data sources matrix.

Table 23. Triangulation Data Sources Matrix for advantages and challenges faculty at RCC encountered as they adopted two different distance education systems

Findings for Research Question 2	Data Sources								
	Questionnaires			Interviews			Field Notes		
"What advantages and challenges did faculty at the College encounter as they adopted two different distance education systems for delivering instruction?"	DESI	Stages of Concern	Self Efficacy	Focus Groups	Individual	Workshops	Site Visits	Communication	Documents
Adopting Distance Education is time consuming and increases faculty workload.	■	■	■	■	■	■	■	■	■
Instructional television and online learning pose technological challenges.	■		■	■	■	■	■	■	■
Distance Education barriers require administrative support		■		■	■	■		■	■
ITV/Online learning technologies affect communication between students and faculty.		■	■	■	■	■	■	■	■
Distance Education has extended educational opportunities at Renaissance Community College.	■	■	■	■	■	■	■	■	■

Results from Qualitative and Quantitative Data for Research Question 2

The following section discusses the major themes that emerged for Research Question Two from analysis of questionnaires, open-ended surveys, focus group interview transcripts, research notes and comments, and recorded statements of participants during staff development.

Adopting Distance Education is time consuming and increases faculty workload

Thirteen of the fourteen RCC faculty members participating in this study indicate that teaching ITV courses increases their workload. They have to plan course materials farther in advance, such as handouts or PowerPoint lectures, and order books for more than one site. During the semester, they spend time and energy developing alternative teaching approaches for the ITV environment.

Mary Albright indicated in the August 1999 faculty training session that additional distance education teaching sites would increase her class size thereby increasing her workload as "additional time to prepare course materials for distribution to the sites and grading will be required" (Mary Albright, personal communication, August 1, 1999). Kate Anderson, Zachary Binx, Jim Candelaria, and Missy Landers echoed Mary Albright's concern about not having enough time to develop and maintain their course materials. They anticipated that they would have to spend more time preparing for their ITV courses than for their traditional classes. Walter Briggs indicated that he would probably spend about the same amount of time preparing for his ITV course.

In 1999 Helen Crump was required by her department dean to visit and conduct her ITV classes from the four distant sites once each semester.

My goal was to make at least one visit to each of the four distant sites. I

wanted to make the students feel more a part of the class. Although it was

a good idea, I found that it was too time consuming. I did not do that

again. (Helen Crump, personal communication, March 3, 2003)

Another faculty member, Mary Jaramillo, taught a combination of ITV and face-to-face

courses. Although she wanted to visit the distant sites her class scheduled made it

impossible to do so. In 2003 Kathy Madrid voiced a high level of concern about the time

and logistics involved in preparing materials for distribution by the courier. An in depth

description of the efforts of RCC personnel as they planned, initiated, and implemented a

system for delivering instruction online over a ten-year period is described in the answer

to question number four. In 2009, there was a point in the process of adopting the second

learning management system at the college when the faculty became disillusioned with

the process. The following comments were received by the researcher:

- It seems as if the faculty must bow down to the technology instead of the

  technology helping us to do our job better. I think I am pretty aware of technology

  and software, but this blackboard is like a few giant steps backward. It has so

  many limitations and is time consuming. Even the simplest of tasks is like pulling

  teeth. It seems as if the policy is "don't bother Blackboard" because it's so

  delicate. (Mary Albright, personal communication, July 16, 2009)

- I have asked this question over and over again since we started doing online

  classes. "How many people does it take to teach my class?" That number is

  growing and growing. I have less and less control over my class than ever. I have

  more people telling me what to do than I ever have had. I don't feel like I should

have to ask anybody's permission to do anything in my class. I should be able to

change things at will so that I can respond quickly to needs in my class. What a

concept! Quick response? (Zachary Binx, personal communication, June 25,

2009)

- I just want everyone to know that I am frustrated with this whole mess. What

  would take minutes is now taking hours. We got an email telling us that a faculty

  was spending hours setting up her class. We were cautioned that it would be time

  consuming. Nowhere in the email did it suggest that this was unacceptable to the

  faculty or that we need to take another look at this before we subject our faculty to

  this type of nonsense. If we value getting an excellent product to the student, then

  where is all our help? (Helen Crump, personal communication, June 17, 2009)

- I don't need another class on Blackboard! Faculty has enough to do preparing for

  their classes and "engaging" students not catering to the software. We don't need

  to be techs. We need support. I need someone who cares and knows what the

  software is all about to make it easier to use. (Jim Candelaria, May 8, 2009)

- While teaching my class this afternoon I had students doing a pre-assessment and

  suddenly the whole class lost their connection to Blackboard and we did not get

  reconnected before class was out (5:15 PM.). I have been on this evening for a

  bit from home and now I have lost the connection from here as well (my

  connection to the campus is fine). If there are known issues with connectivity to

  the site can you please inform the faculty so at a minimum we can prepare to deal

  with our students? It is very frustrating. I think at a minimum we should be able to

  tell the students what the problems are, and from there possibly take the edge off

the backlash of criticism directed toward ENMUR. (Mary Jaramillo, personal communication, August 25, 2009)

- Many students in my classes have voiced many problems with Blackboard. Some students have not been able to get into Bb at all. Others can only get into their classes sometimes. Some students cannot attach their homework assignments in the assignments drop box or in Bb emails. Some students are faxing homework or sending it to my office email instead of submitting in the class. They should not have to do this. (Carol Lamure, personal communication, September 10, 2009)

- Many students have already told me they cannot download instructor notes, templates, or solutions that I have provided for them in the learning modules. Many students have not been able to download the course syllabus. Well---I am about to switch from diet coke and tea to something VERY strong. (Kathy Madrid, personal communication, September 11, 2009)

- I know you are just the messenger but is there ANYTHING about blackboard that doesn't have a frigging problem? I cannot for the life of me understand why this institution went to this format that is so chock full of surprises and hang-ups and so user unfriendly as well as being controlled by someone in Virginia. (Lloyd Ramirez, personal communication, August 5, 2009)

- Opened my Blackboard site today--had not looked at it since last Tuesday. I had worked on all of my courses prior to last Tuesday--had files, folders, much of each course built. Backed up each course. Today---Business Communication and Business Management were missing ALL files. (Brian Wright, June 6, 2009)

Instructional television and online learning pose technological challenges

Observations by the researcher, document analysis (focus group interview transcripts and personal correspondence) and analysis of researcher notes demonstrated that running the instructional television equipment was challenging for many faculty members. For this reason, ITV technicians were invaluable in trouble shooting the system. During the three focus group interviews that were conducted in November 2005, faculty members expressed their concerns about teaching on the ITV system. Jane Zamora wanted the option of having a technical assistant present in the classroom while she was teaching. Mary Albright thought centralized support should be available for faculty teaching with ITV or with other distance education technologies and Jim Candelaria wanted faculty to have a "clear communication channel to an administrative body that could resolve technical issues involved with teaching via ITV" (Jim Candelaria, Focus Group Interview #2, November 11, 2005).

Faculty members recommended that a technician be available to conduct a video and audio check before the official start time of each class. Due to the way the classes were scheduled, this was not always possible. "On a number of occasions, we had ITV equipment malfunctions and were without audio or video (either sending or receiving) to one or more of the distant sites" (Mary Albright, Focus Group Interview #1, November 4, 2005). Access to a technician to intervene with glitches in the technology was an important component that did not exist at the distant sites. For this reason, students at the remote sites had to learn how to operate the equipment, how to trouble shoot it, and how to adjust it themselves. "I learned very quickly that the most difficult technological breakdown to overcome was an audio breakdown" (Mary Jaramillo, Focus Group

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Interview #1, November 4, 2005). An audio disruption (with video continuing) ultimately

meant that the instructor had to write and broadcast written messages to the distant sites.

"This was possible, but very time consuming." Lloyd Ramirez, Focus Group Interview

#1, November 4, 2005). Back-up video tapes were not made of the classes, so participants

whose sites were not receiving adequate audio or video did not have access to the class.

> I liked the technology but it was difficult to get used to waiting for the
>
> pause when students from the distant sites responded to a question or had
>
> a question (as a result of the technology). When I had multiple sites I
>
> could not see the faces on the students. The situation might have been
>
> different if the site pictures had been split and projected on a large
>
> projection screen. (Zachary Binx, Focus Group Interview #2, November
>
> 11, 2005).

Several faculty members saw a direct correlation in their classes between

technical problems at the distant sites and poor evaluations from students at the distant

sites. "We had many interruptions due to technical failures such as loss of sound or

buzzing noises and this I believe affected my evaluations" (Chris Torres, Focus Group

Interview #3, November 18, 2005).

> I thought instructional television held great promise for reaching and
>
> connecting hard-to-reach groups of students. Unfortunately, technical
>
> problems affected the quality of my presentations. With each technical
>
> failure, class time was shortened, the quality of interaction among students
>
> was lost, and the pace of the session was affected. I grew less and less
>
> confident of the best way to present my material, due to the constant

reshuffling of my lesson plans to accommodate the class time remaining.

(Kate Anderson, Focus Group Interview #1, November 4, 2005).

Zachary Binx agreed "Due to technical glitches, my teaching time was considerably shortened, and so the lessons were rushed" (Focus Group Interview #2, November 11, 2005).

Other faculty comments concerning the quality of the ITV transmissions included:

- "Frequent freezing and dropping of the ITV connection affected the quality of my lectures." (Zachary Binx, Focus Group Interview #2, November 11, 2005).

- "Audio interruptions, video-switching between sites and reliability of connections have frustrated me since the system was installed." (Walter Briggs, Focus Group Interview #2, November 11, 2005).

- "It was a lot of fun teaching on interactive television when there were no technological glitches caused by bad weather or breakdown of equipment." (Jim Candelaria, Focus Group Interview #2, November 11, 2005).

- "When we had technical problems, my class sessions would often transition from one of teaching to one of apologizing for the delivery system." (Helen Crump, Focus Group Interview #3, November 18, 2005).

- "The entire process was fraught with problems." (Mary Jaramillo, Focus Group Interview #1, November 4, 2005).

- "Most of the distant students that attended an ITV section of my course said they were uncomfortable because we experienced so many difficulties with the technology." (Carol Lamure, Focus Group Interview #1, November 4, 2005).

- "My distant students never seemed to get used to the technology." (Missy Landers, Focus Group Interview #3, November 18, 2005).

- "The technical difficulties interfered with my teaching and the student's learning." (Kathy Madrid, Focus Group Interview #3, November 18, 2005).

- "I didn't like being harnessed by the microphone and camera. It did not allow for moving around which I love to do." (Lloyd Ramirez, Focus Group Interview #1, November 4, 2005).

- "Technology is what made instructional television possible. Unfortunately, the technical problems seriously affected my satisfaction with teaching at a distance." (Brian Wright, Focus Group Interview #2, November 11, 2005).

- "What I disliked about ITV teaching was the glitches in hardware, software and logistics in interacting with the high schools." (Jane Zamora, Focus Group Interview #3, November 18, 2005).

When the faculty began teaching online in 2001 they found the classroom management software (WebCT/Blackboard), the use of websites, and email to be useful as tools for classroom support and fostering communication between the instructor and the students.

> The rural public schools still use instructional television. If I taught on ITV today, I would like to use a web supplement in place of the courier. The courier was such a hindrance in the past for me. But, this would mean my students would have to have access to a computer and the Internet in order to take my ITV class. So, this might not work. (Lloyd Ramirez, personal communication, April 8, 2009)

Major barriers to implementation of instructional television

Analysis of data obtained from multiple sources that included (a) document review of school schedules, (b) the researchers observations and recorded comments that participants made during meetings and staff development workshops, (c) close-ended and open-ended surveys, and (d) focus group interviews supported identification of these barriers limiting full implementation of the opportunities available to schools through their participation in the distance education network.

Major barriers to implementation of instructional television requiring administrative intervention were (1) conflicting schedules between participating schools, (2) high school decision-making patters, and (3) absence of staffing needed to control the ITV system.

     a) Document review of schedules for high schools showed that there were six different bell schedules and five different calendars represented by the five school districts. Some had various forms of block scheduling and some had a seven-period bell schedule.

     b) Faculty members identified scheduling issues as a primary concern at the first training meeting held in August 1998.

     c) Item 14 on Section II (Attitudes) of the close-ended Distance Education Survey (DESI) ("Distance education programs are hard to coordinate when they involve more than one school system") received increasingly positive responses on the initial (2.93/5.00), midpoint (3.29/5.00), and final administration (4.29/5.00) of the questionnaire.

d) Written responses to open-ended surveys included statement after statement that cited scheduling concerns as a major barrier to implementation of instructional television.

Open-ended surveys administered following faculty development workshops listed this question: "What concerns do you have?"

- "Bell schedules of the schools we will be connecting to. We do not start and stop our classes at the same times." (Comment from Mary Albright after Workshop #3, October 2, 1998).

- "Scheduling with the school districts. The calendars of the districts may not match ours." (Comment from Zachary Binx after Workshop #3, October 2, 1998).

- "Schedule conflicts. Whose calendar will the school districts follow?" (Comment from Walter Briggs after Workshop #3, October 2, 1998).

- "ITV schedule conflicts with schools due to block scheduling." (Comment from Helen Crump after Workshop #3, October 2, 1998).

- "Coordination of course offerings between RCC divisions." (Comment from Lloyd Ramirez after Workshop #2, September 4, 1998).

- "Public school bell schedule/calendar conflicts." (Comment from Jane Zamora after Workshop #3, October 2, 1998).

Comments made by participants in the focus group interviews held in November 2005 showed that scheduling remained a central issue.

- My English literature class was scheduled to meet in one of the high school ITV rooms. When the students arrived they found the classroom

had been double booked with a high school Spanish class. (Kate

Anderson, Focus Group Interview #1, November 4, 2005).

- High school students have expressed interest in my calculus class but since our

  college classes meet three days a week and the high school classes meet five they

  are not able to enroll. (Zachary Binx, Focus Group Interview #2, November 11,

  2005).

- Students had enrolled in my Geology class that met at 7:00 p.m. at one of the

  valley schools. When they arrived at the school the classroom doors were locked.

  (Jim Candelaria, Focus Group Interview #2, November 11, 2005).

- My Psychology 101 class was scheduled to begin at 4:00 p.m. at one of the high

  schools in the valley. When the students arrived the doors were locked. (Lloyd

  Ramirez, Focus Group Interview #1, November 4, 2005).

Locus of control issues within the five school districts also contributed to

misunderstandings regarding scheduling for instructional television. Issues relating to

local school decision-making patterns and implementation of distance education

technologies into district organizational structures surfaced during the focus interviews.

- "Due to a shortage of classroom space at two of our high school sites, the

  designated classrooms were unavailable for distance education this

  semester." (Comment from Mary Albright after Workshop #3, October 2,

  1998).

- "Do the high schools want to receive our classes? They don't seem to

  want to compromise on their bell schedules." (Comment from Walter

  Briggs after Workshop #3, October 2, 1998).

- "It is really disruptive when the announcements come on at one of the high schools in the middle of my class. Unless I mute that site it disrupts all the sites!" (Comment from Helen Crump after Workshop #3, October 2, 1998).

- "Since we have no facilitators at our distant sites, no one seems willing to let the students take ITV classes after 3:00 p.m." (Lloyd Ramirez, Focus Group Interview #1, November 4, 2005).

Prior to going live with the distance-education ITV network, no single individual or department was responsible for overseeing the administration of the program. The institution had not considered the staffing needed to control the system, which required extensive administrative efforts to work with participating schools, maintain and troubleshoot technical problems associated with the system, keep records, etc. During the spring 1999 semester, off-campus enrollment totaled only five students. To facilitate the administration, marketing, and operation of the distance-education network, the Department of Learning Technologies was established at the College in July 1999. Due to a hiring freeze, the duties were added to the full-time responsibilities of the researcher, who was already employed at the College. The duties of scheduling, coordinating, maintaining, and supervising extended learning activities and services were added to her workload, including on-site courses, instructional-television courses, online courses, and satellite courses. By the spring 2000 semester, off-campus enrollment in ITV courses had risen to 115 students. Of that number, only 23 were high school students enrolled concurrently in a college-level class.

Distance education technologies affect communication between students and faculty

Analysis of data from focus group interviews identified communication barriers that existed in the instructional television classroom relating to the difficulty of maintaining active student participation at the distant sites. Faculty members participating in the three November 2005 focus group interviews agreed that students enrolled in courses at the distant sites were hesitant to initiate responses to questions asked by the faculty and tended to wait until called upon. They recognized that the distant students encounter educational challenges and obstacles not faced by students on campus. Mary Albright described these students as being "step-children" of the Renaissance campus.

> "These students face delays in obtaining materials sent by way of the courier, feedback on papers and tests, inadequate opportunity to interact with me or with the onsite class, and insufficient support services, such as tutors." (Mary Albright, Focus Group Interview #1, November 4, 2005).

It was noted in all three focus group interviews that maintaining active participation at the distant sites was difficult. "It is clear to me that the students at the distant sites feel that they are not included in the class discussions as well as they might be" (Carol Lamure, Focus Group Interview #1, November 4, 2005). "Some of my students express concerns about feeling left out of classroom activities because they believe I respond more readily to the students who are in the classroom at the originating site" (Lloyd Ramirez, Focus Group Interview #1, November 4, 2005). Mary Albright agreed with this analysis stating that from her standpoint as the instructor "It is much more natural to respond to questions asked by participants in my face-to-face classroom than those seen on the TV monitor" (Mary Albright, Focus Group Interview #1,

November 4, 2005). "Encouraging active student participation is a challenge for me in my face-to-face classroom. When I deal with students at the distant sites it is even more difficult," (Jane Zamora, Focus Group Interview #3, November 18, 2005). Chris Torres agreed saying "the more distant sites I have participating in a class, the more difficult it is for me to manage input from those remote sites" (Chris Torres, Focus Group Interview #3, November 18, 2005). Kate Anderson thought successful interaction in her ITV courses was dependent upon how comfortable the student felt in using the microphone to interact with the instructor. "Comments on my evaluations indicate my distant students seem to feel that they cannot ask questions during the broadcast as freely as they can in the face-to-face classroom" (Kate Anderson, Focus Group Interview #1, November 4, 2005).

At the third Focus Group Interview faculty proposed ways they could enhance the experience of the ITV distant students. These included:

- Learning the names and calling on distant students,
- Traveling to distant sites at least once per semester to meet the students personally,
- Teaching the class from the distant sites, and
- Providing question/answer time for distant students before or after the formal class.

Analysis of data from focus group interviews also addressed communication patterns that existed in the faculty's online courses relating to maintaining active student participation. One faculty member said "my students seem to engage more effectively in the online discussions than in my face-to-face or ITV courses" (Zachary Binx, Focus

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Group Interview #2, November 11, 2005). Walter Briggs agreed stating "everyone seems to participate more easily" (Walter Briggs, Focus Group Interview #2, November 11, 2005). Mary Albright suggested assigning a warm-up exercise for students aimed at getting to know each other. "I try to build a sense of community with this exercise," (Mary Albright, Focus Group Interview #1, November 4, 2005).

Distance Education has extended educational opportunities

Analysis of focus group transcripts, open-ended surveys, personal correspondence, and the researcher's notes and comments showed that participants felt that using the ITV equipment and online learning software helped Renaissance Community College extend educational opportunities.

- "ITV courses have freed many students from traveling long distances, leaving jobs and family, dealing with child care, and other costs." (Mary Albright, personal communication, March 11, 2009)

- "The biggest advantage of instructional television for the students is the ability to take classes without having to come to campus." (Kate Anderson, personal communication, March 12, 2009)

- "Online classes hold one advantage for students. The ability to schedule classes that fit into their schedules without coming to campus." (Zachary Binx, personal communication, March 13, 2009)

- "Access by rural students to College course instruction is the biggest benefit of ITV and online learning." (Walter Briggs, personal communication, March 18, 2009)

- "The College can now compete with the for-profit institutions who offer all their courses online. It is important for students to be able to continue living and working in their small rural home towns without having to relocate." (Jim Candelaria, personal communication, 23, 2009)

- "Through ITV and online learning we have the ability to connect geographically dispersed students and instructors." (Mary Jaramillo, personal communication, July 2, 2009)

- "Online learning has given us access to the world." (Lloyd Ramirez, personal communication, April 8, 2009)

- "Online-learning has had a positive impact on the number of students we needed to attract to the College in order to keep some of our programs alive." (Chris Torres, personal communication, March 5, 2009)

DESI Results Identify Intrinsic Motivators

Results of the Distance Education Survey Instrument (DESI) prepared and validated by Lucas (1995b) (Chapter 4, Table 17) administered at the College in 1998, 2003, and 2009, indicated that faculty members' support of, interest in, and involvement with distance education innovations depended upon the extent to which they perceived them as offering what Rogers (2003) called the characteristics of a successful innovation: relative advantage, compatibility, complexity, trialability, and observability. (Chapter 2, page 45).

Prior to the beginning of the study in 1998, positive responses to the statements on the Distance Education Survey Instrument (DESI) indicated that faculty members recognized the potential for enhancing learning opportunities through participation in

teaching via Instructional Television. Faculty scores were identical on statements addressing three different categories "observability," "compatibility," and "trialability." They expected to see both students and teachers using distance education in the classroom, felt that the public was in favor of distance education being initiated in the school districts served by the College, and that distance education would be too hard to institute without a trial period. Faculty respondents were concerned that costs outweighed the potential benefits of distance education but felt strongly that distance education could expand their division course offerings. They also felt that ITV would be a positive addition to their teaching methods and perceived that it was difficult to know where to begin when starting a distance-education program. Prior to the beginning of the study in 1998, the lowest initial level of positive response to the statements on the (DESI) were obtained for statements addressing "trialability" of the ITV innovation in particular. They felt that if distance-education programs were unsuccessful, there should be a way to terminate them within a short period of time.

Midway through the study in 2003 the most positive response to the statements on the (DESI) pertained to the fact that distance education should be tried on a small scale first. In addition, faculty members continued to recognize the potential for enhancing learning opportunities through participation in teaching via ITV. Respondent's scores were identical on statements addressing two different categories "relative advantage" and "complexity" as measured by their positive responses to a statement concerning the possibility that distance education would expand and enhance curricular offerings. Faculty continued to perceive that it was difficult to institute distance education without a trial period but expected to see both students and teachers using distance education in the

classroom. Respondents felt strongly there was a need for involving administrators in the in-service training involving distance education. The lowest level positive responses to statements on the (DESI) in 2003 were obtained for those addressing "relative advantage," "compatibility," and "trialability."

At the close of the study in 2009 the most positive response to statements on the (DESI) was obtained for: "Distance education can be a valuable addition to the programs my division/department offers." This statement also received the most positive responses from faculty prior to the beginning of the study in 1998 indicating that faculty members continued to recognize the potential for enhancing learning opportunities through participation in teaching via distance education. In addition, faculty continued to feel strongly that distance education should be tried on a small scale first. Positive mean changes greater than 1.0 between the start and the close of the study (Table 17) were found for individual statements relating to "relative advantage," "compatibility," and "trialability."

Four of the five category means relating to perceived attitudes for the DESI questionnaires, "relative advantage," "compatibility," "complexity," and "observability," showed essential changes between the start, midpoint, and the close of the study. Using data obtained from the initial attitude component of the questionnaire (1998), the researcher found the most positive level of responses to be for the three attributes: "relative advantage," "complexity," and "observability." When the attitude component of the questionnaire was completed for a second time in 2003, the most positive level of responses was again for the attributes "relative advantage," and "observability." However, the third highest ranking category was for "compatibility" instead of

"complexity." Results of the attitude component of the questionnaire in 2009 once again showed the most positive level of responses for the three attributes "relative advantage," "compatibility," and "observability."

During the life of the study, the category mean that showed the largest change was related to the degree to which the ITV innovation was perceived as consistent with the existing values, past experiences, and needs of potential adopters ("compatibility"). Rogers (2003) theorizes since any new idea is evaluated in comparison to existing practice, compatibility is related to the rate of adoption of an innovation. At the start and the end of the study, the most positive response categories were "relative advantage" and "observability". These values indicated that faculty members recognized that ITV distance education would be a valuable addition their division's educational program and that they felt distance-education technology was compatible with the goal of maximizing learning. According Rogers (2003) diffusion scholars have found relative advantage to be "one of the strongest predictors of an innovation's rate of adoption" (p. 233). He postulates "relative advantage" is a ratio of the expected benefits and costs of adoption of an innovation. In addition, Rogers argues that "observability" of an innovation, as perceived by members of a social system, is "positively related to its rate of adoption" (p. 258).

The technology adoption process is influenced and affected by an individual's attitude and by their feelings of competency (McNeal, 1999). Attitude, the result of a person's experiences, beliefs, and background, is defined by Rogers and Shoemaker (1971) as a "relatively enduring organization of an individual's beliefs about an object that predisposes his actions" (p. 109). Faculty attitudes towards new innovations are

greatly influenced by their perceptions of situations. Creating a positive change in

attitude towards an innovation involves understanding the reasons for resistance to the

change (Sun, 2009). Bichelmeyer, Misanchuk & Malopinsky (2001) intimate the

technological innovations that have been embraced by faculty are those that offer

solutions to problems that they themselves consider important. Rogers (2003) denotes the

characteristics of a successful innovation are: relative advantage of the innovation;

compatibility of the innovation with the values, needs, philosophy and past experiences

of the individual; perceived complexity of the innovation; opportunity to examine the

innovation on a trial basis; and observability (whether the results of using the innovation

can be readily observed). Self-efficacy, also known as expectancy efficacy, refers to

personal judgments of ones capability to organize and implement actions in specific

situations that may contain novel, unpredictable, and possibly stressful features (Bandura,

1977, 1981, 1982). Delcourt and Kinzie (1993) suggest that self-efficacy can be

measured reliably and that such measurement is facilitated by the identification of a

clearly defined set of skills. They also postulate that training and experience in use of

computer technologies serve as predictors of self-efficacy. Their work validated the

previous findings of Ashton and Webb (1986) and Madsen and Sebastiani (1987) which

showed that efficacy and attitudes are strongly influenced by prior technology training.

The decision to incorporate new pedagogy into teaching is attributed to the instructor's

feelings about themselves and what they have previously learned (Osika, Johnson, &

Buteau, 2009). Literature shows the most common internal factors that influence an

instructor's decision to incorporate technology in teaching are individual beliefs (Albion

& Ertmer, 2002), feelings of anxiety (D. M. Dusick & Yildirim, 2000), fears, preferences

and perceptions (Grasha & Yangarber-Hicks, 2000) and feelings of competence (D. M. Dusick, 2000). Kane asserts that "teachers' personal beliefs, perceptions, attitudes, and orientations are correlated with [their] teaching practices" (Kane, Sandretto, & Heath, 2002, p. 182). Therefore, if an instructor has a positive attitude or orientation towards technology they will be more inclined to incorporate it into their teaching.

The Self-Efficacy component of the faculty survey (Appendices A, Section III) completed in 1998, 2003, and 2009 addressed skills and competencies associated with the implementation of Instructional Television at RCC. Items on the survey were classified into five sub-categories: comfort/anxiety towards the innovation, comfort/anxiety levels regarding use of electronic mail, fax machine, and videoconferencing equipment; and serving as a change agent in helping students learn via instructional television. Results of this portion of the survey showed that as participants moved from nonuse and scant awareness of the ITV innovation to beginning use and eventually more highly sophisticated use, their concerns moved through the defined stages. Prior to the beginning of the study in 1998, the lowest level of perceived self-efficacy was reported by faculty in the category involving use of video teleconferencing equipment. At the close of the study the category that showed the largest change was related to the use of video teleconferencing equipment. The results of this survey indicate that RCC faculty members became more comfortable about their ability to work with distance-education technologies after staff development and their teaching experiences.

The use of technology for education has been at the forefront of most distance learning efforts. "Technology-supported media have helped enormously in virtually overcoming the physical distance between teacher and student for the delivery of

education at a distance" (Malik, Belawati, & Baggaley, 2005, n.p.). Results of in-depth interviews conducted with faculty in 2009 indicated faculty agreed that distance education had been a success at RCC because it enabled students to continue living and working in their small rural home towns without having to relocate in order to pursue a College education. One reason the College wanted to implement ITV in the rural public schools was so that they could share qualified teachers in multiple locations. Faculty concurred that in the valley the use of ITV had helped to provide quality instruction for disadvantaged schools in a cost effective way. Faculty said they enjoyed teaching by ITV because it provided synchronous instruction that allowed them to interact with remote students in real time. One faculty said he believe the high level of interaction he had with his distant ITV students promoted their engagement in class activities and also decreased their drop out rate. Faculty agreed that although ITV may not have been as acceptable to the students as face-to-face instruction, it was a wonderful alternative. RCC faculty voiced approval for online learning as an option for students who wished to learn in their own environment using technology and/or the Internet. They commented on the flexibility and convenience online learning offers students. Only one of the 14 faculty interviewed thought that online learning had really taken away from ITV, and he did not necessarily think it was a good thing. He said he missed seeing the expression on a student's face or seeing their eyes light up when they finally "got it," when he taught online.

Field Notes and Interviews Identify Extrinsic Motivators

A number of researchers have examined the factors that influence faculty in the adoption of distance education for teaching (Chang, 2001; Medlin, 2001; Rovai, 2002; C.

C. Schifter, 2000). These factors can be grouped into three categories: personal, social, and organizational. Personal factors include personal interest in using technology and opportunity to develop new ideas. Social factors include peer support or peer pressure, shared departmental values, and mentors (Chang, 2001; Medlin, 2001). Organizational factors include mandates from the university, institutional rewards or incentives, and physical resources (Medlin, 2001; Rovai, 2002).

Although many faculty members find the intrinsic rewards of distance education outweigh the extrinsic rewards, faculty must function in a culture that respects their time, efforts, and intellectual output (Shelton & Saltsman, 2006). This is demonstrated most visibly in compensation and how much consideration distance education participation is given in the promotion and tenure process. Review of field notes and observer comments from faculty development workshops, focus group interviews, and in-depth interviews showed faculty at RCC continually expressed interest in gaining recognition for their participation in distance education through credit toward promotion and tenure, awards, and merit pay.

Research results showed the distance education work by faculty at RCC was acknowledged at the department level and during annual performance reviews. This is consistent with the findings of Yohon, Zimmerman, and Keeler (2004) who studied the adoption of WebCT as the course management software of choice at a Carnegie Class One Research Institution. However, these findings do not appear to align with Young (2002) who reports that technology-based projects are often not recognized as part of the traditional three categories used in promotion: teaching, research, and service. Young suggests arguments about whether technology in teaching should be counted in tenure

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and promotion decisions are expressed more readily at research universities than at Colleges with a teaching focus. At RCC, faculty evaluations for annual merit raises, tenure, and promotion reflected the importance of using technology and course management software.

Compensation and incentives encourage faculty to participate in distance education activities and reward those that do so (Shelton & Saltsman, 2006). In May 1998, all full-time RCC faculty members were offered a one-time opportunity to participate in an intensive distance-education training session facilitated by an outside consultant. The faculty who attended this particular training session was eligible to receive a one-time $1000 stipend payable the first time they taught an ITV class. Those who did not attend this specific training session were only eligible to receive a one-credit-hour overload stipend at the conclusion of the semester in which they first taught an ITV class. This one-credit overload compensation for teaching on ITV was phased out over a period of five years.

Incentives and perks are also used to encourage faculty participation in online learning. Patricia Kovel-Jarboe (1997) notes, "When distance learning is a marginal aspect of campus life, it is tempting to offer incentives (often monetary) to entice faculty to design and deliver distance education offerings" (p. 22). Although incentives are most frequently offered in the form of cash stipends, other incentives institutions offer are: higher pay for teaching an online class (than for a traditional class), reduction in other workloads (committee, governance, administrative), reimbursement for residential broadband or dialup, new computer hardware or software, ability to hold online office

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hours from home, teaching or graduate assistant, travel, national conference fees, and discretionary spending accounts (Shelton & Saltsman, 2006).

In order to encourage faculty to develop and teach online courses at RCC, faculty members received monetary stipends. Those responsible for developing a three-credit hour online course for the first time received a one-time $1,500 stipend (if they had completed the distance education faculty training requirement). For a two-credit hour course, the stipend was $1,000, and for a one-credit hour course, the stipend was $500. Faculty members were paid a development fee (stipend) for each additional online course (but only for the first time each one was taught). Those who had received the initial $1,500 stipend were paid a $500 development fee for any subsequent new online course that they developed. Over time, as the number of online courses increased, the developmental stipend was gradually reduced to $500 per course, then to $150 per course, and eventually phased out.

During focus group interviews conducted in November 2005 and in-depth interviews conducted in 2009 faculty expressed the desire to be compensated for teaching at a distance through salary, promotion, or adjusted workload. Faculty received no compensation for moving their courses from WebCT to Blackboard during the spring 2009 term. Although this required a major investment of time and energy, it was considered part of their standard workload.

Field Notes, Observer Comments, and Documents Identify Challenges

More than a technological infrastructure is necessary to encourage and train faculty members to teach at a distance (Telg & Irani, 2005). Research has shown that the availability of technology training and support can influence the rate of distance

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education technology adoption (N. B. Adams, 2003; Ansah & Johnson, 2003; Bennett & Bennett, 2003; Brunner, 2007; Irani & Telg, 2001; Kaml, 2001; Rakes & Casey, 2002). Components necessary in creating successful distance education training and development programs primarily focus on providing institutional support to assist a faculty member's development such as teaching incentives, instructional design support, and technology training (Z. L. Berge, 2001).

Field notes and observer comments from instructional television (ITV) faculty development workshops support that faculty at RCC needed orientation and hands-on practice prior to teaching via ITV. In these workshops they became familiar with the technology of the ITV classrooms as well as how to structure their courses to be effective in the ITV environment. Faculty were provided with the basic concepts of ITV teaching: how to use the equipment, differences between teaching in a traditional and an ITV classroom, effective teaching strategies for ITV technology, and opportunity to practice using ITV when "linking" to a distant-site classroom. RCC faculty indicated that attending these workshops, talking with other faculty members about information technology, and observing other faculty members using the ITV system, encouraged them to participate.

A number of studies cite the desire of faculty to increase student access to college courses and/or degree and certificate programs via distance education (Betts, 1998; Dooley & Murphrey, 2000; Jones & Moller, 2002; McKenzie, et al, 2000; Rockwell, et al, 1999; Schifter, 2000). Over the last decade at RCC, course management software has become increasingly popular. Both WebCT and Blackboard have been used to provide a wide variety of Web-based teaching tools including e-mail, content and syllabi posting,

resource pages, chat groups, form builders, bulletin boards, grade books, online testing, and interactive exercises. Much of the literature (Courtney & Patalong, 2002; Dean, 2003; Epstein, 2003; Lyons, 2003; Xu, Sloan, & Novikova, 2002) reports on case studies of how educational institutions introduce course management software.

In 2001, a technology enhanced E-learning[10] training program (WebCT) was implemented for RCC faculty and staff. First time training sessions helped prepare faculty who had no experience teaching online to design, create, and teach an online course. The workshops covered how to adapt course content for online learning and how to create, teach, and manage an online course. The successful completion of this training was a mandatory requirement to receive any stipend for course development. Any instructor assigned to teach an online course was required to receive a minimum of ten hours of "teaching online" training before they began teaching online. Division Chairs were responsible for insuring that all instructors teaching or developing online classes had met the training requirement. Open labs, remedial training, and special topics were offered throughout the semester on campus.

In December 2008, Blackboard Inc. was selected as the College's new Learning Management System (LMS). This meant that current RCC online faculty members needed to be retrained to use new technology tools to develop, migrate, share, and offer online courses. Six faculty members were recruited to be "trained as trainers" to teach others in their divisions how to migrate existing courses to Blackboard and teach novice faculty members to use the new LMS. These six faculty members conducted workshops with others in their divisions from January – May 2009. All online faculty was required

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[10]Definition of this word may be found in the Glossary at the end of Chapter 1.

to participate in training to learn to work with the new learning management system so that all online courses could be converted from WebCT to Bb Vista 8 prior to the beginning of the fall 2009 semester. Faculty found the conversion process difficult and was not happy the work had to be completed during the summer months without additional financial compensation. Results of field notes and observer comments from face-to-face meetings, telephone conversations, and e-mail correspondence received by the researcher during the 2009 spring, summer, and fall semesters indicated that faculty at RCC were very unhappy with the College's decision to convert their existing online courses from WebCT to Blackboard (Bb) Vista 8.

In addition, in order to save money the College had joined a statewide innovative digital education and learning initiative (IDEAL) created as a sustainable, statewide eLearning support program that would allow public education, higher education, and state government agencies to better serve the needs of all learners. From the onset, there were many technical problems with the Blackboard system. Personnel at the College, the state's Higher Education Department (HED) and IDEAL worked diligently to try to resolve the issues that the College (and 43 other institutions) was experiencing with Bb. By midterm of fall 2009, a vice president at the College wrote, "We are rapidly approaching a point where these continuing problems are doing irreparable damage (e.g. we are losing students, frustrating faculty such that they do not want to teach on line, etc.) to our reputation and hence our future ability to recruit and retain students." There was a need for Bb and/or IDEAL to step up and take responsibility for the problems that had occurred, but perhaps even more importantly the need for a timeline/deadline by which these problems would be resolved. The College was at mid-term of the semester and it

was increasingly difficult to assuage the frustration and irritation of the faculty, staff and students. They needed to know that there would be a resolution to the problems they were experiencing with the current configuration/management of the Bb system very soon, or they would need to hear from the administration at the College what/how the oversight of the learning management system would be changed to ensure that a quality on line learning experience for the students could be provided.

One instructor at the College emailed the researcher concerning his evening criminal justice class. He said, "I had my first student revolt. The students are angry because when they test and submit assignments using Blackboard; they have the following problems:

1) Logging on – often they must try several times, opening and closing browser pages – this happens on campus computers as well as of off-site computers. This is also MY experience both here and off-site. Some on-site computers work most of the time with Blackboard, some (especially in the classrooms in the IC) only part of the time, and sometimes not at all.

2) Getting thrown out of Blackboard or having it lock while testing, posting discussions, or submitting assignments with no way to predict when or why this will happen. This is also my experience on-campus and off-site.

3) I also add that ON THE SAME COMPUTER IN MY OFFICE on some days I can use the HTML editor feature on Blackboard, and some days not. It works about one out of 3 times from home on my personal PC and about half the time on the ENMUR laptop. Again, there is no way to predict when it will or will not work.

4) The students are very dissatisfied with any response from the Blackboard helpline – they report to me that they are usually told to start changing settings on their computers even when their computer worked fine with the settings on prior to the instant failure."

The instructor offered the students the option of taking paper tests for the mid-term the following Tuesday – ALL BUT ONE wanted to take the test "where I (they) know I (they) can finish it." The instructor concluded by saying, "Since 1983 I've taught skills or academic classes in higher education; never have I seen such anger or frustration over an instructional issue."

Researchers agree that delivering instruction at a distance requires a reorganization of the ways in which student support services are provided (De Fazio, Gilding, & Zorzenon, 2000; M. Moore & Kearsley, 2005). Many institutions now provide Web-based support sites with "a general orientation to distance learning, tips for online study, information on how to contact counseling and student advising services, technical help, and programs to help potential students evaluate their own readiness for distance learning" (M. Moore & Kearsley, 2005, p. 180). In addition, research shows successful distance education programs need to provide technical support for students involved in the distance learning process. "The distance education system should never make assumptions on the technical skills of their students. Support must be provided and the most successful avenues have been: call-in help desks, structured and evaluated workbooks, and informed technical tutor support" (Compora, 2003). A number of researchers' site technical help provided through a variety of means, such as 800 numbers, e-mail, chat rooms, and on-line tutorials.

In 2009, RCC purchased a technical support service for students and faculty using the Blackboard Learning Management System from a company which helps students and faculty who have questions and difficulties with online courses. Their managed call center provides technical and instructional support via an 800 number, 24 hours a day, seven days a week. RCC also contracts with a company that uses the Internet to connect students with professional educators for online tutoring, writing services, and homework help, 24 hours a day, seven days a week in a variety of subjects. Both services are made available to RCC students through the institution's Web site.

Summary for Research Question Two

Research Question Two was: "What advantages and challenges did faculty at the College encounter as they adopted two different distance education systems for delivering instruction?" By looking at nine types of analysis, (1) the attitude component of the 31-item Distance Education Survey (DESI) (Appendices A, Section I), (2) the Stages of Concern Questionnaire (SoCQ) (Appendices A, Section II), (3) the self-efficacy component of the survey (Appendices A, Section III), (4) focus group interviews, (5) individual interviews, (6) workshops, (7) site visits, (8) communications, and (9) documents, it can be concluded that these are the major findings for this question. The advantages faculty encountered when adopting two different distance education innovations were intrinsic and extrinsic.

Intrinsic factors

- Intellectual challenge
- Personal motivation to use technology
- Ability to reach new audiences that cannot attend classes on campus

Extrinsic factors

- Credit toward promotion and tenure

- Recognition and awards

- Merit pay

Challenges

- Need to verify the presence of adequate faculty support systems

- Concern about faculty workload

- Training to implement distance education

- Faculty compensation and incentives

- Need to assess the presence of student support services

Research Question Three: "How did faculty at the College rethink and restructure their plans for the two distance education systems to facilitate their adoption?"

In 1998 when this study was first begun, many faculty members at Renaissance Community College did not want to change their style of instruction to accommodate teaching at a distance. Most had not yet adapted their lectures to the advances provided by technology such as PowerPoint presentations and multimedia demonstrations, however, in order to facilitate the adoption of the two distance education systems in this study faculty at the College had to rethink and restructure their plans. As courses were moved to instructional television and eventually online they had to change their long-established practices used for teaching in the face-to-face classroom.

In this section, the data are used to create individual case descriptions. The goal of these descriptions is to advance the understanding of the faculty as adopters of distance education by examining their feelings, use, and concerns related to the ITV and Online innovations. The following 14 case descriptions were created from a synthesis of data from the four parts of the questionnaire (Appendix A), the faculty development training sessions, focus group interviews, in-depth interviews, and the document analysis. Individual item responses, raw scores, and percentile scores are illustrated in Appendix D.

The researcher interpreted data from the SoCQ at several levels of detail and abstraction. Scoring the questionnaire required calculating raw scores for each of the seven stages (or scales) of concern; locating the percentile score for each scale in the Stages of Concern Raw Score: Percentile Conversion Chart (Appendix D, Section II, Table 1); and plotting the results on the Stages of Concern Profile charts. The researcher

used the Quick Scoring Device for the Stages of Concern Questionnaire developed by Parker and Griffen (1979/1986) to calculate the individual item responses, raw scores, and percentile scores illustrated in Appendix D, Section II, Tables 2-15.

"Hypothetically, as individuals move from nonuse and scant awareness of an innovation to beginning use and, eventually, more highly sophisticated use, their concerns move through the defined stages" (George, Hall, & Stiegelbauer, 2008, p. 37). As illustrated by the data provided in the previous section, all of the participants in this study began with their concerns at Stages 0, 1, and 2, then shifted to Stage 3, and ultimately registered their highest levels of concern at Stages 4, 5, and 6. According to George, Hall, & Stiegelbauer, if there is adequate support for its implementation, an individual's concern profile plotted over time should look like a wave moving from left to right. In this section, the researcher determined where the study participants were in the developmental sequence through plotting and interpreting their complete concerns profiles.

Mary Albright: A Change of Perspective

When the study commenced in 1998, thirty-year-old Mary Albright was in her first year of teaching at Renaissance Community College (RCC) fresh from Chicago and Bloomington, Indiana where she took her master's degree in English literature. Her 1998 Stages of Concern Questionnaire (SoCQ) profile illustrates an individual who was somewhat concerned about things other than the Instructional Television (ITV) innovation (high Stage 0) however, because Stages 1 and 2 were also high, it can be inferred that she was interested in learning more about the innovation.

Table 24. The SoCQ Profile for Mary Albright

			Mary Albright				
Stages of Concern							
1998	99	99	97	90	59	22	9
2003	40	47	65	78	74	50	37
2009	31	5	5	23	76	59	87

(Chart: Relative Intensity vs. Stages of Concern, Stages 0–6)
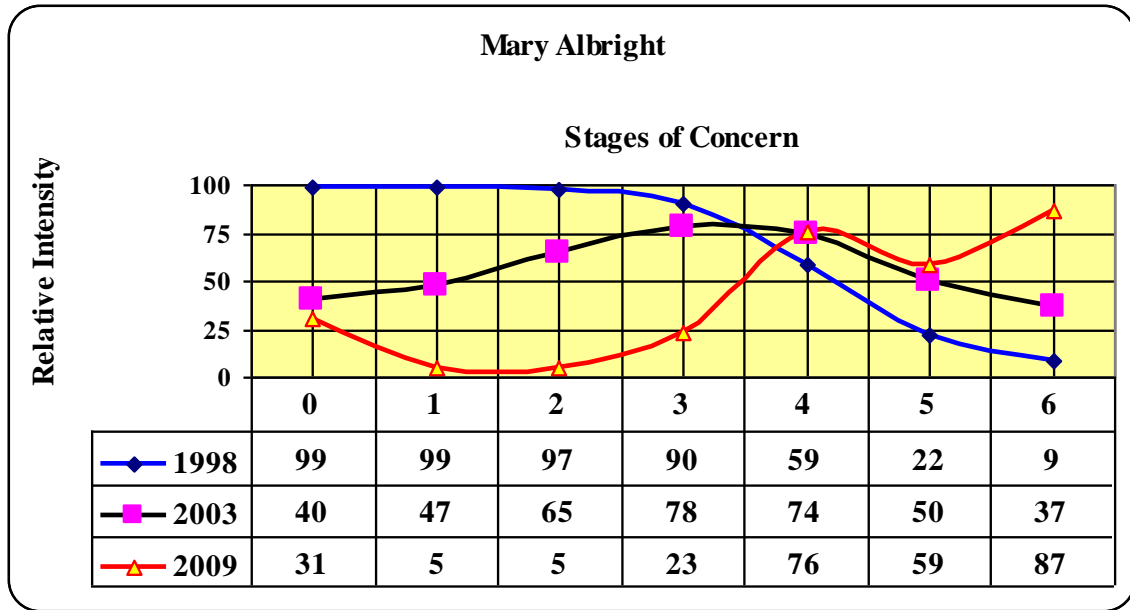
In 1998, Mary Albright had high significant management concerns (signified by an intensity of 90 on Stage 3) but was not intensely concerned about the innovations consequences for students or collaborating with others (low intensity on Stages 4 and 5). The low, tailing off Stage 6 score suggests that she did not have other ideas that would be potentially competitive with the innovation. Mary Albright's 1998 overall profile suggests and reflects an interested, not terribly over concerned, positively disposed nonuser of the ITV innovation.

Albright indicated in the August 1999 faculty training session that she was very uncomfortable adopting the innovation and mentioned that there was a large gap between what students saw on commercial television and what she would be able to provide to them on ITV. The researcher interprets from Mary Albright's responses and her personal interactions with her that she found it difficult transferring from face-to-face teaching to ITV teaching. "The faculty development activities provided by the College may teach

me how to use the hardware and software. But, I will have to teach myself how to integrate it into my course curriculum" (Mary Albright, personal communication, August 1, 1999). The researcher interprets from her comments that although Mary Albright appeared to be willing to rethink and restructure her teaching plans to facilitate the adoption of instructional television she did not think it was going to be easy.

Three years later, Albright said that she had learned to adapt her teaching style. In fact, she found that using the ITV technology enabled her to make her face-to-face courses more interesting. She started using the document camera in her regular face-to-face courses. "Using the ITV technology made me more organized and more conscious of the teaching process. I consciously used my communication skills, my organization skills and my management skills" (Mary Albright, personal communication, October 21, 2002). In the following passage, she explained some of the things she discovered about herself when teaching with the ITV medium.

> I learned that I could not transport one of my traditional courses directly to interactive videoconferencing without significant modifications. However, after I learned to use the technologies in the ITV classroom, I became much more comfortable. I think my students began to enjoy the experience as well. I learned good presentation skills. (Mary Albright, personal communication, March 5, 2003).

Mary Albright's 2003 SoCQ profile suggests that she had become an experienced user of the ITV innovation. Her low stages 0-3 score indicate an experienced user who was still actively concerned about the innovation. Mary Albright's higher Stage 3 score indicates that she still had concerns about logistics, time, and management of the

innovation while her higher Stage 4 score indicates concerns about the consequences of use of the innovation for students.

> Students in my classes at our distant sites are less independent than I had thought. Those who are successful are motivated, self-directed, and have the ability to take responsibility for their learning. I find that those who interact with me via audio are more successful than those who never asked questions. (Mary Albright, personal communication, March 5, 2003)

Mary Albright's stages 5 and 6 scores were significantly higher in 2003 than they were in 1998 indicating that she had concerns about working with others in relation to the use of the innovation. One reason the College wanted to implement ITV in the rural public schools was so that they could share qualified teachers in multiple locations. Following completion of the 2003 survey, Albright indicated that she was very interested in collaborating with high school English teachers in the small districts in order to reach greater numbers of learners in those diverse settings. She had no doubt that high school students could learn efficiently from instructional television. In fact, her experience had been that the average student was likely to learn as much in her ITV class as in her ordinary face-to-face class.

> I am so happy that I got to be a pioneer in this ITV venture started by the College. ITV has made it possible for many isolated students to attend our classes that would not otherwise have been able to do so" (Mary Albright, personal communication, March 5, 2003).

When Mary Albright took the SoCQ survey again in 2009 her results peaked on Stage 6 indicating that she had ideas that would either drastically alter or completely

replace the ITV innovation. Because she had rather intense student-oriented concerns, her Stage 4 score was also relatively high.

> Despite my initial resistance, I now strongly support distance education technology. But, it is Web-based technology that is helping me achieve my teaching objectives. It is time to retire ITV. (Mary Albright, personal communication, March 2009)

In the face-to-face interview conducted by the researcher, Mary Albright was asked whether she thought ITV had been a success at RCC. She stated that instructional television courses had freed many students from traveling long distances, leaving jobs and family, dealing with child care, and other costs. Her main obstacle to teaching at a distance was the preparation time required. "I think we (faculty members) should get release time for developing and maintaining our distance education courses" (Mary Albright, personal communication, March 11, 2009).

At the College, Albright teaches English Composition and Research and Advanced Composition to freshman and sophomore level students. She is now tenured and an active participant in professional development related to distance education. Albright has mentored other faculty in terms of teaching English via distance education. Many of her comments led the researcher to believe that distance learning has helped students increase access to courses at RCC. "Online courses have leveled the playing field for students isolated from large, well-funded high school English programs" (Mary Albright, personal communication, March 11, 2009).

Kate Anderson: Aided by Faculty Development

When the study commenced in 1998, thirty-seven-year-old Kate Anderson had been teaching communication courses at RCC for six years. She holds a B.A. from the University of Texas at El Paso and an M.B.E. from Eastern New Mexico College.

> Lack of time was always my number one concern for integrating technology into my face-to-face courses. The faculty development program offered by the College to learn about ITV made a big difference. I wanted to learn the new skills required to teach with the ITV technology so that I could teach my face-to-face students in one of the "smart classrooms." After learning how to use the technology, I saw a real advantage over what I had been doing in the classroom. (Kate Anderson, personal communication, September 16, 1999)

Table 25. The SoCQ Profile for Kate Anderson

Kate Anderson						
Stages of Concern						
	0	1	2	3	4	5	6
1998	55	43	35	83	63	36	34
2003	25	27	12	44	74	50	67
2009	99	5	5	18	15	3	9
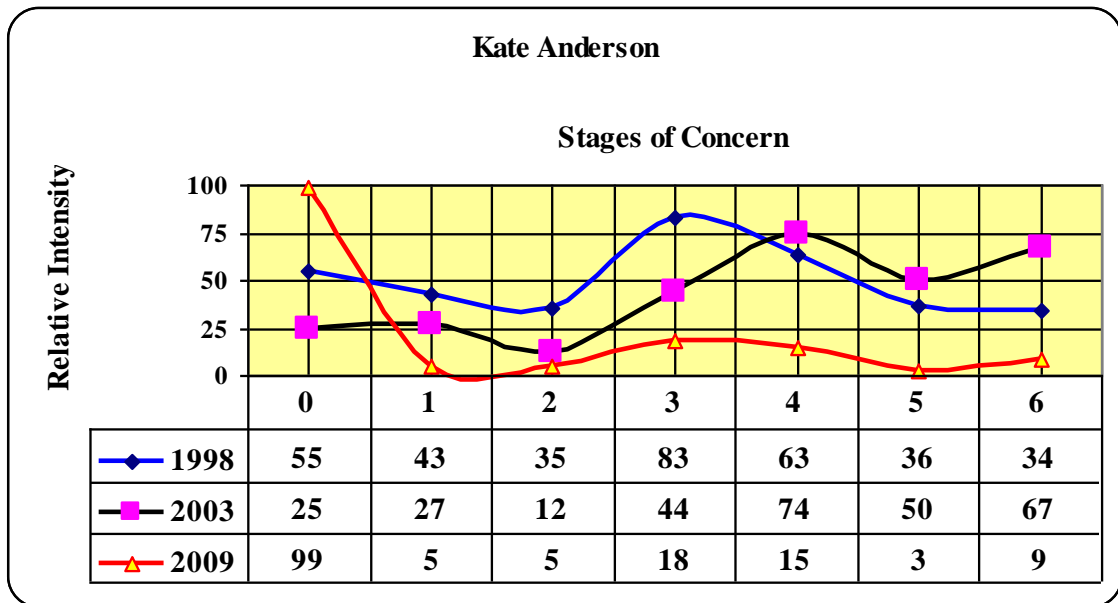
Scores for Kate Anderson's SoCQ profile for 1998 show that her management

concerns were relatively intense (Stage 3) indicating a high level of concern about time,

logistics, or other managerial problems related to the ITV innovation. She was also

somewhat concerned about students (medium Stage 4), but not concerned about working

with others (low Stage 5). Anderson did not have intense personal concerns about the

innovation (low Stage 2). The researcher interprets that she appeared to be willing to

rethink and restructure her teaching plans to facilitate the adoption of instructional

television.

Kate Anderson's 2003 SoCQ profile indicates an experienced user who was still

actively concerned about the innovation (low Stages 1 – 3). Her Stage 4 scores were

relatively high indicating intense student-oriented concerns while her high Stage 6 score

indicated she was concerned about obtaining other ideas about an innovation. "My ITV

students have lower achievement scores than my traditional face-to-face students—

despite being older" (Kate Anderson, personal communication, March 3, 2003). In the

interview, Kate Anderson indicated her desire to deliver her communication course

content to different locations with the participants being able to effectively share in the

discussion. "I am at ease delivering the presentations, and have no problem working with

the ITV technology even when technical difficulties consume the major portion of the

scheduled time" (Kate Anderson, personal communication, March 3, 2003). Kate

Anderson's comments led the researcher to conclude that she believed that the technical

difficulties were to blame for the lower achievement scores of the distant students.

By 2009 Kate Anderson's SoCQ profile was that of an unconcerned user of the

ITV innovation (high Stage 0). Her low Stage 1 and 2 scores suggest that she felt she

already knew enough about ITV and felt no personal threat in relation to the innovation. Anderson understood that ITV may not have been as acceptable to the students as face-to-face instruction, but felt it was a wonderful alternative. She completed her Master's degree via interactive television from a College located 90 miles away from RCC. Although she favored face-to-face instruction over distance learning, ITV was much more convenient than driving 180 miles a night to campus. By 2009 she was no longer teaching via ITV. She had adopted online learning.

> At first I felt threatened by the WebCT technology and concerned that online courses would replace the on-campus learning experience. I really enjoyed interacting with my students face-to-face. Little did I know that my online courses would foster an increase in student interaction with each other and with me. In fact, my students interact more with me in my online courses than in my face-to-face courses. (Kate Anderson, personal communication, March 12, 2009)

Anderson is now tenured and meets with other faculty on a regular basis to discuss communication teaching issues and online distance learning.

Zachary Binx: Reaches Out With Technology

Zachary Binx began teaching mathematics at Renaissance Community College in the late 1980's. After graduation from Milwaukee School of Engineering in 1974, his love of the southwest brought him back to New Mexico where he obtained an M.S. and a Ph.D. from the College of New Mexico.

In 1998 Zachary Binx had a relatively intense concern about workload management related to the ITV innovation as indicated by his high Stage 3 score

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(Management) on the Stages of Concern Questionnaire (SoCQ) profile. His scores

indicated a high level of concern about time, logistics, or other managerial problems

related to the innovation. Binx was also somewhat concerned about students (Stage 4) but

not concerned about working with others (low Stage 5). He did not have intense personal

concerns about the innovation (low Stage 2).

Table 26. The SoCQ Profile for Zachary Binx

	0	1	2	3	4	5	6
1998	99	90	78	94	99	55	77
2003	40	27	39	30	9	16	65
2009	99	25	25	24	23	21	99
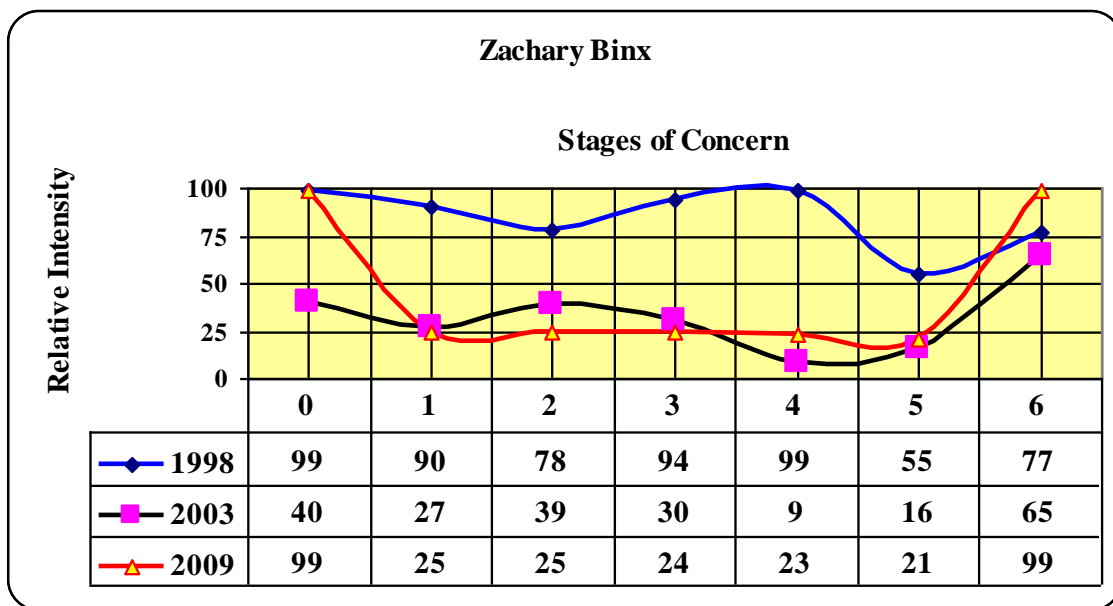
Binx's interview comments suggest he was very motivated by the opportunity to

use the ITV technology. One of his colleagues had started working at a junior college east

of Renaissance where they had already adopted ITV. For this reason he was very aware

of the innovation and motivated to learn more. "I was a little concerned that my workload

would increase significantly. But, I thought it was a good way to reach out to those who

could not get to the campus" (Zachary Binx, personal communication, August 1, 1999).

Many of his comments led the researcher to believe that it gave Binx personal satisfaction

to learn new skills so he was happy to learn how to teach on television. He enjoyed

integrating technology into his face-to-face courses because it helped him deliver higher quality instruction.

In 2003 Zachary Binx's SoCQ profile indicated an experienced user of the ITV innovation who was still actively concerned (Low Stages 0 – 3). He had a low Stages 4 and 5 scores indicating that he had minimal concerns about the effects of the innovation on students and no concerns about working with others in relation to use of the innovation. Binx's Stage 6 score tailed up inferring that he had ideas that he saw as having more merit than the ITV innovation.

> I saw few differences between my mathematics students who received instruction in my face-to-face classes and those who received ITV instruction. The student's grades were similar. However, I did see a difference in the participation and attendance of the students in the distant classrooms favoring students in the traditional classroom. (Zachary Binx, personal communication, April 2, 2003)

By 2009 Zachary Binx had stopped teaching via ITV. His SoCQ profile illustrated a person who was no longer concerned about the ITV innovation (low Stage 0). His low Stages 1 and 2 scores indicated he felt that he already knew enough about the innovation and felt no personal threat in relation to the innovation. Binx's low Stages 3 - 5 scores indicated he had no concerns about managing use of the innovation, very minimal concerns about the effect of the innovation on students, and no concerns about working with others in relation to use of the innovation. Similar to his 2003 results, Binx's Stage 6 score tailed up in 2009 inferring that he had ideas that he saw as having more merit than the ITV innovation. Although he no longer taught on instructional television, Binx

continued using the multimedia capabilities of the ITV classrooms. Instead of broadcasting to distant sites, he used the equipment (computer, video, and audio equipment) in the multimedia classrooms the College had created. "In its day instructional television was a vital resource for making courses accessible to students in the rural areas that we served. Online learning has taken its place" (Zachary Binx, March 13, 2009).

Walter Briggs: A Willing Participant

Walter Briggs, a College mathematics teacher for thirty years of his life, taught at New York College, Princeton and the College of Minnesota prior to coming to Renaissance Community College in 1989. He holds a B.A. and an M.S. from Midwestern College, an M.A. from River College, and a Ph.D. from Columbia Pacific College. Briggs teaches College Algebra and Calculus I, II, and III.

Table 27. The SoCQ Profile for Walter Briggs

Walter Briggs — Stages of Concern

	0	1	2	3	4	5	6
1998	75	80	72	65	27	31	30
2003	31	19	28	15	21	68	84
2009	87	5	5	5	5	1	99
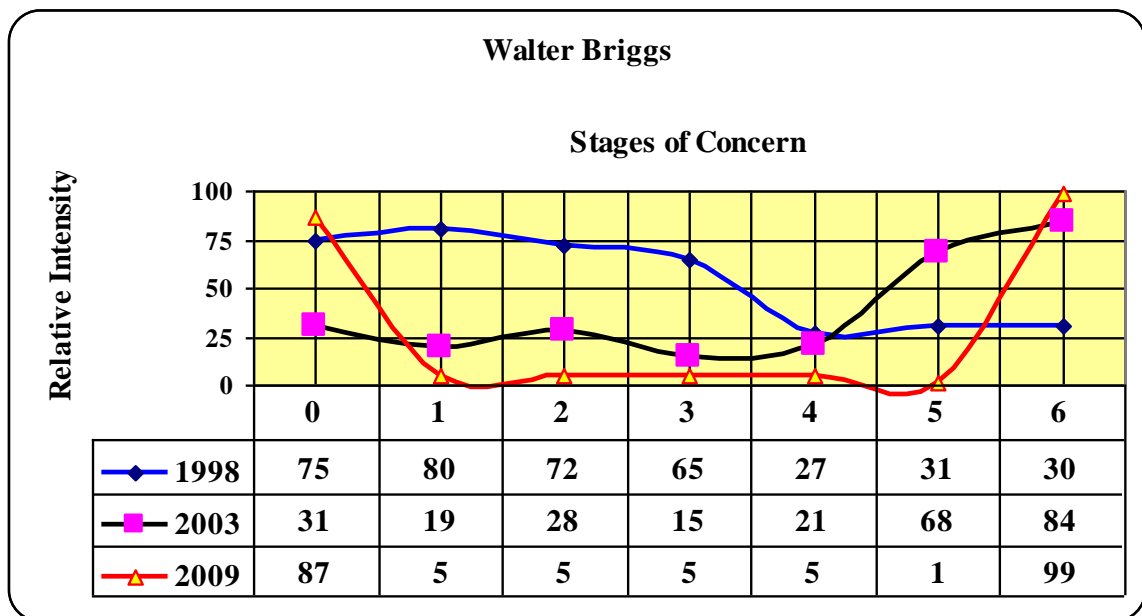
Walter Brigg's 1998 Stages of Concern Questionnaire (SoCQ) profile showed that his concerns were highest in Stages 0, 1, and 2 and lowest in 4, 5, and 6. His profile showed an individual who was not fully aware of the ITV innovation and was somewhat more concerned about other things (Stage 0). His high Stage 2 score suggested that he had personal concerns about the innovation and its consequences for them. Briggs did not have significant management concerns (signified by medium intensity on Stage 3) and was not intensely concerned about the innovation's consequences for students or for collaborating with others (low intensity on Stages 4 and 5). His low Stage 6 score indicated that he was interested in learning more about the innovation and willing to rethink and restructure his teaching plans to facilitate the adoption of instructional television.

> I was very comfortable about adopting instructional television to teach. That was ten years ago. Today, as an older faculty member, I find myself taking advantage of the strengths of technology in the classroom. For me this has been a result of exposure and interest, not age. (Walter Briggs, personal communication, March 18, 2009)

During the faculty training session in August 1999, Briggs indicated that transferring from face to face to ITV teaching was not difficult for him. For some of his colleagues, it was quite a different story. They were not inspired to use technology to teach via distance education. "Even if the College had unlimited time and money to instruct that faculty they would refuse to participate. I might add that they are no longer teaching here" Walter Briggs, personal communication, March 18, 2009). Briggs enjoyed teaching by ITV because it provided synchronous instruction that allowed him to interact

with his remote students in real time. He believed the high level of interaction he had with his distant students promoted their engagement in class activities and also decreased their drop out rate.

In 2003 Walter Briggs SoCQ profile suggested that he had become an experienced user of ITV, however his low Stage 1 score indicated that he had no desire to learn more about the innovation. Briggs low Stage 2 - 4 scores indicated that he had few personal concerns, few concerns about management, and minimal concerns about the effects of the innovation on students. Briggs expressed some interest in knowing what other faculty were doing with the innovation (high Stage 5 score) while his high Stage 6 score illustrated that he had strong ideas about how he would do things differently.

By 2009 Walter Briggs had stopped teaching via ITV. His SoCQ profile illustrated a person who was no longer concerned about the ITV innovation (high Stage 0). His low Stage 1-5 scores indicate that he was very negative toward the innovation and generally not open to information about it. Brigg's Stage 6 score tailed up inferring that he had ideas that he saw as having more merit than the ITV innovation.

During his interview in 2009 Briggs indicated that when the technology was new, the administration recognized and encouraged faculty efforts to teach on ITV. "Now teaching at a distance is simply an expectation" (Walter Briggs, personal communication, March 18, 2009). He believes teaching a face-to-face class and to three other outlying sites at the same time is too much work. "It is time consuming to prepare the materials for the distant sites and have them delivered by the courier. I think we deserve additional compensation." Briggs stressed when there was more institutional support, his levels of motivation and dedication increased.

My dean demonstrates her support by giving me credit for teaching by

ITV on my yearly evaluation. However, I would appreciate a monetary

incentive. In the beginning we received a stipend for teaching at a

distance. (Walter Briggs, personal communication, March 18, 2009)

Jim Candelaria: A Reluctant Technocrat

Jim Candelaria, physical science instructor at RCC, worked in industry as a

Senior Geologist for 5 years, as a Geological Specialist for 8 years, and as a Geological

Adviser for 10 years prior to coming to the College. He holds a B.S. from the College of

West Alabama, a B.S. from the College of South Alabama, and an M.S. from New

Mexico Institute of Mining and Technology. I tell my students, "The best geologist is the

one who has seen the most geology" (Jim Candelaria, personal communication,

November 13, 2003).

Table 28. The SoCQ Profile for Jim Candelaria

	0	1	2	3	4	5	6
1998	69	75	72	69	27	36	30
2003	40	30	57	85	71	52	77
2009	14	12	14	94	16	16	99
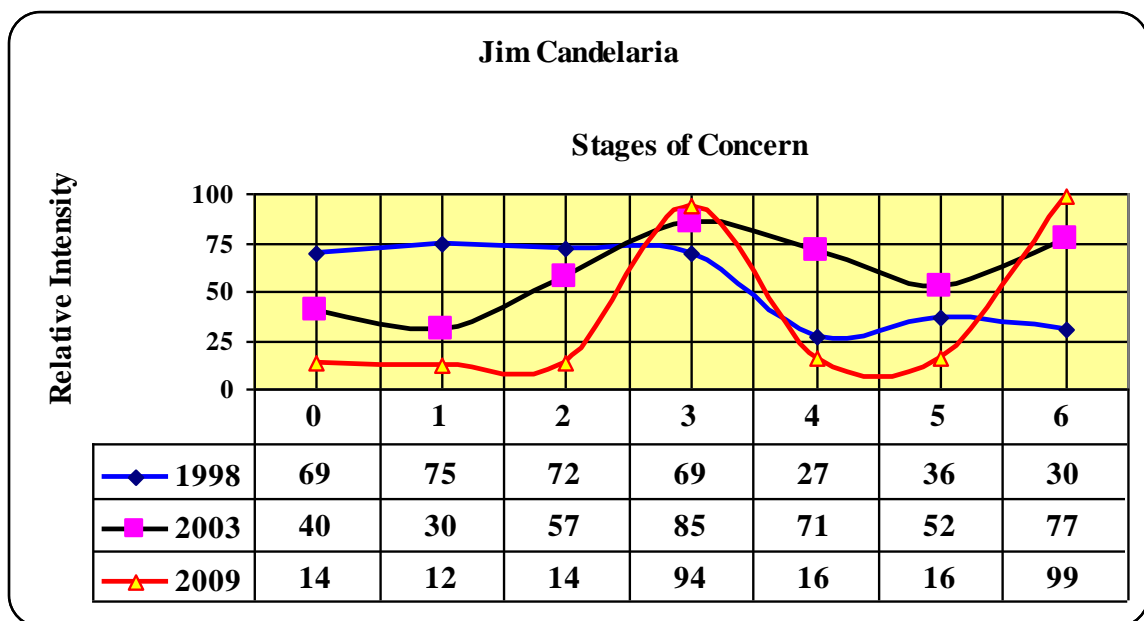
In 1998 Jim Candelaria's Stages of Concern Questionnaire (SoCQ) profile was that of a typical nonuser of the ITV innovation. His concerns were highest on Stages 0, 1, and 2 and lowest on Stages 4, 5, and 6. Candelaria's profile shows he was not fully aware of the innovation and was somewhat more concerned about other things (Stage 0). Because Stages 1 and 2 were also high, however, it can be inferred that he was interested in learning more about the innovation. He had relatively little concern about logistics, time, and management related to the ITV innovation (signified by his medium intensity on Stage 3) and was not intensely concerned about the innovation's consequences for students or for collaborating with others (low intensity on Stages 4 and 5). His low, tailing-off Stage 6 score suggests that he did not have other ideas that would compete with the ITV innovation.

Initially Candelaria resisted the ITV innovation because he was concerned about not having enough time to develop and maintain his course materials. At the initial faculty development workshop he stated, "Teaching on ITV looks difficult to me. I am concerned whether or not I can learn to teach with the technology" (Jim Candelaria, personal communication, August 1, 1999). Then in the ITV faculty development workshop when he designed a lesson that was broadcast to another ITV site, he felt he had had an initial success experience. "Once I learned how ITV worked I became much more comfortable" (Jim Candelaria, personal communication, April 1, 2009).

Jim Candelaria's 2003 high stage 6 & low Stage 1 scores on his SoCQ profile indicate a person who was not interested in learning more about the ITV innovation. In fact, it inferred that he felt he already knew all about the innovation (low Stage 2) and that he had strong ideas about how the process should be different. Candelaria had

intense concerns about managerial problems related to the innovation (Stage 3) and was

somewhat concerned about students (Stage 4). His low Stage 5 score suggested he had

little concern about working with others in relation to the innovation. Candelaria did not

think all subjects were appropriate for teaching via ITV. However, he did support one of

the reasons the College wanted to implement ITV in the rural public schools, so that they

could share qualified teachers in multiple locations. "In the valley the use of ITV was

helping to provide quality instruction for disadvantaged schools in a cost effective way"

(Jim Candelaria, personal communication, March 12, 2003). Candelaria enjoyed teaching

on interactive television when there were no technological glitches caused by bad

weather or breakdown of equipment. He believed lack of site facilitators presented

additional problems. By 2009, Candelaria thought it was time to retire instructional

television.

> I feel that the College administration pressured the faculty at RCC into
>
> using technology in the classroom, to teach on ITV, and to teach online.
>
> My advice, don't adopt technology initiatives without fully understanding
>
> their impact on teaching and learning and don't rely solely on the advice
>
> of technical experts. Realize that the technologist's job is to find new ways
>
> to utilize technology. The faculty's job is to select the approaches,
>
> methods, and technologies that will help students achieve desired learning
>
> outcomes. (Jim Candelaria, personal communication, March 23, 2009)

The 2009 SoCQ profile for Jim Candelaria illustrates an individual who had

become frustrated with not having his Management concerns resolved and had strongly

held ideas about how the situation should be changed (high Stage 6, high Stage 3, low

Stages 0-2). Candelaria had stopped teaching via ITV and was more interested in teaching online.

> I felt like online teaching was the new and next generation of distance education. ITV had had its place, but I was ready to move on to something new. There were technical and economic challenges with ITV and there would be with online learning. The support of the faculty and the faculty trainers would be critical for its success. (Jim Candelaria, personal communication, March 23, 2009)

> Candelaria found gaining familiarity with the Blackboard e-learning management system was hugely time consuming. He found himself working longer hours and juggling various commitments. "Attending the training courses became less and less appealing…" (Jim Candelaria, personal communication, August 4, 2009).

Helen Crump: No Longer a Technophobe

Helen Crump, instructor of business application software classes, began her career in computers while working as an assistant comptroller at a regional savings and loan. In addition to her regular teaching load at RCC, which is split evenly between face-to-face and online courses, Crump teaches in the College's on-line prison program. Because her teaching load is comprised mostly of introductory level courses, Crump finds herself teaching students at a variety of skill levels and age groups. "I find that mostly younger people sign up for online education, but it is the more mature student that is actually successful. The online environment requires the student to be his own teacher and I, in turn, act as the facilitator" (Helen Crump, personal communication, January 17, 2003).

Crump owns a teacher's supply store in downtown Renaissance. She holds a B.B.A. from

Baylor College and an M.E.D. in Instructional Technology from West Texas A&M.

During the first faculty training session in 1998 Helen Crump said, "I am excited

about adopting this new medium. I enjoy learning new things and have a personal

motivation to use this new technology." Restructuring her teaching plans was not difficult

when transferring from face to face to ITV teaching because she was already well

prepared and organized when teaching her face-to-face courses. "I believe this impacted

the effectiveness of the ITV course and the perceptions of the students" (Helen Crump,

personal communication, March 3, 2003).

Table 29. The SoCQ Profile for Helen Crump

	0	1	2	3	4	5	6
1998	40	60	25	52	63	52	38
2003	22	16	12	27	71	27	77
2009	99	12	14	23	16	16	99
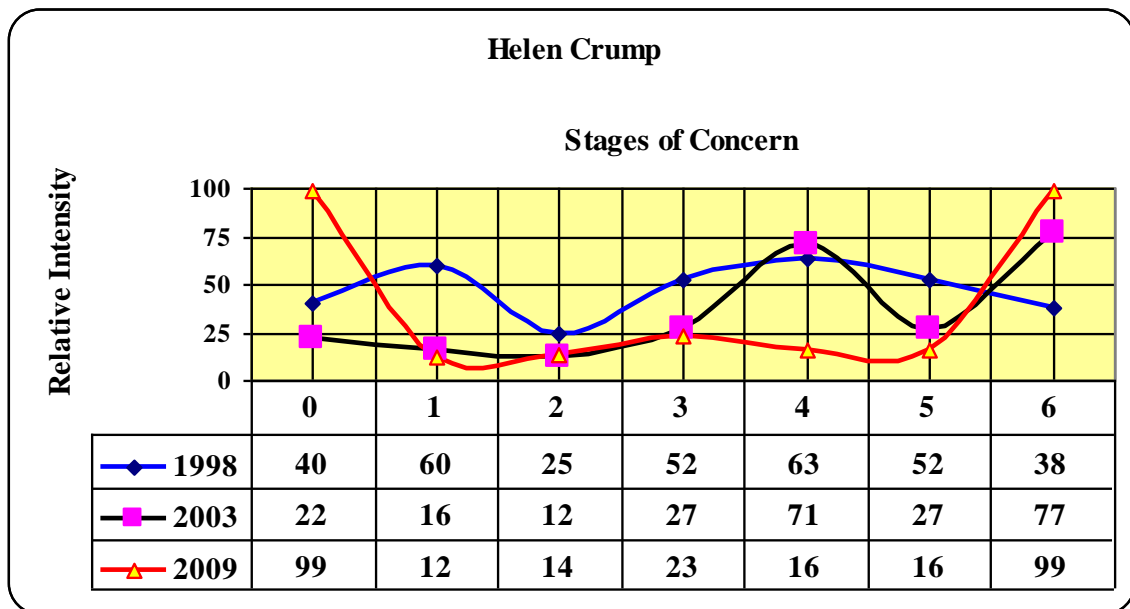
Her 1998 Stages of Concern Questionnaire (SoCQ) profile suggests her highest

concerns were on Stages 1 and 4, indicating that she wanted more information about the

ITV innovation and that she was intensely concerned about the impact of the innovation

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on her students. She was equally concerned about Stages 3 and 5 indicating concerns about logistics, time, and management of the innovation and about working with others in relation to use of the innovation.

In 2003 Helen Crump's Stages of Concern profile suggested that she was still intensely concerned about the impact of the innovation on her students but that she was not concerned about obtaining more information about ITV (very low Stage 1 and extremely low Stage 2). In addition, she was not concerned about the innovation's management or working with others (lower scores for Stage 3 and Stage 5). Crump's Stage 6 score tailed up, inferring that she had ideas that she saw as having more merit than the ITV innovation.

> One semester my goal was to make at least one visit to each of the four
>
> distant sites involved my ITV course. I wanted to make the students feel
>
> more a part of the class. Although it was a good idea, I found that it was
>
> too time consuming. I did not do that again. (Helen Crump, personal
>
> communication, March 3, 2003)

By 2009 Helen Crump had stopped teaching via ITV. Her high Stage 0 score and low Stage 1 score indicate that she was no longer concerned about the innovation and that she felt she already knew enough about it. Crump's low Stage 2 and low Stage 3 scores suggest that she felt no personal threat in relation to the innovation and had minimal concerns about managing its use. Her low Stage 4 score indicated minimal concerns about the innovation on students. As a nonuser of the ITV innovation, Crump's high Stage 6 score indicates that she had strong negative ideas about the innovation.

As a faculty member I was tired of having to deliver the lecture, as well as

coordinate the camera, focus the projector, and the PowerPoint computer.

When we had technical problems, my class sessions would often transition

from one of teaching to one of apologizing for the delivery system. I was

ready for online learning. (Helen Crump, personal communication, May 1,

2009)

Mary Jaramillo: Rides the Online Wave

Art Instructor Mary Jaramillo taught art appreciation and drawing at El Paso

Community College prior to assuming her current teaching position at RCC in 1997.

Before moving to El Paso she and her family lived abroad in Honduras for nine and a half

years where she taught English at both American and international schools and served as

a missionary for the Bahia faith. No stranger to technology, Jaramillo sells her post

modern and post surreal art work through an online Web Gallery. She holds an M.F.A. in

painting from Claremont Graduate School and a B.A. from Eastern New Mexico College.

Table 30. The SoCQ Profile for Mary Jaramillo

Mary Jaramillo

Stages of Concern

	0	1	2	3	4	5	6
1998	99	88	89	69	30	36	38
2003	0	27	35	52	86	91	57
2009	14	12	14	15	86	16	99
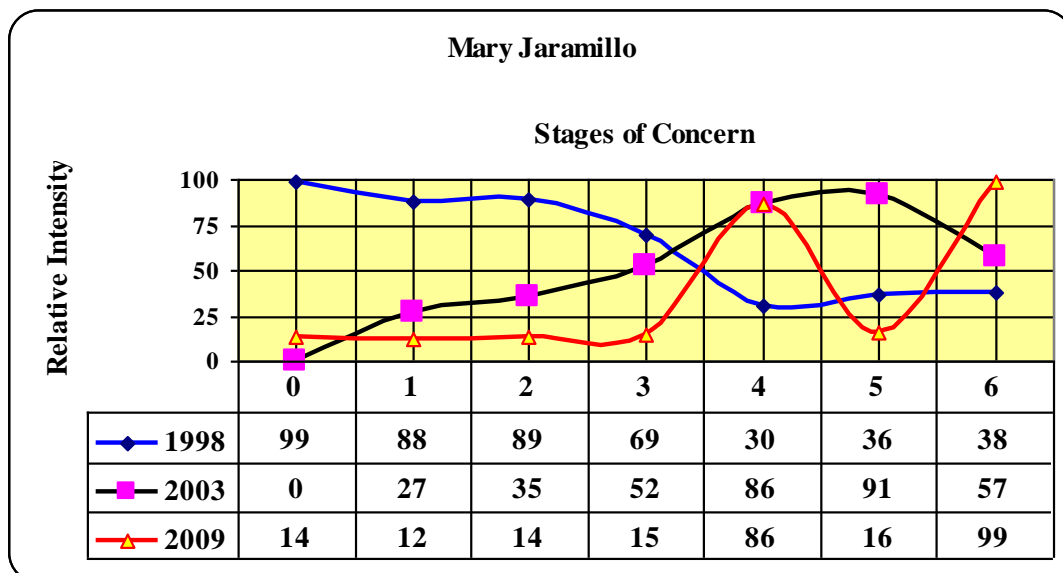
In 1998 Mary Jaramillo's Stages of Concern Questionnaire (SoCQ) profile was that of a nonuser with her highest concerns on Stages 0, 1, and 2 and her lowest concerns on Stages 4, 5, and 6. Her profile illustrates that she was not fully aware of the ITV innovation and was somewhat more concerned about other things. Jaramillo's high Stage 2 percentile score indicates concerns about status, rewards, and the effects of the innovation on her personally. The low, tailing-off Stage 6 score suggests that she did not have other ideas that would potentially be competitive with the ITV innovation.

> Initially, I was philosophically opposed to distance education. I only participated in the training because there was a financial incentive to do so. During the faculty training, I discovered that the system was easy to use so I took the time needed to learn to teach on the ITV Network and became quite comfortable. In fact, some of my colleagues said they adopted ITV because I was willing to do so. (Mary Jaramillo, personal communication, August 1, 1999)

Jaramillo's 2003 Stages of Concern profile (low Stages 0 – 3) indicates an experienced user who was still actively concerned about the innovation. Jaramillo's highest concerns were Stages 4 and 5 suggesting concerns about the consequences of use of the innovation for students and of working with others in relation to use of the ITV innovation. Jaramillo suggested that the entire process was often fraught with problems.

> At times, test taking on ITV was a harrowing experience for me and for my students. There were no site facilitators and our courier service was not the best. As the instructor, I had to make and package my tests for distribution to distant sites a few days before the assigned date. If for some

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reason there was a delay in getting the test to any site, there was a problem

protecting examination papers from someone tampering with the process.

Returning completed test papers to me was also often delayed by our

unreliable courier service. If faxed, there was no guarantee that a test

would not fall into wrong hands because anyone could pick it up from the

machine. (Mary Jaramillo, personal communication, May 2, 2003)

Jaramillo's 2009 Stages of Concern profile peaked on Stage 6 indicating that she

had ideas that would alter or completely replace the innovation. In addition, she had

intense student-oriented concerns as indicated by her high Stage 4 score and low Stage 0,

1, and 2 scores. She says in many ways she likes teaching online better than teaching on

ITV or in the traditional classroom.

There are some draw backs, but it's definitely the wave of the future.

Online-learning has really changed the character of education and how it

is delivered. The drawbacks will always be there, but there are drawbacks

in traditional education as well. (Mary Jaramillo, personal interview, July

2, 2009)

Carol Lamure: Becomes Tech Literate

Carol Lamure is a full-time instructor of philosophy at RCC where she has taught

since 1982. "My teaching interests lie chiefly in the history of modern European

philosophy, science, and literature" (Carol Lamure, personal communication, April 3,

2003). Lamure received her Ph.D. from the College of Massachusetts, Amherst and was a

faculty member for several years at Washington and Jefferson College.

The 1998 Stages of Concern Questionnaire (SoCQ) profile for Carol Lamure illustrates an individual who was not fully aware of the ITV innovation and somewhat concerned about other things (Stage 0). Her high scores on Stages 1 and 2 infer that she was interested in learning more about the innovation while her medium intensity score on Stage 3 indicates that she had significant Management concerns.

Table 31. The SoCQ Profile for Carol Lamure

Carol Lamure

Stages of Concern

	0	1	2	3	4	5	6
1998	75	80	70	60	30	36	26
2003	7	12	12	18	82	97	97
2009	87	30	28	27	30	16	99

Relative Intensity (y-axis: 0, 25, 50, 75, 100)
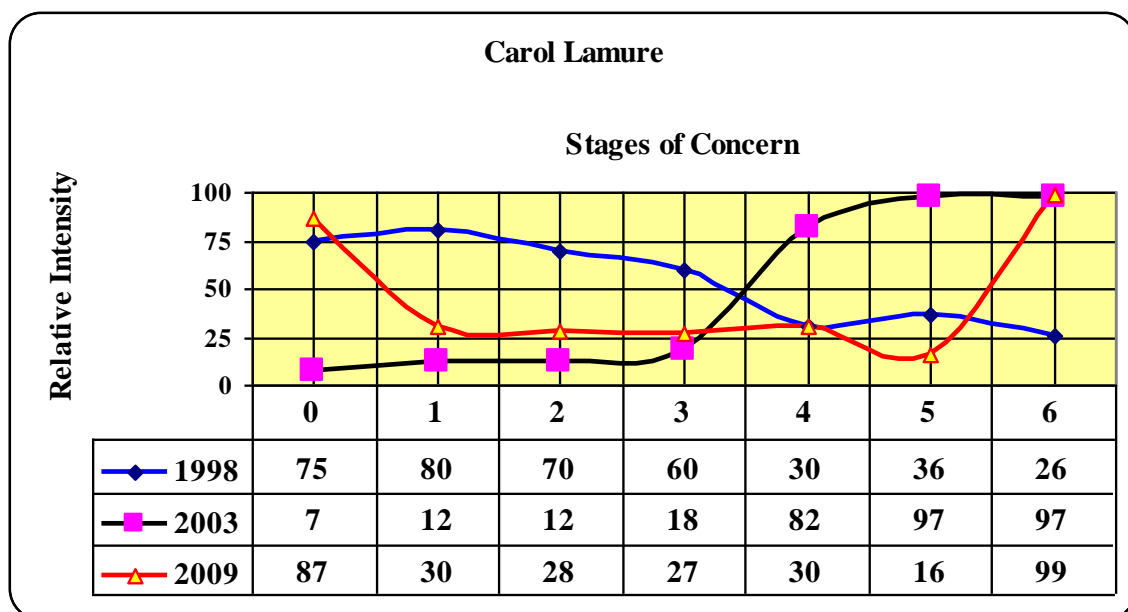
Lamure's low scores on Stages 4 and 5 indicate that she was not intensely concerned about the innovations consequences for students or for collaborating with others. Finally, her low tailing-off score on Stage 6 suggests that she does not have ideas that would be competitive with the ITV innovation.

> I was excited about adopting instructional television! I had been using
> instructional technology in my regular face-to-face courses so this was not
> a big leap for me. I reconfigured my teaching activities to take full
> advantage of the ITV technology. Using technology allowed me to get

things done faster and more efficiently. (Carol Lamure, personal

communication, April 7, 2003)

By 2003 Carol Lamure was an experienced user of technology in her face-to-face

classroom. She was the lead instructor in her department and oversaw a number of

adjunct instructor's teaching activities. Her high Stage 4, 5, and 6 scores on her Stages of

Concern Questionnaire (SoCQ) profile reflect impact concerns about her many and

varied responsibilities. Combined with her very low Stages 1, 2, and 3 scores Lamure's

profile suggests a person who was very interested in the ITV innovation but that was so

knowledgeable about that innovation there was nothing else to learn. Finally, her low

Stage 2 score indicates she was very comfortable with the innovation.

By 2009 Carol Lamure had stopped teaching by ITV. Her 2009 Stages of Concern

Questionnaire (SoCQ) profile indicates a person who was no longer concerned with the

ITV innovation (high Stage 0). Her low scores in Stages 1, 2, and 3 indicate she felt she

knew enough about the innovation, felt no personal threat in relation to it, and had no

concerns about managing its use. She had minimal concerns about the effects of the

innovation on students (low Stage 4) and had strong ideas about how to do things

differently (tailing-up Stage 6).

Missy Landers: Educated Online

Fifty-two-year-old instructor of Business Education, Missy Landers, holds a

B.B.A. from Hardin Simmons College and a M.Ed. from West Texas A&M. Her 1998

Stages of Concern profile suggests a nonuser of the ITV innovation (very high Stage 0).

Her high Stages 1 and 2 scores indicate a person who wanted more information about the

innovation but who had intense personal concerns.

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Table 32. The SoCQ Profile for Missy Landers

Missy Landers

Stages of Concern

	0	1	2	3	4	5	6
1998	99	96	95	94	63	14	9
2003	31	27	31	34	76	36	97
2009	99	5	5	23	16	4	9
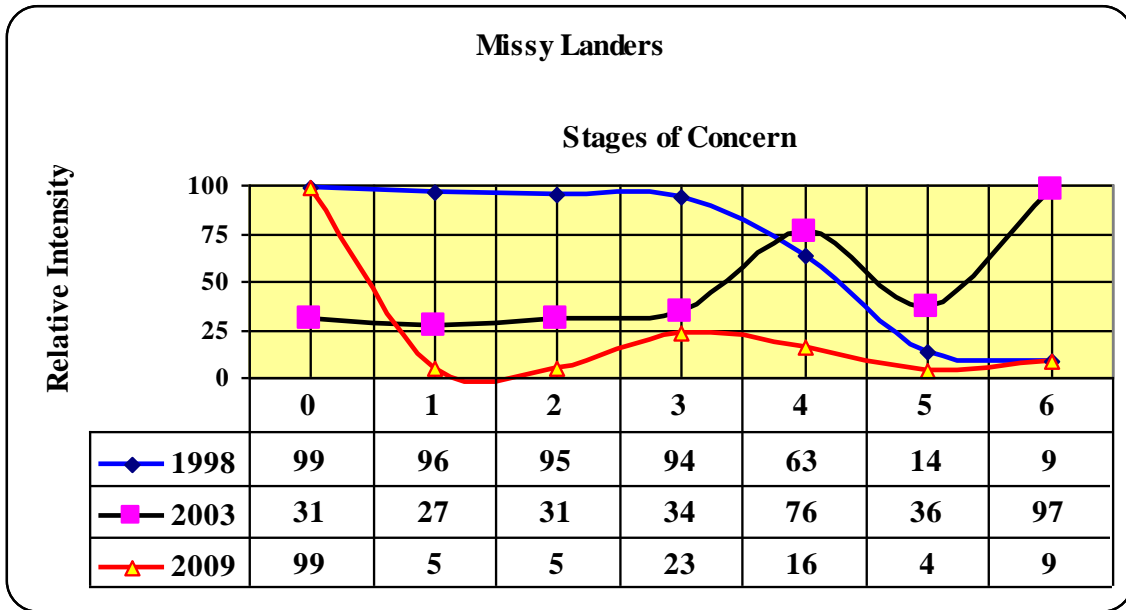
Lander's high Stage 3 score indicates that she also had great concerns about logistics, time, and management of the innovation. However, her lower Stage 4 score suggests that she had minimal concerns about the effects of the innovation on students. Finally, her low Stages 5 and 6 scores suggest little concern about working with others in relation to the innovation and an interest in learning more about the innovation.

Missy Lander's 2003 Stages of Concern profile (low Stages 0 – 3) indicates an experienced user who was still actively concerned about the innovation. Her high Stage 4 score indicates that she did have concerns about the consequences of use of the innovation for students. Lander's low Stage 5 score suggests that she had limited concerns about working with others in relation to use of the innovation. Her high Stage 6 – low Stage 1 scores indicate she was not interested in learning more about the innovation.

Missy Landers advanced her own education online and remarked

The convenience of the online format allowed me to teach full-time at

RCC, take courses, and still have time to spend with my family, which

would have been difficult to balance if I was enrolled in a traditional

program. The online program is a wonderful way to continue to advance

your education without all of the hassles involved in attending courses on

campus. I'd recommend it to anyone who is working but still wants to

work on a graduate degree. (Missy Landers, personal communication,

April 1, 2003)

By 2009, Missy Landers had stopped teaching by instructional television. Her

high Stage 0 score on the Stages of Concern questionnaire indicates that other things,

innovations, or activities were of greater concern to her than ITV. She marked most of

the items on the questionnaire as being of little concern or irrelevant.

Kathy Madrid: Overcomes Obstacles

Kathy Madrid was employed at the College as a full-time instructor of English

composition and research when the study commenced in 1998. She resigned from her

full-time teaching position in May of 2005 and moved to up state New York. Madrid

continues to teach up to nine credit hours in English composition and research via

distance learning for the College each semester. "I feel the opportunities offered by

distance education outweigh the obstacles. In fact, the focused preparation required by

distance teaching improves my overall teaching and empathy for my students" (Kathy

Madrid, personal communication, May 23, 2005). Madrid holds a B.A. in English from

Western Maryland College and an M.A. in English from the College of New Mexico.

Table 33. The SoCQ Profile for Kathy Madrid

Kathy Madrid

Stages of Concern

	0	1	2	3	4	5	6
1998	40	51	67	80	76	48	38
2003	61	54	41	90	76	48	52
2009	94	90	95	23	30	36	38

Relative Intensity (y-axis: 0, 25, 50, 75, 100)
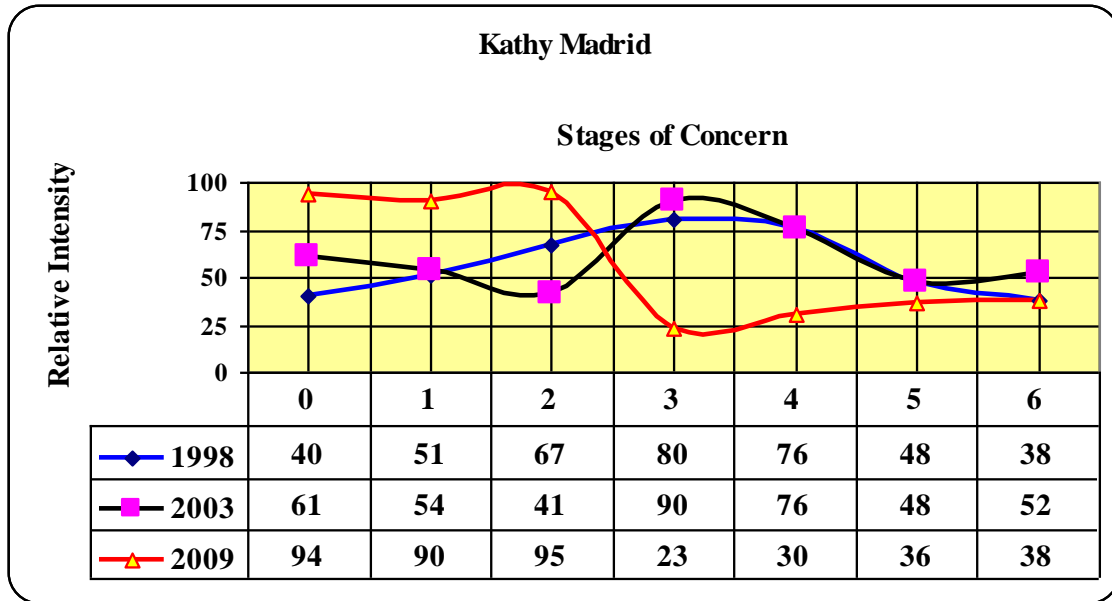
Kathy Madrid's 1998 Stages of Concern profile suggests an inexperienced user of the ITV innovation. Her major concerns were management of the innovation (high Score 3) and the consequences of use of the innovation for students (high Score 4). Madrid also had some self concerns about the innovation (moderately high Score 2) and was intensely involved with the innovation as indicated by her low Stage 0 and higher Stage 1 scores. She had minimal concerns about working with others in relation to use of the innovation (lower Score 5) and no strong ideas about how to do things differently (low Score 6).

The 2003 Stages of Concern Questionnaire (SoCQ) profile for Kathy Madrid illustrates an individual whose Stage 3 (Management) concerns were relatively intense. She indicated a high level of concern about time, logistics, or other managerial problems. Madrid was also concerned about students (medium Stage 4), but not concerned about working with others (low Stage 5). She did not have intense personal concerns about the innovation (low Stage 2).

By the time Kathy Madrid completed the 2009 Stages of Concern Questionnaire (SoCQ) her profile was that of a nonuser of the ITV innovation. She had stopped teaching on television and was teaching a variety of courses online. As a nonuser her scores were highest on Stages 0, 1, and 2 and lowest on Stages 4, 5, and 6.

Lloyd Ramirez: Enhances Courses With Technology

Lloyd Ramirez has taught psychology (and the liberal arts) at Renaissance Community College for over 25 years. His primary teaching responsibilities include introductory psychology, social psychology, personality, and a seminar on the psychology of endings. Ramirez holds a B.A. and an M.A. in Psychology from Eastern New Mexico College.

Table 34. The SoCQ Profile for Lloyd Ramirez

Loyd Ramirez

Stages of Concern

	0	1	2	3	4	5	6
1998	14	90	21	23	24	91	38
2003	7	12	12	11	76	16	99
2009	99	23	25	23	30	36	99
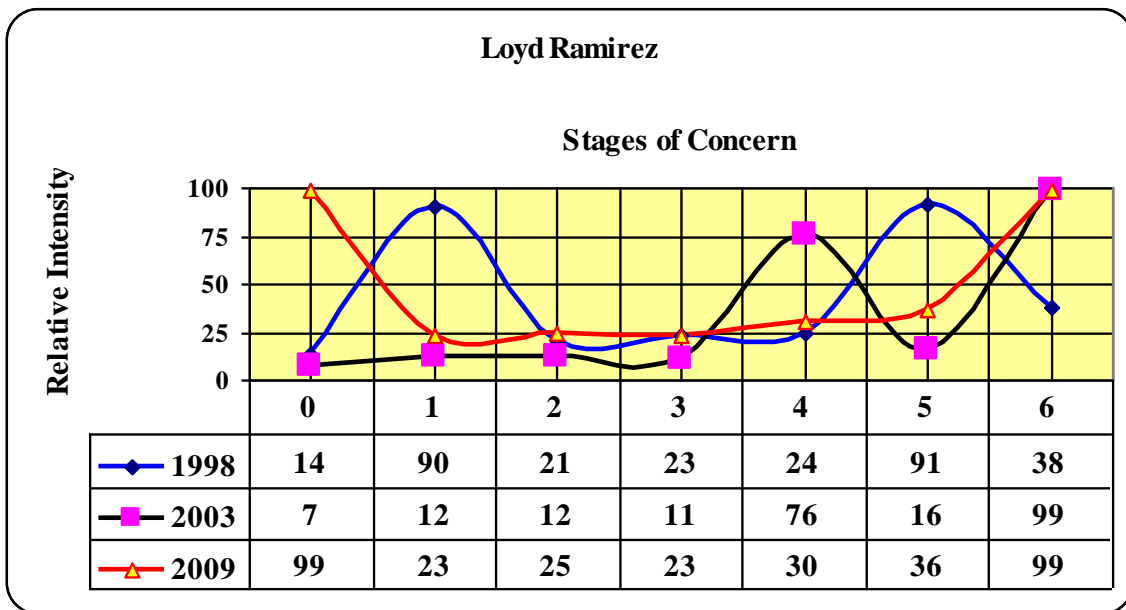
Lloyd Ramirez's 1998 Stages of Concern profile suggests that he viewed the ITV innovation as an important part of his work (low score on Stage 0). His high Stage 1 - low Stage 2 scores indicate that he was generally open to and interested in the innovation.

Ramirez's high Stage 5 and high Stage 1 scores suggest that he had a desire to learn from what others knew and were doing, rather than a concern for leading the collaboration. Finally, his low Stage 3 and 4 scores suggest that he had minimal concerns about managing use of the innovation and about the effects of the innovation on students. Following one of the first formal ITV training sessions conducted in November of 1998 he remarked, "I am enjoying learning to teach on television. I learned to use computers quickly and had no doubt that I will be able to adopt instructional television technology just as easily" (Lloyd Ramirez, personal communication, November 20, 1998).

Lloyd Ramirez's 2003 Stages of Concern profile (low Stages 0 – 3) indicates an experienced user who was still actively concerned about the innovation. Unlike his 1998 profile, his high Stage 4 score indicates that he had concerns about the consequences of use of the innovation for students and his low Stage 5 score suggests that he had limited concerns about working with others in relation to use of the innovation. His high Stage 6 – low Stage 1 scores indicate he was not interested in learning more about the innovation.

By 2009 Lloyd Ramirez had stopped teaching using the instructional television innovation. He was more concerned about another innovation (online learning) as illustrated by his high Stage 0 score. Ramirez was no longer interested in expending the time or energy required for use of the ITV innovation as evidenced by his low Stages 1 – 3 scores. He had no concerns about the effect of the innovation on students (low Stage 4 score) and no concern about working with others in relation to use of the innovation (low Stage 5 score). Finally, the high tailing-up of Ramirez's Stage 6 score suggests he had strong ideas about how to do things differently.

Ramirez began teaching online and stated that online learning gave him the opportunity to use technology more innovatively to enhance his course quality and develop new ideas.

Chris Torres: An Online Learning Critic

Award-winning historian, Chris Torres has taught at Renaissance since 1979, and has written or co-written 11 books on Southeast New Mexico and West Texas history. Instructor of History, he holds both a Ph.D. and an M.A. in History from the College of Arkansas, and a B.S. from the College of Wisconsin at Lacrosse.

Chris Torres's 1998 Stages of Concern profile depicts a nonuser of the ITV innovation (very high Stage 0) whose anxiety about the innovation's effect on his personal or job security (high Stage 2 score) was greater than his desires to learn more about the innovation (lower Stage 1 score).

Table 35. The SoCQ Profile for Chris Torres

Chris Torres

Stages of Concern

	0	1	2	3	4	5	6
1998	99	69	76	43	21	14	26
2003	31	27	31	18	82	97	60
2009	99	17	19	23	9	12	90
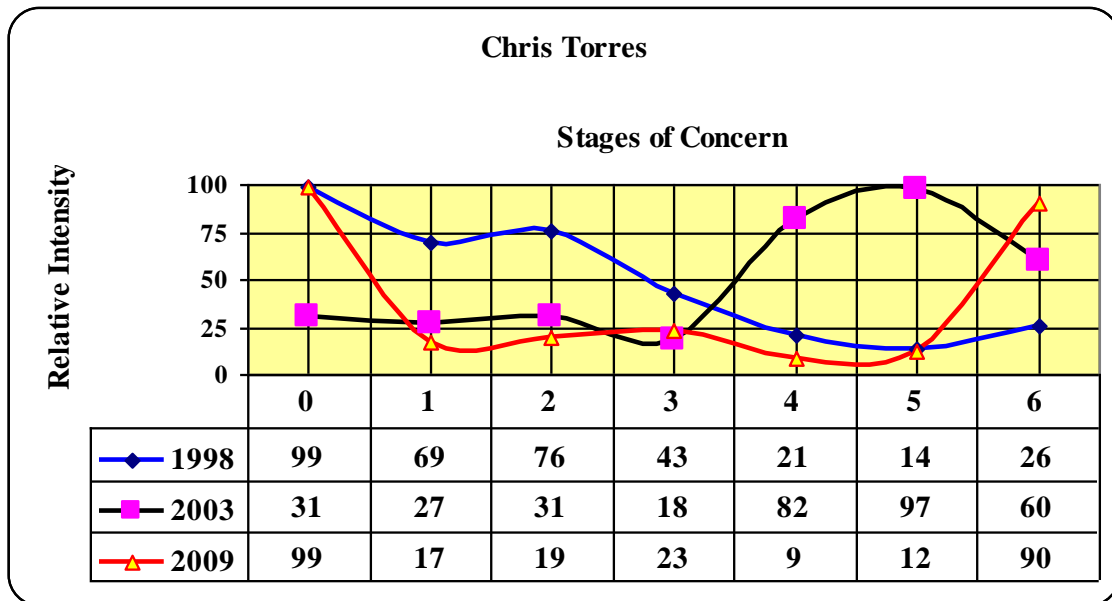
In 1998 Chris Torres stated:

Even though participation in instructional television at RCC was initially

voluntary, I knew it would eventually be mandatory. While the College

was offering a stipend to participate I decided to become an early adopter.

I was a little apprehensive about learning the new skills and expertise

required to design a course. (Chris Torres, personal communication,

November 20, 1998)

Interestingly, in 2003 Chris Torres's Stages of Concern profile (low Stages 0 – 3)

was that of an experienced user who was actively concerned about the innovation. His

highest concerns were Stages 4 and 5 suggesting concerns about the consequences of use

of the innovation for students and of working with others in relation to use of the ITV

innovation. "For me the major weaknesses of ITV courses were problems with

technology and getting materials to the students and receiving materials back from the

students via our courier service, which was not the best," (Chris Torres, personal

communication, April 1, 2003).

By 2009, Chris Torres was no longer teaching via instructional television. Like

other RCC faculty he was more concerned about another innovation (online learning) and

was preoccupied with other things other than the innovation as illustrated by his high

Stage 0 score. His low Stage 1 and 2 scores suggested that he was no longer open to or

interested in the innovation. In addition, his low Stage 3 and 4 scores suggested that he

had no concerns about managing the innovation or about its effects on students. Torres

had no desire to learn what others knew or were doing with the innovation (low Stage 5)

and had strong ideas about how to do things differently (Stage 6 tailing-up). ITV

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technologies had afforded new opportunities for the College's distant students, and as an

innovative faculty member, he willing adopted online learning.

"I have taught via correspondence, ITV, and WebCT and have discovered

multiple and multi-faceted problems with such courses. The reward can be

great but one should not deny the risks. In the classroom I can prepare

assiduously and devote the amount of energy necessary to engage students

in dialogue and still fail. With correspondence, ITV, and WebCT courses,

since it is so much more difficult to do things right, my failure rate is

probably higher" (Chris Torres, personal communication, March 5, 2009).

Brian Wright: A Change for the Better

Brian Wright entered Loyola College on a full scholarship in 1970. He graduated

with a bachelor's degree in business education and completed his MBA at Southern

Illinois College. Wright teaches business education courses in the Business and Math

department at RCC.

Brian Wright's 1998 Stages of Concern profile suggests that he was intensely

concerned about the ITV innovation's impact on students (highest Stage 4 concerns). His

lower scores for Stage 3 and Stage 5 suggest he was not very concerned about

management of the innovation or working with others. Wright's very low Stage 1 and

extremely low Stage 2 scores indicate that he had little concern about obtaining

additional information about the innovation, and even less concern about the personal

effects the change might have. He had low concerns about working with others in relation

to the innovation (low Stage 5) and no strong ideas about how to do things differently

(low Stage 6).

Table 36. The SoCQ Profile for Brian Wright

Brian Wright

Stages of Concern

	0	1	2	3	4	5	6
1998	99	31	12	34	82	36	5
2003	30	23	35	52	76	84	65
2009	97	30	25	23	24	25	99

Relative Intensity (y-axis: 0, 25, 50, 75, 100)
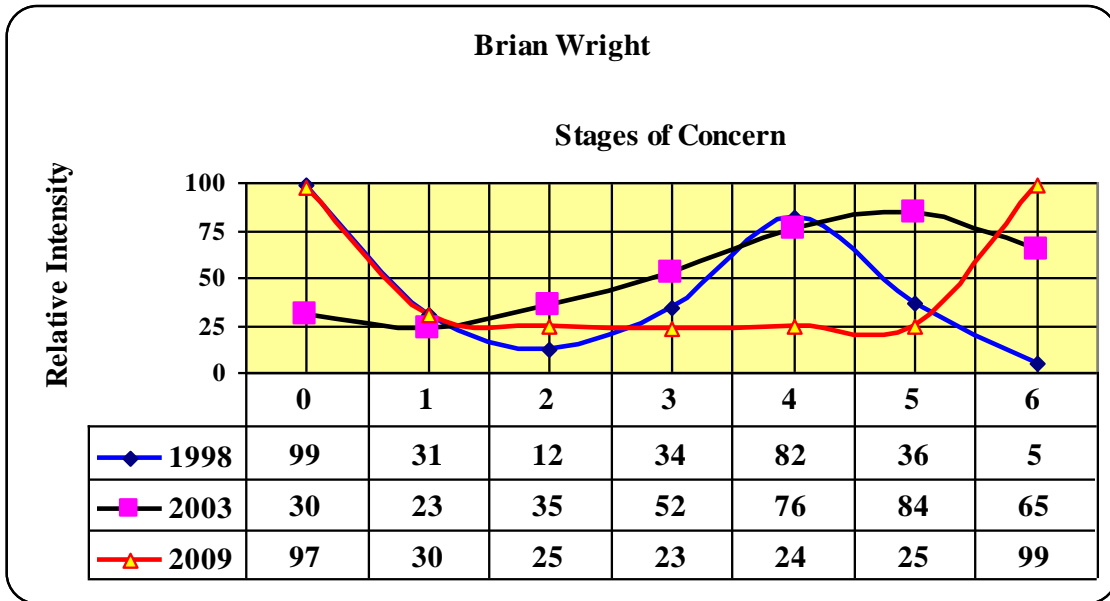
I am somewhat comfortable about the prospect of adopting ITV. I need the

faculty training because I have never created visual aids and I want to do it

right the first time and get assistance while it is available. Creating

transparencies, copy stand masters and computer-delivered presentations

is all new to me. (Brian Wright, personal communication, February 18,

1998)

Brian Wright's 2003 Stages of Concern profile (low Stages 0 – 3) indicates an

experienced user who was still actively concerned about the innovation. His higher Stage

5 score suggests concerns about a collaborative effort in relation to the other stages with

high scores (Stage 3, management of the innovation, and Stage 4, effects of the

innovation on students). Wright's higher Stage 6 score and lower Stage 1 score indicate

he was not interested in learning more about the innovation and likely had plenty of ideas

for improving the situation.

I do not find teaching by ITV to be dramatically different from traditional

teaching. In fact, I find the factors that affect students learning in my face-

to-face classroom also affect students learning in my ITV classroom. The

difference is that my ITV students do not feel that they can ask questions

during broadcast as freely as they do in the regular classroom. (Brian

Wright, personal communication, April 1, 2003).

Brian Wright's 2009 Stages of Concern profile depicted an individual who was

preoccupied with things other than the ITV innovation. His high Stage 0 score illustrated

that other priorities were preventing him from focusing his attention on the innovation. In

fact, by 2009 Wright had stopped teaching on television as was concentrating his efforts

on online learning. His low scores indicated that he felt he already knew enough about

the innovation (low Stage 1), felt no personal threat in relation to the innovation (low

Stage 2), no concerns about managing the innovation (low Stage 3), minimal concerns

about the effects of the innovation on students (low Stage 4), and no concerns about

collaborating with others in relation to the innovation (low Stage 5). Wright's high

tailing-up score (Stage 6) suggests he had strong ideas about how to do things differently.

"No sooner had I gotten used to email and the Web and virtual learning

environments came along. I find WebCT and Blackboard very time consuming but online

learning certainly is giving our students more access to their education" (Brian Wright,

personal communication, June 24, 2009).

Jane Zamora: Teaching the Technology Scale

Fifty-five-year-old Jane Zamora began teaching music appreciation as an adjunct

instructor at the College in 1990, the same year she was hired to serve as the Director of

the Learning Resource Center. Zamora came to Renaissance from Phoenix Community College where she worked for five years as an instructor of music and English as a second language. She plays keyboards in a blues and jazz band and has written a number of original compositions. Zamora holds a B.A. in music education and a Masters Degree in Library Science from the University of Arizona.

> I think it (teaching on television) is going to be fun, but I am not sure how difficult it will be to conduct the class with all the technical equipment. Faculty training is increasing my motivation, my interest, and my self-confidence about teaching on ITV. (Jane Zamora, personal communication, February 18, 1998)

Table 37. The SoCQ Profile for Jane Zamora

Jane Zamora

Stages of Concern

	0	1	2	3	4	5	6
1998	87	88	85	92	38	40	9
2003	22	23	18	23	76	68	38
2009	99	19	17	9	2	5	90
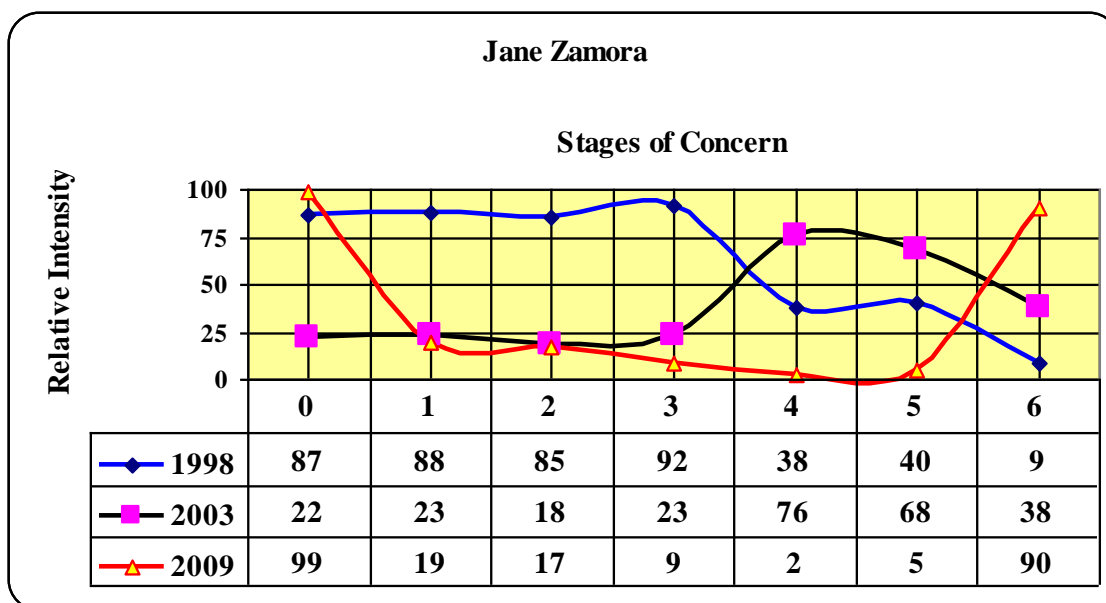
The 1998 Stages of Concern Questionnaire (SoCQ) profile for Jane Zamora depicts an individual who was somewhat concerned about things other than the Instructional Television (ITV) innovation (high Stage 0). However, since her scores on

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Stages 1 and 2 were also high, it can be inferred that she was interested in learning more about the innovation. Zamora's lowest concerns were Stages 4 and 5 suggesting she had little interest in the consequences of the use of the innovation for students or of working with others in relation to use of the innovation. Her medium range score for Stage 3 indicates concerns about logistics, time, and management of the ITV innovation. However, her tailing-down Stage 6 score suggests she had no strong ideas about how to do things differently.

Conversely, five years later in 2003, Jane Zamora's Stages of Concern profile was that of an experienced user who was actively concerned about the innovation (low Stages 0 – 3). Her highest concerns were Stages 4 and 5 suggesting misgivings about the consequences of use of the innovation for students and of working with others in relation to use of the ITV innovation. Zamora was not concerned about the how to change the innovation (low Stage 6).

> I want to reach students in the valley but technical problems affect the quality of my presentations. Most of the distant students that attend an ITV section of my course say they are uncomfortable because we experience so many difficulties with the technology. They also say they feel too intimidated to ask questions on the air. (Jane Zamora, personal communication, April 11, 2003)

Jane Zamora's 2009 Stages of Concern profile depicted an individual who was no longer concerned about the ITV innovation. She had stopped teaching on television. She no longer sought information about the innovation (low Stage 1), felt no personal threat in relation to the innovation (low Stage 2) and felt no concerns about managing the

innovation (low Stage 3). In addition, Zamora was no longer concerned about the effects of the innovation on students (low Stage 4) or about working with others in relation to use of the innovation (low Stage 5). She did express strong ideas about how to modify use of the innovation based on the experiences of her students (high Stage 6).

> I teach music appreciation on WebCT/Blackboard to the general College population and in the College's on-line prison program. It has been my experience that distance education provides a valuable service to our regular students and our prison inmates who may otherwise be unable to take college courses. (Jane Zamora, personal communication, May 24, 2009).

Summary of Faculty Case Studies

Much has changed in the way Renaissance Community College has used distance education technology during the last ten years. RCC faculty members' support, interest, and involvement in distance education depended upon the extent to which they perceived it as offering what Rogers (2003) calls the characteristics of successful innovations: relative advantage, compatibility, complexity, trialability, and observability. They began the process of rethinking and restructuring their plans to adopt ITV and online learning by obtaining the tools and skills necessary to provide the best possible educational experience for the student. This was done through participation in professional development activities that addressed the development of distant education courses, delivery of content, and effective instructor-student contact. Faculty began to reconsider the importance of time, location, and pace of study as indicators of quality instruction.

When comparing ITV and online instruction, RCC faculty concluded that the ability to learn at virtually "any time and any place" was a major attraction of online distance education. They also cited the fact that students in online learning had the freedom to access distance education courses and programs on their own schedules, rather than the Colleges'. Thirteen of the fourteen RCC faculty members participating in this study indicated that teaching ITV courses increased their workload. They had to plan course materials farther in advance and order books for more than one site. During the semester, they spent time and energy developing alternative teaching approaches for the ITV environment. Faculty indicated that additional distance education teaching sites increased their class size and increased their workload by requiring additional grading and time to prepare course materials for distribution to the sites. Others were concerned about not having enough time to develop and maintain their course materials. They stated that they spent more time preparing for their ITV courses than for their traditional classes. Many voiced a high level of concern about the time and logistics involved in preparing materials for distribution by the courier.

An Administrators Perspective

The following information provides an administrator's perspective of the ways that faculty at the College had to rethink and restructure their plans for the two distance education systems to facilitate their adoption. This information supports what emerged as the guiding conceptual framework for adopting distance education innovations shown in Table 38.

Dr. Denis Rugar, the Dean of Instruction at Renaissance Community College from 1988 to 2000, served as the impetus for the distance-education effort at RCC. "I

knew that [overseeing] this distance-education cultural change would be one of the most significant challenges [that] I would face as an institutional leader" (Dr. Rugar, personal communication, October 21, 2005). Dr. Rugar had to take responsibility for designing a process that would allow individuals to feel that they had had a role in crafting the College's solution to distance learning. "For me to be influential in planning the College's distance-education program, I [knew that I] would have to be a consensus builder, decision maker, and referee" (Dr. Rugar, personal communication, October 21, 2005). He would need to work closely with technical and support-service personnel, ensuring that technological resources were deployed effectively to further the institution's academic mission. "Most importantly, I would need to help the faculty, administrators, and staff [to] maintain an academic focus, realizing that meeting the instructional needs of distant students was their ultimate responsibility" (Dr. Rugar, personal communication, October 21, 2005).

In 1998, the researcher was selected by Dean Rugar to recruit faculty and staff from across the disciplines at the College to study distance-education issues and emerging practices. With the assistance of the division chairs, one faculty member was selected to represent each division. In addition, the researcher invited the director of computer services, one computer technician, and one representative from student services to join the team. Together, they addressed the major challenges of integrating technology tools into the educational community.

The team identified and studied two modes of distance education, Instructional Television Fixed Services (ITFS) and Interactive Videoconferencing (ITV). They then planned and made site visits to three educational institutions in the southwestern United

States where these types of systems had been implemented. After much research and consideration, the Renaissance telecommunications team members recommended that the College select an Interactive Television (ITV) system rather than an Instructional Television Fixed Service (ITFS) system. The implementation of an ITV system would afford small, isolated schools in eastern New Mexico the unique opportunity to offer college-level courses to their students with the advantage of two-way video and two-way audio capabilities. It was to become a priority at RCC that through the use of distance education, the schools in its service area would survive and prosper, and the students enrolled in those schools would receive the highest quality education possible.

> At that time, it was all relatively new technology. It was all kind of risky.
> The other thing is that not only was it risky, but also it was a technology of
> limited duration because the Internet was beginning to come on strong. I
> knew that within a matter of time, the Internet would be able to supplant
> what we were able to do with ITV. We knew that videoconferencing was a
> stopgap measure between traditional classroom instruction and the
> Internet. While there may always be a role for ITV, certainly the Internet
> would become the dominant force. Which it is today. (Dr. Rugar, personal
> communication, October 21, 2005).

There was some resistance to implementing the technology on the College campus. For example, a faculty member asked why Dr. Rugar wanted to spend $750,000.00 to take TV out to the high school sites. The faculty member stated that the proposed sites were not that far away and questioned why the students could not just come to the campus. Dr. Rugar explained that in response to this objection: "I used the

analogy of Coca Cola. [Coca Cola executives] don't just make Coca Cola available at one location. They bring the product to you. That was the philosophy that I was trying to promote; obviously, the instructor did not understand" (Dr. Rugar, personal communication, October 21, 2005).

Dr. Rugar served as the facilitator for the overall network implementation and as the point of contact for the high schools. He secured policy agreements for the schools involved, developed viable organizational governance and business strategies, and assessed cultural and technical readiness. In addition, Dr. Rugar investigated adequate faculty support structures, meaningful assessment metrics, and articulation agreements. The dean of students formed a task force to study suitable student-services support structures and policies regarding the administration of financial aid.

The RCC distance-education network was never envisioned as a source of revenue. The cost of implementing the system was slightly more than $500,000. Line charges and maintenance would be approximately $50,000 per year. As the system grew in usage, a technician would be hired to maintain the network. With a technician, it was predicted that annual expenses would be approximately $100,000.

Revenue from the system would come from additional credit-hour enrollment at distant locations and through other agencies that used the network. It was difficult to predict how many courses would be offered or the corresponding enrollment. Probably, only a few courses would be offered initially, as faculty would take time to embrace the concept. There were plans to provide stipends for a limited time to faculty who would go through training and then actually offer a class on the network.

The instructional television equipment was received in July of 1998. At that time, RCC administrators expected that instruction via the distance-education network would begin during the last week of August. Each distance-learning classroom was equipped with identical audiovisual equipment (monitors, cameras, microphones, and speakers), as well as a means of transmitting information between sites. Numerous technical difficulties delayed the completion of the network and phone line installations from August until December 1998. Following a period of on-site experimentation, the ITV network finally became operational in January 1999.

The videoconferencing system at each participating school allowed each site to serve as an originating site or as a receiving site. In addition, each school had point-to-point transmission capability. Multipoint transmission required the intervention of a bridge, which was housed at the College. Auto-tracking cameras, which allowed the camera to focus on the instructor and each individual speaker, were available at all sites, as was access to a fax machine. Staff at the College provided technical support. The ITV system operated over T1 telephone lines to provide broadcast capabilities on a 24-hour per-day basis. Each site had the ability to transmit programming to any of the other sites or to receive programming from any of them. These transmissions could be done simultaneously, with RCC serving as the control site to link the transmitting and receiving sites electronically. The six high schools were connected via T-1 (high speed digital channel) lines to the College's asynchronous transfer mode (ATM) network. This was an advanced, broadband network that employed an Internet Protocol (IP) that allowed video, audio, and data to be transported simultaneously over one fiber. The ATM

protocol allowed the bandwidth used for transmitting information to be flexibly allocated and reallocated as needed.

Within RCC's faculty was a wide range of attitudes towards and experiences with technology, both in and out of the classroom. Some faculty had great expertise regarding the use of technology, while others harbored great trepidation about using it. In May 1998, all full-time RCC faculty members were offered a one-time opportunity to participate in an intensive distance-education training session facilitated by an outside consultant. The faculty who attended this particular training session was eligible to receive a one-time $1000 stipend payable the first time they taught an ITV class. Those who did not attend this specific training session were only eligible to receive a one-credit-hour overload stipend at the conclusion of the semester in which they first taught an ITV class. Instructors for the initial ITV classes were selected from the full-time pool of faculty in each division. Three additional formal training sessions were conducted from August 1998 and January 1999, utilizing the telecommunications classroom that was operational at RCC beginning in mid-August 1998.

Following the initial implementation of the distance-learning system in the spring of 1999, the researcher encountered conflicting schedules between participating schools and instructors, rivalries between districts, competition for limited funding and training resources, cost overruns, and curriculum disagreements. In addition, the College experienced multiple problems with the compatibility of software and hardware that caused technical problems at the sites. This resulted in the alienation of school personnel at two high school sites. Due to a shortage of classroom space at two other high school sites, the designated classrooms were unavailable for distance education.

Prior to going live with the distance-education ITV network, no single individual or department was responsible for overseeing the administration of the program. The institution had not considered the staffing needed to control the system, which required extensive administrative efforts to work with participating schools, maintain and troubleshoot technical problems associated with the system, keep records, etc.

To facilitate the administration, marketing, and operation of the distance-education network, the Department of Learning Technologies was established at the College in July 1999. Due to a hiring freeze, the duties were added to the full-time responsibilities of the researcher, who was already employed at the College. The researcher was responsible for the operation of the Media Center, the Copy Center, the Performing Arts Center, and the Instructional Technologies Center. The duties of scheduling, coordinating, maintaining, and supervising extended learning activities and services were added to her workload, including on-site courses, instructional-television courses, online courses, and satellite courses. By the spring 2000 semester, off-campus enrollment in ITV courses had risen to 115 students. Of that number, only 23 were high school students enrolled concurrently in a college-level class that originated at their high school.

> The distance education network fulfilled a promise to the taxpayers of
> Enterprise County. It also provided RCC with a competitive advantage as
> other institutions sought to provide educational opportunities in the RCC
> service area. Finally, the system could be operationally profitable if
> faculty and external agencies utilized it as projected. There was no basis
> for believing that the system could ever generate sufficient revenues to

recover the capital costs. (Dr. Rugar, personal communication, July 27,

1999)

Online Learning

In 1999, Howard Johnson, a full-time liberal arts faculty member who had taught

communication courses at the College for several years, was keenly interested in

generating faculty and student interest in online learning. He had come to the College

from the University of Texas at El Paso (UTEP), where Internet technologies for course

delivery and student support via the World Wide Web were being fully utilized. Johnson

knew that distant learners and onsite students needed flexibility in their schedules. His

goal was to see that Renaissance Community College (RCC) students were offered

additional options of course delivery. With the support of Dr. Denis Rugan, Johnson led

the College's movement towards the adoption of online learning by forming a task force

of College faculty, staff, and administrators.

Together, members of the RCC task force considered seven factors: vision and

plans, curriculum, staff training and support, student services, student training and

support, copyright and intellectual property, and faculty compensation. "By including

administration, faculty, staff, and students in this [exploratory] process, I knew [that] it

would be easier to obtain a campus-wide consensus on the vision" (Dr. Rugar, personal

communication, December 12, 2005). Faculty members were involved from the very

beginning in determining the priorities, policies, and procedures for implementing online

learning at the College.

The RCC task force drafted a written document that outlined the policies and

procedures for the online program. In an effort to provide learning opportunities that are

less restricted by time and place than its normal courses and programs scheduled on campus, RCC enhanced its distance education program by developing Web-based courses. Through its network, students may work toward a college degree, enhance their professional standing, or enrich their understanding of the world. The goals of RCC's distance-education program are to:

1. Increase educational access for students unable to attend classes on campus.

2. Ensure that all online courses meet and maintain the highest of quality standards.

3. Fully utilize the resources of the College.

4. Enhance instruction by integrating technology into the curriculum.

This memorandum of understanding set forth the policies that are still being used to provide coordination guidelines and managerial oversight responsibilities to the Web-based portion of RCC's distance-education program. These policies follow the current policies and procedures approved by RCC and current NCA-accreditation standards for online programs.

Vision and Plans

During 1999, the task force focused on the long range plan, regularly evaluating what it had done and what needed to be done. All staff development and budgeting for online learning was driven by the plan, which was continually updated. There were changes in task-force membership-several retired, one moved out of town, and new instructors were needed for the growing numbers of students who were taking Web-based courses. The divisions formed hiring committees to replace those lost instructors and

searched for staff that could fit into the emerging philosophies of teaching at a distance. The president of the faculty senate stated, "Planning the online distance-learning program became a central focus of the instructional area's strategic planning process because we knew that student expectations regarding online programs would continue to grow" (field notes, February 2, 1999). The College needed to be prepared to react to the internal and external changes caused by technological advances.

Curriculum

Planning for online distance learning at the College focused on budget and personnel planning, critical pedagogic issues, and teaching modes and methods. The task force deemed that priority courses and programs for online delivery at the College should be identified by the appropriate division chair and the dean of instruction. Since the fall of 2000, RCC has gone from no online courses to 150 online courses, with 138 supplement[11] courses offered. Some of the courses are only delivered online, and some require attendance on campus one or more times per semester. The latter type of course is known as a hybrid class. One instructor said, "Most of my hybrid classes are science labs. I supplement some of my classes by online quizzes and other activities, while I post class information, such as my syllabi and announcements, online" (field notes, December 5, 2005).

Staff Training and Support

To gain the knowledge necessary to implement online curricula effectively, task-force members knew that instructors would need to have the necessary training, mentoring, and support. "Faculty and staff had no experience with this delivery method

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11Information presented online to supplement traditional courses and labs.

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and were untrained and unprepared to address any type of online learning" (Howard Johnson, personal communication, October, 2000). In addition courses for online distance-learning programs need to be clearly planned and designed.

A survey of RCC faculty conducted in early 2000 found that none of the faculty had ever developed a Web-based course, and 98% of the faculty had no training in distance-learning strategies. Furthermore, 87% of the faculty who did not teach computer classes reported that they never or seldom used computers or technology in the classroom. It was clear that our campus needed to upgrade its capabilities in terms of the use of technology to enhance student learning. (Howard Johnson, personal communication, October 2000)

A technology enhanced E-learning[12] training program was implemented for faculty and staff during the spring and summer of 2001. By the beginning of the fall term, the College had a small, highly trained group who would begin the process of training other faculty in online learning strategies and online course design. Howard Johnson was hired under the Title V grant to direct the training and facilitate the redesign of on-campus courses to an online format, and Susan Benavides was hired under the same grant as an instructional technology specialist to teach workshops at the College.

Benavides' workshops continued to help prepare the instructor who had no experience teaching online to design, create, and teach an online course until her retirement in December 2008. Her course covered how to adapt course content for online learning and how to create, teach, and manage an online course. "Though the principles

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12 An approach to facilitate and enhance learning through, and based on, both computer and communications technology.

of instructional design are not altogether different in online distance-learning [from what] they are for the traditional classroom, instructors need training and support to be able to adopt this new teaching paradigm" (Susan Benavides, personal communication, October 7, 2005).

Effective online distance learning requires instructors not only to have knowledge of their content area, but also to have interpersonal skills to communicate effectively with their students online. Instructional Technology Specialist Benavides hosted six-hour training workshops for instructors twice per semester. Those who were unable to attend one of the scheduled Saturday workshops could arrange one-on-one training with her. According to James Barajas, Director of the Title V Project, all instructors developing or teaching Web-based courses were to be trained in course construction and online teaching pedagogy by a certified instructor or by an instructor designated by the director of distance education. The successful completion of this training was a mandatory requirement to receive any stipend for course development. Any instructor assigned to teach an online course was required to receive a minimum of 10 hours of "teaching online" training before [he or she began to teach] online. Training records reflected any formal training received and were forwarded to the Professional Development Office. Division chairs were responsible for insuring that all instructors [who taught or developed] online classes had met the training requirement. Open labs, remedial training, and special topics would be offered throughout the semester on campus.

After receiving training, instructors began to change the way in which they were preparing for their classes. For some, making these changes was difficult. For the majority of seasoned instructors, changing from the traditional methods of instruction to

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the technology-based teaching systems that the College had made available required a leap (field notes, February 2, 2001). About a year after the online distance-learning plan was developed, Helen Crump, one of the instructors from the Division of Business and Science, visited the researcher in her office. Helen Crump said, "I've become a planner, designer, mentor, and facilitator for my online students" (field notes, May 2002). She said that due to lack of adequate support, the instructors who taught online at RCC needed more than merely adequate technology skills. Those who taught online had to upload their own files, deal with hardware and software problems, and help students overcome their own problems with the technology (field notes, May 2002). Helen Crump said that the online technology training that she had received had met her professional growth needs and helped her enhance her students' learning.

Student Services

Student support services was one of the three areas (the others being curriculum and technology) that the task force identified as essential to begin and maintain a successful online distance-learning program. First, the task force created Web pages that provided necessary information. Second, they added forms and communication methods to the Web pages. Lastly, they designed ways to offer services that provided personal interaction.

The comparable advising services, as determined by the College and/or the department, would be available to students both on and off campus. This would be accomplished synchronously by telephone at specified, published times, and asynchronously by e-mail and fax. Frequently requested advising information would be made available via the World Wide Web.

The associate dean of student services stated, "Online distance learning is not just

about teaching and learning; it is about giving students who are not able or not willing to

come to campus an experience equivalent to [the experience of] the on-campus student"

(Mike Martin, personal communication, October 3, 2005).

Student Training and Support

Members of the task force knew that the majority of students at the College were

probably not familiar with how to take a class online and possibly not even familiar with

how to use the Internet. In addition, online courses used chat rooms, discussion boards,

research hyperlinks, and postings about the syllabus and assignments. Members of the

task force concluded that student orientation to online courses and student socialization

with other online students would greatly affect their success in online courses. For this

reason, task force members recommended that the instructional technology specialist post

notices on campus bulletin boards and on the College's distance-education home page

that advertised free student orientation workshops for students during the first two weeks

of every semester.

> The majority of our students tell us that they chose to learn online because
>
> they need one of two things: flexibility to choose when during the day or
>
> night they study, or they need the portability to choose where they study.
>
> Some of our students travel with their job or are in the military, [or they]
>
> have physical disabilities or family obligations, and this is a way [that
>
> makes it possible] for them to continue their education. Many have
>
> selected to learn online because they simply cannot commute to the
>
> nearest campus. Those folks have chosen to focus on the content of the

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course during the time they would have been focused on the commute.

(James Barajas, personal communication, February 1, 2006).

Certain people are better suited to distance learning than others. A student who succeeds in distance education is generally self-motivated and self-disciplined, has the ability to work independently, is comfortable with the written word and the use of e-mail, and will ask for help when needed (Hache, 2000; Levy, 2006; Richart, 2002; Saba, 2000). Although commuting time is reduced or eliminated, an online student still must have the time to dedicate to coursework. Students in an online classroom should expect to spend as much or more time on their course than would be the case in an onsite classroom. Additionally, a distant learner must meet the technical requirements and be comfortable with the equipment (field notes, February 2006).

Copyright and Ownership for Online Courses

Copyright law is a major area that affects institutions of higher education. At the College, instructors have been accustomed to the idea that they own their own work, even if they do not legally own any intellectual property rights to it. The policy for intellectual property is defined in RCC's *Policies and Procedures Manual* (30.11). In sum, the faculty member retains ownership if the faculty member creates all of the course content and receives no assistance from the institution (release time or stipends). For cases in which the faculty member creates the material, but does receive assistance from the institution (considered "work for hire" under the intellectual property rights law), RCC owns all intellectual property rights to the material. Upon leaving the College, or if the faculty member who has created the course elects not to teach the course, the faculty

member may retain copies of any content material developed or created; however, RCC has the right to retain, modify, and offer the course using an alternate qualified instructor.

Faculty Compensation

The task force determined that if a full-time RCC faculty member was responsible for developing an online course (three-credit) for the first time, that faculty member would receive a one-time $1,500 stipend when the training requirement had been met. For a two-credit course, the stipend was $1,000, and for a one-credit course, the stipend was $500. This stipend for developing a course was not granted to adjunct faculty. A one-credit-hour overload stipend was granted to a faculty member (full-time or adjunct) who taught the course. Faculty members developing a second new online course did not receive the initial development stipend for this or any subsequent new online course that they developed.

After task force members realized the amount of work that was involved in the development of an online course, they revised the policy. Faculty members were then paid a development fee (stipend) for each additional online course (but only for the first time each one was taught). Those who had received the initial $1,500.00 stipend were paid a $500.00 development fee for any subsequent new online course that they developed. In addition, adjunct instructors were paid an amount equal to what full-time faculty was paid for developing first-time and subsequent courses.

Distance-Learning Infrastructure Redesigned

In January 2003, at the direction of Dr. Remington, the new Dean of Instruction at RCC, the researcher and Howard Johnson began investigating the development of a long-range plan for the Department of Distance Education. A task force was formed to

determine where the College wanted to be five years from that date and what it would take to get there. "It [distance education] had become too large a project for one department to handle" (Dr. Remington, personal communication, December 12, 2005).

The task force was composed of five division chairs, the researcher, Howard Johnson, and the dean of information services. The members of the task force met biweekly for three months to collaborate on long-range planning for the College. After weeks of consideration, the researcher suggested that she would concede her role in distance education and support Howard Johnson in his desire to add the ITV responsibilities to his workload. Still employed under the Title V grant, Johnson assumed the title of coordinator of distance education in January 2004.

Under Johnson's leadership, the College's nine online courses, which began with 185 online students, had grown to over 140 courses and 3,000 online students by January 2003. In April 2003, the College received accreditation for the first entirely online degree plan available within the State of New Mexico: College Studies. In the spring of 2005 the College began hosting the entire College's (three campuses) complement of online courses and students. Howard Johnson left the College in July 2005 to accept a position at an institution in South Dakota. Howard's supervisor at RCC, James Barajas, Director of the Title V Grant, assumed his distance learning responsibilities. When the Title V Grant expired in 2007, Barajas was to become the Director of Distance Learning at the College.

In July 2004, the researcher's department of learning technologies was realigned to report to the dean of information services. She accepted responsibility for strategic planning and ongoing improvement of pedagogical and research technology and media

services. In her new role she consulted proactively with faculty and staff, explored ways in which services to teaching and research could continually evolve to meet the needs of school's curriculum. In addition, to assure high quality user support for both the academic and administrative communities, the researcher oversaw the Client Services, Help Desk, Technical Support Services, and Media Services. Special focus was placed on delivery of course and project support to staff and faculty.

Online Server Crashes- Distance-Learning Infrastructure Redesigned

RCC continued to be in the forefront of offering its students a wide variety of instructional courses, programs, and delivery methods, including the latest advancements in distance learning. In late April 2007, the WebCT server housed at the RCC campus and used to conduct online courses crashed, resulting in the loss of data. Over 2000 students were enrolled in WebCT, which was used to conduct online courses and class discussions, store grades and turn in assignments. College officials assessed the scope of the computer malfunction and whether lost academic data for thousands of students taking online courses could be retrieved. Data retrieval experts were brought in to work on the server in hopes of saving some data. A temperature rise in the room where the server was stored led to the crash, according to technical experts. The President of the College stated, "It was a piece of equipment that failed. It happens every now and then, (but) the worst part about this was the fact that the backup was inadequate," citing poor planning at the root of the issue. The President said he believed faculty had enough of a basis for reconstructing students' grades because most of the semester had passed, and stressed fairness to the students will be a priority. "I think bad things happen to good

universities," he said. "Anybody can have these problems. We just were not prepared nearly as well as we should have been. There's not a nice, euphemistic way of saying it."

As a result of the crash of the WebCT server James Barajas, Director of the Title V Grant, and the researcher's supervisor, the dean of information services, were relieved of their duties. The researcher was reassigned as the director of distance education at the College in July 2007. Since that time, the College has joined a statewide eLearning system that encompasses all aspects of learning from traditional public and higher education environments to teacher professional development, continuing education and workforce education. The initiative was announced by the state's Governor in October 2006, and followed by legislation sponsored by two state representatives in the 2007 session. The College was required to onboard with the new statewide program by fall 2009. In preparation, one faculty member from each of the five divisions on campus volunteered to serve as a Blackboard trainer who would attend train-the-trainer sessions conducted by an outside consultant. The training program was based on a professional training framework that promoted core competencies and best practices in training, ensuring that the College's Blackboard user community as a whole would have access to the highest quality training program. The faculty trainers were then tasked with training and supporting others in their divisions as they moved their courses from WebCT to Blackboard Vista 8. Each faculty trainer was compensated for their time, however, faculty who were learning the new LMS and moving their courses over to the new platform were not.

This information supports what emerged as the guiding conceptual framework for adopting distance education innovations as shown in the answer to Research Question 4.

Summary for Research Question Three

Research Question Three was: "How did faculty at the College rethink and restructure their plans for the two distance education systems to facilitate their adoption?" By looking at nine types of analysis, (1) the attitude component of the 31-item Distance Education Survey (DESI) (Appendices A, Section I), (2) the Stages of Concern Questionnaire (SoCQ) (Appendices A, Section II), (3) the self-efficacy component of the survey (Appendices A, Section III), (4) focus group interviews, (5) individual interviews, (6) workshops, (7) site visits, (8) communications, and (9) documents, it can be concluded that these are the major findings for this question. The following four categories and underlying themes had the most effect on the process of how faculty at the College rethought and restructured their plans to facilitate the adoption of the two distance education systems:

Obtaining the necessary tools and skills

- Professional development

- Addressing creation of distance education courses

Recognizing the value of distance education in postsecondary education

- Reaching new audiences

- Student's ability to learn any time and any place

- Freeing students from traveling long distances

- College's ability to compete with the for-profit institutions

- Keeping College programs alive

Eliminating institutional adoption barriers

- Student advising

- Library services

- Registration

Addressing faculty concerns

- Time commitment associated with distance education

- Training to implement distance education

- Faculty compensation and incentives for distance education

- Ability to monitor identity of distance education students

- Lack of technical support

- Student evaluation, testing, and assessment

Research Question Four: "What emerges as a guiding conceptual framework for adopting distance education innovations?"

The case study examined the faculty adoption of distance education in a rural community college over a span of ten years, beginning in 1998 with the adoption and implementation of an instructional television (ITV) system and ending in 2009 with the adoption and implementation of an online distance education system. During the ten year time span of this study, the development of the Internet and improvement of technologies that support online learning environments (WebCT and Blackboard) significantly altered the education landscape at Renaissance Community College (RCC).

This emerging conceptual framework for adopting distance education innovations at the College involves making the distance-learning program a central focus of the instructional area's strategic planning process. It should be noted that faculty members are central to distance teaching adoption. In order for the assimilation of distance education to occur, the institution must realign its principles and practices. The attributes of the innovation (ITV/online learning) must be enhanced so that distance education is perceived by faculty as offering multiple advantages such as being easy to use and compatible with traditional academic norms. All stakeholders should be involved from the very beginning in determining the priorities, policies and procedures for adopting and implementing distance education. Focus should be placed on budget and personnel planning, critical pedagogic issues and teaching modes and methods. Essential areas needed to begin and maintain a successful distance education program should be identified such as student support services, curriculum and technology. A written document that outlines the policies and procedures for the distance education program

should be drafted considering the following seven factors: vision and plans, curriculum, staff training and support, student services, student training and support, copyright and intellectual property and faculty compensation. A long range distance education plan should be developed and regularly evaluated concerning what has been done and what needs to be done. Goals for the distance-education program should be set such as: increasing educational access for students unable to attend classes on campus, ensuring that all online courses meet and maintain the highest of quality standards, fully utilizing the resources of the College, and enhancing instruction by integrating technology into the curriculum. Instructors should be provided with the necessary training, mentoring, and support by implementing a technology enhanced E-learning[13] training program for faculty and staff. A trainer to direct the training and facilitate the redesign of on-campus courses to an online format and an instructional technology specialist to teach workshops should be hired. Faculty who retire or quit should be replaced with instructors who fit into the emerging philosophies of teaching at a distance. The appropriate division deans should identify priority courses and programs for online delivery. Comparable advising services should be available to students both on and off campus. Web pages should be created that provided the necessary distance education information including forms and communication methods. Ways to offer services that provide personal interaction should be designed. Student orientation to online courses should be provided. A long-range plan for the creation of a Department of Distance Education should be made.

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Summary for Research Question Four

Research Question Four was: "What emerges as a guiding conceptual framework for adopting distance education innovations?" By looking at nine types of analysis, (1) the attitude component of the 31-item Distance Education Survey (DESI) (Appendices A, Section I), (2) the Stages of Concern Questionnaire (SoCQ) (Appendices A, Section II), (3) the self-efficacy component of the survey (Appendices A, Section III), (4) focus group interviews, (5) individual interviews, (6) workshops, (7) site visits, (8) communications, and (9) documents, it can be concluded that these are the major findings for this question:

Distance-learning program must

- Be a central focus of the instructional area's strategic planning process
- Involve stakeholders from the very beginning
- Consider pedagogical issues and teaching modes and methods

Essential areas must be identified such as

- Student support services
- Curriculum and
- Technology

A long range plan must be developed including

- Curriculum
- Staff training and support
- Student services
- Student training and support
- Copyright and intellectual property and

- Faculty compensation

Comparable advising services should be made available including

- The creation of Web pages that provided necessary information

- Designing ways to offer services that provide personal interaction

Research Question Five: "What are the implications for faculty development?"

Analysis of data from the Stages of Concern Questionnaire, the Distance Education Survey (DESI), the self-efficacy component of the questionnaire, focus group interview transcripts, individual interview transcripts, the researchers observations and recorded comments that participants made during meetings and after staff development workshops, and document analysis (meeting agendas, E-mail correspondence) confirmed that faculty development enhanced understanding of distance education and related technologies among faculty members.

Findings from Faculty Development Workshops

Faculty were given the opportunity to become knowledgeable about distance education and the use of the instructional television equipment during three hands-on ITV workshops conducted during the fall of 1998 (August – October). Written comments on open-ended surveys administered following each of the staff development workshops revealed both changes in attitude and self-efficacy of participants over time. Initial anxieties and intense personal focus on use of the ITV technology (present prior to staff development and expressed on open-ended surveys following Workshop #1) dissipated after the initial hands-on training (Workshop #2) and the interactive video teleconferencing (Workshop #3).

Workshop #1 (August 1, 1998) did not include use of the ITV equipment. In this session the differences between teaching in a traditional and an instructional television classroom were explored as well as effective strategies for teaching on ITV. At that time (August 1998) the six high schools were not yet connected via T-1 (high speed digital channel) lines to the College's asynchronous transfer mode (ATM) network.

Workshop #2 (September 4, 1998) concerned a brief overview of the ITV system, course design and development, materials design and development, operation of the equipment, computer interaction with ITV, and the administrative, legal, and ethical issues.

Workshop #3 (October 2, 1998) concerned how to use the completely automated ITV equipment and gave faculty members an opportunity to practice using the system when "linking" to a distant-site classroom. Comments of participants recorded on open-ended surveys reflected much lower anxiety levels following Workshop #2 and Workshop #3 than had been expressed following Workshop #1.

Concerns Recorded on Open-ended Surveys Following Workshop #1

- "I want to learn about the equipment" (Comment from Mary Albright after Workshop #1, August 1, 1998).

- "Let's play with the equipment" (Comment from Kate Anderson after Workshop #1, August 1, 1998).

- "I want to learn how to use the ITV equipment" (Comment from Helen Crump after Workshop #1, August 1, 1998).

- "I'm ready to learn about the equipment" (Comment from Walter Briggs after Workshop #1, August 1, 1998).

- "I want to use the equipment" (Comment from Lloyd Ramirez after Workshop #1, August 1, 1998).

- "I would enjoy learning about the equipment" (Comment from Chris Torres after Workshop #1, August 1, 1998).

- "I want hands-on use of the ITV equipment" (Comment from Jane Zamora after Workshop #1, August 1, 1998).

Concerns Recorded on Open-ended Surveys Following Workshop #2

- "Individual practice on the equipment was wonderful!" (Comment from Mary Albright after Workshop #2, September 4, 1998).

- "It was fun to see how easy it is to use the equipment" (Comment from Kate Anderson after Workshop #3, October 2, 1998).

- "Using the equipment was easy. I know I'm going to like teaching on ITV." (Comment from Lloyd Ramirez after Workshop #2, September 4, 1998).

- "Hands-on! This is what I've been waiting to do!" (Comment from Jane Zamora after Workshop #2, September 4, 1998).

Concerns Recorded on Open-ended Surveys Following Workshop #3

- "Faculty training should be required for all ITV instructors" (Comment from Mary Albright after Workshop #2, October 2, 1998).

- "These training classes have convinced me that I can do this" (Comment from Kate Anderson after Workshop #3, October 2, 1998).

- "Interaction between the sites was interesting" (Comment from Walter Briggs after Workshop #3, October 2, 1998).

- "These workshops are really important for the faculty" (Comment from Helen Crump after Workshop #3, October 2, 1998).

- "Please make these workshops available to ALL faculty members" (Comment from Jane Zamora after Workshop #3, October 2, 1998).

Faculty training made a big difference to instructors who wanted to learn the new skills required to teach with the ITV technology. Training participants realized that their own attitudes and expectations for teaching on television had changed after using the teleconferencing equipment.

> Since we did not have instructional designers available to assist us with the ITV course and materials development I decided to take the faculty development classes. After all, I had been in education long enough to remember using a thermo fax machine. (Chris Torres, personal communication, November 20, 1998)

Findings from Stages of Concerns Questionnaire (SoCQ)

Results of Section II of the SoC Questionnaire that dealt with Concerns showed essential changes between data obtained at the start, mid point, and at the end of study. When the SoC Questionnaire was completed prior to the beginning of the study in 1998, the majority of early Concerns were at the SELF level. Some faculty members indicated little concern about their involvement with the innovation while others indicated a general awareness of the innovation and an interest in learning more about the details. Still others expressed concern about the demands of the innovation and their adequacy to meet those demands. By 2003, the faculty's earlier concerns about the innovation had been resolved and new concerns had emerged at the TASK and IMPACT levels. Concerns at the TASK level related to efficiency, organizing, managing, and scheduling the ITV innovation while concerns at the IMPACT level related to the consequences of using the innovation, collaborating with others, and refocusing their efforts on changing or replacing the ITV innovation. By 2009 when the study participants completed the

Stages of Concern Questionnaire (SoCQ) for the final time, the majority of the faculty was unconcerned users of the ITV innovation (high Stage 0). Others were focusing on exploring the possibility of making major changes to the innovation or replacing it with a more powerful alternative such as online learning (Stage 6). Over time, following successful experience and the acquisition of new knowledge and skills faculty user's concerns about the ITV innovation progressed toward the later, higher-level stages (IMPACT concerns).

Findings from Focus Groups

In the focus groups, faculty members spoke openly and freely about their understanding of the technologies associated with the ITV system. The transcripts showed that faculty was making progress implementing the innovation. Participants shared what worked and what did not work for them; they shared their division's plans for teaching courses on the ITV system; they offered suggestions for diffusing information about the ITV system and engaging other faculty members in its use. These actions demonstrated a level of self-confidence and self-efficacy that would not have been possible prior to staff development and on-site opportunities to work with the technology.

Findings from Self-Efficacy Questionnaire

Analysis of the self-efficacy component of the questionnaire (Tables 33 and 34) revealed that the self-efficacy of the participants increased in every category as a result of staff development. Faculty members showed greater self-efficacy and comfort level towards using the technologies associated with the Instructional Television system, in particular, electronic mail (Change in category mean: +1.37/5.00) and fax machine

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(Change in category mean +1.67/5.00). The largest change was shown to be self-efficacy towards use of the video conferencing equipment (Change in category mean: +2.28/5.00). Participants exhibited more positive feelings towards serving as a change agent at the College (Change in category mean: +1.63/5.00). The "comfort/anxiety" level for faculty members also became more positive (Change in category mean: -0.50/5.00). The item number in this category receiving the most positive response was "Item 1," the statement regarding "feeling at ease learning about distance-education technologies" (Change in category mean: +1.07/5.00).

Using Distance Education equipment and/or software was identified as the most important activities for generating interest and enthusiasm for teaching at a distance.

Analysis of focus group transcripts, open-ended surveys, personal correspondence, and the researcher's notes and comments showed that participants felt that using the ITV equipment and online learning software helped them become more enthusiastic about teaching at a distance.

Findings Following Faculty Development Workshops

Faculty members recognized that their own attitudes and expectations for teaching on television had changed after participating in training and practicing with the equipment.

- "I became enthusiastic about teaching on ITV during our third workshop. We connected to two remote locations and I began to understand the power of the technology." (Zachary Binx, Focus Group Interview #2, November 11, 2005).
- "Faculty needs to experience teaching on the ITV system. It makes a big difference." (Walter Briggs, Focus Group Interview #2, November 11, 2005).

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- I was convinced to teach on the system after I practiced sending a lecture to a distant site during the third workshop. (Jim Candelaria, Focus Group Interview #2, November 11, 2005).

- "I developed a "can-do" attitude towards ITV instruction after I had a chance to work with the technology following our training activities." (Helen Crump, Focus Group Interview #3, November 18, 2005).

- "With hands-on experience, I began to see the ITV experience as an opportunity rather than as a burden." (Mary Jaramillo, Focus Group Interview #1, November 4, 2005).

- "When I became familiar with the ITV technology I felt more enthusiastic about teaching at a distance." (Carol Lamure, Focus Group Interview #1, November 4, 2005).

- When I experienced interacting with my remote students in real time I became very interested in teaching on the ITV system." (Lloyd Ramirez, Focus Group Interview #1, November 4, 2005).

Findings from In-Depth Interviews

RCC faculty recommended additional staff development and preparation time for faculty teaching at a distance. Analysis of responses to in-depth interviews conducted during a five month period, January through May 2009, supported this statement. Faculty teaching on the instructional television system reflected on their experiences during the individual interviews. They noted that teaching styles needed to be altered and that additional time would be needed to prepare courses for delivery via distance education.

- "Faculty really needed instructional design and development support to learn how to develop and maintain their online courses." (Mary Albright, personal communication, March 11, 2009)

- Teaching online is the new to our faculty and the support of the faculty trainers will be critical for their success. (Zachary Binx, personal communication, March 13, 2009)

- The process of developing an online course is very tedious. Without adequate training and technical support, faculty will get frustrated and overwhelmed." (Walter Briggs, personal communication, March 18, 2009)

- "Before an instructor attempts to develop an online course they need to realize that it requires a long-term commitment. Teaching online is not an easy task and it will take time for them to become a proficient user." (Jim Candelaria, personal communication, April 1, 2009)

- "Some instructors are very resistant to the change and intimidated by the technology. So, designing an entire course online could be a daunting experience." (Mary Jaramillo, personal communication, July 2, 2009)

- "Some faculty may feel overwhelmed by the prospect of teaching online and will need additional faculty training." (Kathy Madrid, personal communication, May 23, 2009)

Summary for Research Question Five

Research Question Five was: "What are the implications for faculty development?" By looking at nine types of analysis, (1) the attitude component of the 31-item Distance Education Survey (DESI) (Appendices A, Section I), (2) the Stages of

Concern Questionnaire (SoCQ) (Appendices A, Section II), (3) the self-efficacy

component of the survey (Appendices A, Section III), (4) focus group interviews, (5)

individual interviews, (6) workshops, (7) site visits, (8) communications, and (9)

documents, it can be concluded that these are the major findings for this question.

Practical and effective faculty development programs are vital to individual and

institutional success including

- Course planning and organization that capitalize on distance learning strengths

  and minimize constraints

- Verbal and nonverbal presentation skills specific to distance learning situations,

- Collaborative work with others to produce effective courses,

- Ability to use questioning strategies, and

- Ability to involve and coordinate student activities among several sites

Faculty must be trained in the technology and the pedagogy of distance learning in

order to be capable of teaching to two types of audiences

- The on-campus students and

- The distance learners

Administrators must provide institutional support

- Monetary incentives

- Instructional design support and

- Technology training

<div align="center">**Conclusion**</div>

In Chapter 4 the researcher provided data analyzed from each of the quantitative

and qualitative sources in order to answer the research questions developed prior to the

study and presented in Chapter 1. The RCC faculty descriptions in this chapter point out

the factors that influence faculty members' acceptance and adoption of distance

education technologies, their stages of concern, and their role in the diffusion of

innovations. In terms of their roles in the diffusion of instructional television and online

learning it was important to consider their understanding of the innovations, and the types

of support that would have helped them in the adoption process. Although this was a

single case study, the findings of this research may be expected to reflect the challenges

and experiences of other rural community college faculty as they explore adopting and

implementing a distance education innovation. Chapter 5 will provide a summary,

conclusion, and recommendations based on the findings described in this chapter. Table

38 provides a summary of research questions and findings.

Table 38. Summary of Research Questions and Findings

Research Questions	Findings
1. "How did the community-college faculty characterize the process of adopting distance education through two distance education systems?"	**Faculty was open to participating in distance education and wanted more information on** • Analysis of their role • How the innovations would affect them personally • Demands of the innovation • Advantages and Disadvantages • Cost-effectiveness **Faculty was interested in technical training and support** **Faculty wanted to know about the opportunities available at RCC** **Faculty wanted to know about participation incentives** • Financial incentives • Release time

Research Questions	Findings
2. "What advantages and challenges did faculty at the College encounter as they adopted two different distance education systems for delivering instruction?"	**Intrinsic factors** • Intellectual challenge • Personal motivation to use technology • Ability to reach new audiences that cannot attend classes on campus **Extrinsic factors** • Credit toward promotion and tenure • Recognition and awards • Merit pay **Challenges** • Need to verify the presence of adequate faculty support systems • Concern about faculty workload • Training to implement distance education • Faculty compensation and incentives • Need to assess the presence of student support services

Research Questions	Findings
3. "How did faculty at the College rethink and restructure their plans for the two distance education systems to facilitate their adoption?"	**Obtaining the necessary tools and skills** • Professional development • Addressing creation of distance education courses **Recognizing the value of distance education in postsecondary education** • Reaching new audiences • Student's ability to learn any time and any place • Freeing students from traveling long distances • College's ability to compete with the for-profit institutions • Keeping College programs alive **Eliminating institutional adoption barriers** • Student advising • Library services • Registration **Addressing faculty concerns** • Time commitment associated with distance education • Training to implement distance education • Faculty compensation and incentives for distance education • Ability to monitor identity of distance education students • Lack of technical support • Student evaluation, testing, and assessment

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Research Questions	Findings
4. "What emerges as a guiding conceptual framework for adopting distance education innovations?"	**Distance-learning program must** - Be a central focus of the instructional area's strategic planning process - Involve stakeholders from the very beginning - Consider pedagogical issues and teaching modes and methods **Essential areas must be identified such as** - Student support services - Curriculum and - Technology **A long range plan must be developed including** - Curriculum - Staff training and support - Student services - Student training and support - Copyright and intellectual property and - Faculty compensation **Comparable advising services should be made available including** - The creation of Web pages that provided necessary information - Designing ways to offer services that provide personal interaction

Research Questions	Findings
5. "What are the implications for faculty development?"	**Practical and effective faculty development programs are vital to individual and institutional success including** • Course planning and organization that capitalize on distance learning strengths and minimize constraints • Verbal and nonverbal presentation skills specific to distance learning situations, • Collaborative work with others to produce effective courses, • Ability to use questioning strategies, and • Ability to involve and coordinate student activities among several sites **Faculty must be trained in the technology and the pedagogy of distance learning in order to be capable of teaching to two types of audiences** • The on-campus students and • The distance learners **Administrators must provide institutional support** • Monetary incentives • Instructional design support and • Technology training

CHAPTER 5

DISCUSSION AND RECOMMENDATIONS

The purpose of this longitudinal case study was to examine the faculty adoption of distance education in a rural community college over a span of ten years in the southwestern United States, beginning in 1999 with the adoption and implementation of an instructional television (ITV) system and ending in 2009 with the adoption and implementation of an online distance education system.

Chapter 5 discusses the findings, implications, and recommendations for the five research questions that framed this study. The questions are as follows:

1. How did the community-college faculty characterize the process of adopting distance education through two distance education systems?

2. What advantages and challenges did faculty at the College encounter as they adopted two different distance education systems for delivering instruction?

3. How did faculty at the College rethink and restructure their plans for the two distance education systems to facilitate their adoption?

4. What emerges as a guiding conceptual framework for adopting distance education innovations?

5. What are the implications for faculty development?

This discussion chapter presents the study's implications, limitations, recommendations and conclusions based on the key findings from each of the preceding questions. In this longitudinal study, the researcher used a mixed methods concurrent transformative approach, guided by the use of the theoretical perspectives of the Distance Education Survey Instrument (DESI) prepared and validated by Lucas (1995a), the

Concerns Based Adoption Model (CBAM) Stages of Concern (SoC) Questionnaire (1973), and Everett Rogers' (2003) diffusion of innovations research, as well as the concurrent collection of both quantitative and qualitative data. Quantitative data results were collected from three sections of a faculty survey administered in 1998, 2003, and 2009. These sections included 1) the Distance Education Survey Instrument (DESI), 2) the Stages of Concern (SoC) Questionnaire, and 3) the Self-Efficacy questionnaire. Qualitative data results were collected from 1) field notes and observer comments from faculty development workshops in 1998, 2) focus group interviews conducted in November 2005, 3) in-depth interviews conducted with participants in 2009, 4) field notes and observer comments from ITV site visits, and 5) field notes and observer comments from face-to-face, telephone, and e-mail correspondence gathered throughout the study.

In Chapter 5, the findings from Chapter 4 are considered as patterns in light of the relevant literature and theory to show where current theories or research converge with the findings and where they diverge or expand current theory. The discussion of implications pulls the theories and concepts into perspective for a clearer understanding of what strategies and practices serve to advance the efforts of rural community-college faculty as they adopt distance education innovations.

Research Question One

Research Question One: "How did the community-college faculty characterize the process of adopting distance education through two distance education systems?"

From the analysis of the responses to the Stages of Concern Questionnaire (SoCQ), five themes emerged: (1) faculty were open to participating in distance

education, (2) faculty wanted to know more about distance education including information on the advantages, disadvantages, and cost-effectiveness, (3) faculty were interested in technical training and support, (4) faculty wanted to know about the opportunities available at Renaissance Community College (RCC) to participate in distance education; and (5) faculty wanted to know about financial incentives and release time for participating in distance education.

These findings at Renaissance Community College (RCC) are similar to those found in many other distance education innovation adoptions. In the beginning of this study faculty were open to participating in distance education, however, they had many questions they wanted answered. Why should they become involved? What would enable or hinder them from participating? What would encourage or discourage them? What would they get out of it? These questions are not easy ones to answer because the issues of motivation and work satisfaction are complex. The answers depend on a number of factors that are different from one individual to another. The literature shows that encouraging faculty to participate in distance education involves the interaction of a number of variables including an individual's locus of motivation, personal values, institutional values, and intrinsic and extrinsic rewards. Some researchers cite positive motives for learning to teach at a distance that relate to a faculty members desire for self-improvement or professional development (C. B. Myers, Bennett, Brown, & Henderson, 2004; Tastle, White, & Shackleton, 2005). However, the research of Betts (1998), Hagovsky (2002), Keeton (2000), and Schoats (2002) found that the majority of faculty in their studies saw little or no career advantage for distance teaching, particularly when considering the extra work involved in developing distance education courses.

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Faculty at RCC wanted to know more about the potential advantages and disadvantages for their particular situations because they were uncertain about the role they would play and the demands that would be placed upon them by the innovations. A number of researchers describe characteristics of the institutional climate that encourage faculty to become involved in distance education programs including training in the skills of using distance education technology (Iken, 2000; Keen, 2001); technical support (Keeton, 2000; Martin, 2003; Tastle, White, & Shackleton, 2005); instructional support, such as assistance in instructional design (Lee, 2002); and student support services (Keen, 2001; Keeton, 2000). Faculty at RCC was interested in the availability of technical training designed to support their activities of teaching at a distance. Similarly, Ricci (2002) found that 80% of the of the participants in his study identified technology support for community college faculty as a priority. In addition, faculty studied by Lee (2002), Lindquist (2004), Nelson and Thompson (2005), and Kaml (2001) wanted their institutions to provide more technical training and support. In fact, the importance of faculty technical training to the success of any distance education effort has been widely acknowledged in the distance education literature (Bates, 2005; Davis & Roblyer, 2005; Epper & Bates, 2001; Gupton, 2004; Javeri & Persichitte, 2007; Osika, Johnson, & Buteau, 2009).

Faculty at RCC also wanted to know about financial incentives and release time for participating in distance education. The literature shows a high proportion of incentives for distance education relates to the issues of salary and workload. Faculty at RCC wondered if they would be given any monetary incentives for their involvement with distance learning. Although the literature shows additional financial considerations

were one of the most frequently offered incentives for distance teaching (Cook, 2003;

Kirk & Shoemaker, 1999; Lin, 2002), the prospect of financial gain was considered a low

motivator for faculty. In fact, unlike the faculty at RCC, the community college teachers

surveyed by Miller and Hussman (1999) saw distance teaching as part of their regular

workload.

Like the RCC study, workload considerations were important to the faculty

studied by Christo-Baker (2004), Iken (2000), and Martin (2003). Their findings showed

faculty highly valued release time from some portion of their teaching assignment to

develop distance education courses. Evidence provided by the research suggests that

institutions fail to provide time for course development and management apart from more

traditional teaching responsibilities (Christo-Baker, 2004; Curbelo-Ruiz, 2002; Gupton,

2004; O'Neil, 2006; O'Quinn, 2002).

Research Question Two

Research Question Two: "What advantages and challenges did faculty at the

College encounter as they adopted two different distance education systems for

delivering instruction?" Research question two was answered using a mixed methods

design. Major themes that emerged for question two indicate that three categories and

underlying themes explained the advantages and challenges faculty at the College

encountered as they adopted two different distance education systems for delivering

instruction. The advantages faculty encountered when adopting distance education

innovations at Renaissance Community College (RCC) were both intrinsic and extrinsic.

The intrinsic factors were (1) intellectual challenge, (2) personal motivation to use

technology, and (3) ability to reach new audiences. These findings at RCC are similar to

those found in other studies addressing higher education in the United States involving faculty members who teach courses at a distance. Intrinsic motives have consistently been at the top of the list of factors most influenced in faculty decisions to participate in distance education (Cook, 2003; Gupton, 2004; Hebert, 2003; O'Quinn, 2002; C. Schifter, 2000; Schifter, 2002a; C. C. Schifter, 2000). Similar to the findings in the RCC study, community college faculty studied by Miller and Hussmann (1999) and Tastle, White, and Shackleton (2005) rated self-fulfillment, the enjoyment of teaching, and professional challenge as their most motivating factors. Like RCC, making courses more accessible to geographically disadvantaged students (Christo-Baker, 2004; Kirk & Shoemaker, 1999; Ndahi, 1999) was cited as a student-centered factor that motivated faculty to teach at a distance.

The extrinsic factors faculty encountered when adopting distance education innovations at RCC were (1) credit toward promotion and tenure, (2) recognition and awards, and (3) merit pay. These findings are similar to those found in other studies addressing higher education in the United States. For example, community college faculty studied by Kirk and Shoemaker (1999) and Lin (2002) were found to be motivated by the prospect of being extrinsically rewarded with more money, equipment, or release time. However, unlike the findings at RCC, other research shows evidence that although extrinsic motives play a role in faculty decisions to participate in distance education, they are among the least motivating factors. Miller and Husmann (1999), Myers, Bennett, Brown, and Henderson (2004), O'Quinn (2002), and Wilson (2002) found the anticipation of rewards such as merit pay, tenure, and promotion credit were rated low by faculty.

The challenges faculty encountered at RCC when adopting two different distance education innovations were: (1) need to verify the presence of adequate faculty support systems, (2) concern about faculty workload, (3) training to implement distance education, (4) faculty compensation and incentives, and (5) need to assess the presence of student support services. These findings are similar to those found in other studies addressing higher education in the United States. Four of the five barriers found at RCC were consistently cited as influencing faculty participation in distance education: (1) lack of institutional support (Bader, 2004; Ndahi, 1999), (2) lack of release time for distance education course development (Christo-Baker, 2004; Gupton, 2004; O'Quinn, 2002), (3) lack of training (Lin, 2002; C. C. Schifter, 2000; Zirkle, Norris, Winegardner, & Frustaci, 2006), and (4) lack of compensation (Z. Berge & Muilenberg, 2003; O'Quinn, 2002). The fifth finding at RCC, issues addressing student support services, was not consistently found as a challenge in other studies. However, in one study by Bebko (1998) the availability of "technology training and technical assistance for students and student friendly student services" (p. 95) was identified as an intrinsic motivation for faculty participation in distance learning.

Distance education involves more than just the physical infrastructure of an institution. It also involves the human infrastructure (Daigle & Jarmon, 1997). As indicated in this study at RCC, faculty interest in distance education is growing. This and other studies recognize that the success of any distance education effort rests primarily on the commitment of the faculty (Gottschalk, 1997). Based on the RCC study, it is recommended that institutions interested in implementing or expanding distance education courses or programs begin to identify the factors that motivate their faculty to

participate in distance education, as well as identify factors that inhibit their faculty from participating in distance education.

The data analysis in this study indicated that intrinsic factors, such as intellectual challenge, personal motivation to use technology and ability to reach new audiences that cannot attend classes on campus, had a positive effect on distance education participation. In addition, extrinsic factors, such as credit toward promotion and tenure, recognition and awards, and merit pay, also had a significant effect on faculty participation in distance education.

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Research Question Three

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Research Question Three: "How did faculty at the College rethink and restructure their plans for the two distance education systems to facilitate their adoption?" Research question three was answered using a mixed methods design. Major themes that emerged for question three indicate that the following four categories and underlying themes had the most effect on the process of how faculty at the College rethought and restructured their plans to facilitate the adoption of the two distance education systems.

The first theme that emerged for research question three was the need for faculty at Renaissance Community College (RCC) to obtain the necessary tools and skills to learn to teach at a distance. The faculty recognized they needed to know how to use the appropriate technology and software in order to create quality, pedagogically sound distance education courses. These findings are similar to those found in the literature discussing the need for professional development at colleges and universities including methods to assist faculty in course design (Koehler, Mishra, Hershey, & Peruski, 2004) as well as becoming familiar with and applying educational technology (Kolbo &

Turnage, 2002; Osika, Johnson, & Buteau, 2009; Price & Oliver, 2007), such as distance education tools.

The second theme that emerged for research question three was recognizing the value of distance education in reaching new audiences by offering students the ability to learn any time and any place thereby freeing them from traveling long distances. These findings are similar to those found in the literature that speaks to the expanded reach of the community college to individuals who need to enhance their job skills, stay at home parents who want to earn their college degree, and rural students who cannot travel to and from campus in a reasonable time frame (Mullins, 2007). In addition to recognizing the value of distance education in reaching new audiences, RCC faculty saw distance education as an opportunity to compete with the for-profit institutions. By reaching out to off campus students, they also saw the potential of distance education to keep programs at the College with low enrollment alive.

The third theme that emerged for research question three was the elimination of distance education institutional adoption barriers such as the need for virtual student advising, library services, and registration. The literature reports regional accrediting bodies recognize that to be successful, distance learning programs must offer comprehensive support services to students at a distance (Western Interstate Commission for Higher Education, 2004). In the fall of 2008 the Instructional Technology Council (ITC) surveyed its members concerning what types of services they offer to their online students (Instructional Technology Council, 2008). Survey results confirmed that colleges are consistently aiming to offer online students a broad array of student services. Of the 139 institutions responding to the survey, 67% offered online counseling and

advising services, 94% offered online library services, and 92% offered online registration services.

The fourth and final theme that emerged for question three was that of addressing faculty concerns. RCC faculty saw the need to address concerns they had with the time commitment associated with distance education, issues with training, faculty compensation and incentives, technical support, and the evaluation, testing, and assessment of students. Four of these five faculty concerns are consistently cited in the literature as influencing faculty decisions to participate in distance education including lack of time, lack of institutional support such as training and technical support, and lack of compensation (Wolcott & Shattuck, 2007).

Research Question Four

Research Question Four: "What emerges as a guiding conceptual framework for adopting distance education innovations?" Table 39 outlines the conceptual framework for adopting distance education at Renaissance Community College that evolved from this study.

Table 39. Conceptual Framework for Adopting DE Innovations at RCC

Lessons Learned from RCC – Conceptual Framework for DE Adoption
Make the distance-learning program a central focus of the instructional area's strategic planning process
Involve stakeholders from the very beginning in determining the • Priorities • Policies and • Procedures for adopting and implementing distance education
Focus on • Budget and personnel planning • Critical pedagogic issues and • Teaching modes and methods
Identify essential areas needed to begin and maintain a successful distance education program such as • Student support services • Curriculum and • Technology
Draft a written document that outlines the policies and procedures for the distance education program.
Consider the following seven factors: • Vision and plans • Curriculum • Staff training and support • Student services • Student training and support • Copyright and intellectual property and • Faculty compensation
Develop a long range plan and regularly evaluate what has been done and what needs to be done.
Set goals for distance-education program such as: • Increasing educational access for students unable to attend classes on campus • Ensuring that all online courses meet and maintain the highest of quality standards • Fully utilizing the resources of the College • Enhancing instruction by integrating technology into the curriculum.
Recommend replacing faculty who retire or quit with instructors who fit into the emerging philosophies of teaching at a distance.
Allow the appropriate division deans to identify priority courses and programs for online delivery
Make comparable advising services available to students both on and off campus • Create Web pages that provide necessary information • Add forms and communication methods to the Web pages • Design ways to offer services that provide personal interaction
Provide student orientation to online courses

Research Question Five

Research question five: "What are the implications for faculty development?"

The results of this study have a number of implications for faculty development. Prior to the beginning of the study, faculty at Renaissance Community College (RCC) had delivered courses and programs in only a traditional, face-to-face manner. Within the College's faculty was a wide range of attitudes towards and experiences with technology, both in and out of the classroom. Some faculty had great expertise regarding the use of technology, while others harbored great trepidation about using it. Getting two new distance education innovations adopted (ITV and online learning) by the faculty required a period of years from the time when they became available to the time when they were widely adopted. In each case, when confronted with a new distance education innovation, many faculty members were found to be unprepared for the fundamental differences in the roles required for teaching with that innovation. Practical and effective faculty development programs were vital to their success when adopting these innovations. Faculty had to be trained in both the technology and the pedagogy of distance learning in order to be capable of teaching to three types of audiences, the on-campus students, the ITV distance learners, and the online distance learners. Instructors at RCC had to become comfortable and effective with all the technology used in their distance education courses because, due to an insufficient number of resource staff available to assist them, they were ultimately responsible for developing them.

The 14 faculty in this study represented a cohort of early and mid-adopters of distance education technology. A standard strategy of presenting the technology itself and teaching faculty how to use it was most appealing and appropriate to faculty at RCC. For

example, faculty was given the opportunity to become knowledgeable about use of the instructional television equipment during hands-on ITV workshops. Written comments on open-ended surveys administered following each of the staff development workshops revealed both changes in attitude and self-efficacy of participants over time. Initial anxieties and intense personal focus on use of the ITV technology (present prior to staff development and expressed on open-ended surveys following the initial workshop) dissipated after an initial hands-on training and interactive video teleconferencing. Faculty training made a big difference to instructors who wanted to learn the new skills required to teach with the ITV technology.

In focus groups, faculty members spoke openly and freely about their understanding of the technologies associated with the ITV system. Participants shared what worked and what did not work for them; they shared their division's plans for teaching courses on the ITV system; they offered suggestions for diffusing information about the ITV system and engaging other faculty members in its use. These actions demonstrated a level of self-confidence and self-efficacy that would not have been possible prior to staff development and on-site opportunities to work with the technology. Faculty members recognized that their own attitudes and expectations for teaching on television had changed after participating in training and practicing with the equipment.

To gain the knowledge necessary to implement online curricula effectively, a technology enhanced E-learning[14] training program was implemented for a small group of RCC faculty. Following training they began the process of training other faculty in online learning strategies and online course design.

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14 An approach to facilitate and enhance learning through, and based on, both computer and communications technology.

The College continued to offer workshops to help prepare the instructors who had no experience teaching online to design, create, and teach online courses. These courses covered how to adapt course content for online learning and how to create, teach, and manage an online course. Though the principles of instructional design were not altogether different in online distance-learning from what they were for the traditional classroom, instructors needed training and support to be able to adopt this new teaching paradigm.

Effective online distance learning required instructors not only to have knowledge of their content area, but also to have interpersonal skills to communicate effectively with their students online. Six-hour training workshops for instructors were held twice per semester on Saturdays. Those who were unable to attend one of the scheduled Saturday workshops could arrange one-on-one training. All instructors developing or teaching Web-based courses were trained in course construction and online teaching pedagogy by a certified instructor or by an instructor designated by the director of distance education. Open labs, remedial training, and special topics were offered throughout the semester on campus.

After receiving technology training, instructors at RCC began to change the way in which they were preparing for their classes. For some, making these changes was difficult. For the majority, changing from the traditional methods of instruction to the technology-based teaching systems that the College had adopted required a leap. Faculty had to become planners, designers, mentors, and facilitators for their online students. Many colleges are grappling with this issue of how an institution provides training to faculty who wish to use technology in their instruction. For Renaissance Community

College, a public institution with limited funds, providing training has been a difficult undertaking. The researcher recommends further study of how distance education training affects faculty satisfaction with distance education and how training impacts faculty development and design of online courses.

Summary

This chapter presented an analysis of the key findings for each of the five research questions. The findings from Chapter Four were discussed in light of relevant related literature and theory. The links to theory or research offered support and an explanation of the findings. Institutions that are involved in or currently moving into the realm of distance education can benefit from the results of this study. The research findings agree with Hord et al.'s (1987) statement "the stage or stages where concerns are more (and less) intense will vary as the implementation of change progresses" (p. 30). In conclusion, it is vital to identify and properly confront concerns in order to empower faculty to engage in active distance teaching (Dede, 1996) if higher education is to meet its goal of broadening education access.

Significance

This study is significant in several ways. First, there is a lack of studies on the adoption cycle of distance education. Second, there is a lack of studies where the same group of faculty has adopted two different innovations over time. Third, there is a need to study the challenges and issues that would impact such adoptions in a rural community college context. The mixed methods nature of the research permitted the study to provide rich, detailed information about this complex process. This study has implications for all community college faculties that have been entrusted with the mission of adopting

distance education via innovative, cutting-edge innovations such as telecommunications and the Internet. Adopting a distance-education system imposes an obligation for all faculty involved to master new innovations and new ways of teaching or learning. This study delineated factors crucial to faculty adopting distance-education innovations at a rural community college. It also contributes to the growing literature concerning the adoption of distance education systems in rural settings.

Limitations

This study was limited to 14 faculty of a rural community college who volunteered to participate in this study. They may not be a representative sample of the entire College. The researcher was immersed in the setting as a non-participant observer and this approach is sometimes criticized on the grounds that people tend to behave differently when they know they are being observed.

Recommendations

Future research could increase our understanding of what influences and motivates faculty to adopt distance education innovations.

1. Based on the RCC study, it is recommended that institutions interested in implementing or expanding distance education courses or programs begin to identify the factors that motivate their faculty to participate in distance education, as well as identify factors that inhibit their faculty from participating in distance education.

2. The researcher recommends further study of how distance education training affects faculty satisfaction with distance education and how

technology training impacts faculty development and the design of online courses.

3. Based on the RCC study, research should be conducted to identify effective strategies and interactions that assist varied learner groups with acquiring skills and knowledge that they need to be successful in courses delivered via synchronous or asynchronous electronic transmissions, and that require them to work independently or as members of virtual teams.

4. Follow-up case studies should be done to determine if the findings from this study generalize to other rural community colleges who are considering implementing a distance education program.

5. Further research should be done to examine the faculty perceptions of instructional support in relation to their motivation, commitment, and satisfaction with distance learning.

6. Based on the RCC study, research should be conducted to identify how administrators can increase faculty participation in distance education to increase student learning.

7. Further research should be done to determine whether moving to the online environment impacts faculty teaching assumptions and beliefs facilitating changes in the online environment that in turn benefit their face-to-face teaching.

8. The researcher recommends further study of what tools administrators need to increase faculty participation in distance education in order to increase student learning and overall productivity for the institution.

Conclusion

Community-college faculty involved in this ten year longitudinal study characterized the process of adopting distance education through two distance education systems as adding value to the programs the College offered. They recognized the potential for enhancing learning opportunities through participation in teaching at a distance. This mixed methods research sought to identify themes, increase our understanding, create proposals, and provide a theory of the faculty adoption of distance education in a rural community college. The researcher concludes that distance education should remain consistent with and central to the stated mission of the College. Faculty adopting and implementing distance education technologies may require ongoing staff development to remain current with changing technology and software applications. Their access to appropriate technology and software as well as to support personnel will be critical to a successful program. It will also be important to make proper training available for students in utilizing the necessary technology. In addition, access to student services comparable to on-campus instructional programs such as admissions, orientation, financial aid, registration, advisement, tutoring, and other appropriate student services and technical support should be made available. The community college in this study, currently offers a mandatory general orientation course for all incoming students designed to introduce students to general study skills, time management skills, and services available for academic success. The researcher recommends incorporating additional content related to success in distance education courses.

APPENDIX A

Pre-Assessment Questionnaire

Renaissance Community College

Distance education is an innovation that will have an impact on the ways in which students and instructors interact with information, with each other, and with other individuals who share their interests, but are separated in time and space. You are pioneers in developing new ways of communication.

The purpose of this questionnaire is to determine how you feel about distance education delivered via compressed video; this is called the "innovation" in this questionnaire. The same questionnaire will again be administered following the training and a period of experimentation. Innovations commonly take three to five years before adoption and full integration, so you should not expect to become an expert in the time period between the "before" and "after" questionnaires.

There are four parts to this questionnaire. Part I includes questions about *attitude*. Part II represents the *progress of the innovation*. Part III covers your feelings of *self-efficacy*—how you rate your ability to work with the new types of equipment, as well as the entire process of delivering instruction via distance education. Part IV contains questions regarding *demographic issues*.

Results should provide useful information to institutions for future planning of distance-education Network use. Additionally, the responses will be used as part of my research for my dissertation that involves a study of the process of planning and implementation of distance education into a rural community college. The overall results will be shared with you and with the dean of instruction, the project director of

Renaissance Community College Distance Education Network. We are committed to providing you with the best information and materials we can to assist you in implementing distance education in our College.

Thank you for your support and assistance.

(**The following information is for tracking purposes only**)		
Please record a check mark beside the name of your division/department:		
Business/Science	Developmental Studies	Health
Liberal Arts	Career & Technical Ed	

Section I

Attitude towards Distance Education

The questions in this section have been adapted from those developed by M. H. Lucas (1995) and have been reproduced with permission from the author. Please use the following rating scale to indicate your *current attitude* towards distance education and circle the appropriate letter.

Section I. Attitude Towards Distance Education									
	Strongly Disagree 1	Disagree 2	Undecided 3	Agree 4	Strongly Agree 5				
1. Distance education can be a valuable addition to the programs my division/department offers.						1	2	3	4	5
2. It is not necessary to have a trial period before purchasing distance-education equipment.						1	2	3	4	5
3. Distance education can motivate instructors to use a variety of resources in the classroom to address different learning styles.						1	2	3	4	5
4. Distance education is a current fad.						1	2	3	4	5
5. Distance education is not difficult to understand.						1	2	3	4	5
6. Costs outweigh the potential benefits of distance education.						1	2	3	4	5
7. Distance education should be tried on a small scale first.						1	2	3	4	5
8. Distance education can show instructors and students how institutions can utilize technology effectively to aid learning.						1	2	3	4	5
9. Distance education can provide valuable enrichment to courses at the College.						1	2	3	4	5
10. It is very difficult to find non-technical articles or reports about distance-education technology.						1	2	3	4	5
11. Distance education will expand and enhance our curricular offerings.						1	2	3	4	5

Section I. Attitude Towards Distance Education										
	Strongly Disagree 1	Disagree 2	Undecided 3	Agree 4	Strongly Agree 5					
12.	If distance-education programs are unsuccessful, there should be a way to terminate them within a short period of time.					1	2	3	4	5
13.	Distance education will not lead to increased student interest in classroom learning.					1	2	3	4	5
14.	Distance-education programs are hard to coordinate when they involve more than one school system.					1	2	3	4	5
15.	It is difficult to know where to begin when you want to start a distance-education program.					1	2	3	4	5
16.	Distance education can do little to supplement and enhance my division's course offerings.					1	2	3	4	5
17.	It is not necessary to involve school administrators in distance-education in-service programs.					1	2	3	4	5
18.	I do not believe that I will see more interaction between teacher and student when distance education is used in the classroom.					1	2	3	4	5
19.	Distance-education technology is compatible with the goal of maximizing learning for each individual student.					1	2	3	4	5
20.	Distance education stresses technology more than educational principles.					1	2	3	4	5
21.	Distance education can help provide equity for school districts.					1	2	3	4	5
22.	Distance-education programs belong more in developing countries than in the United States.					1	2	3	4	5
23.	I will expect to see both students and teachers using distance education in the classroom.					1	2	3	4	5
24.	The public is in favor of distance education being initiated in the school districts that the College serves.					1	2	3	4	5
25.	I feel comfortable with distance-education technology.					1	2	3	4	5
26.	Distance education is effective in preparing students for learning in the "information age."					1	2	3	4	5
27.	Distance education is too hard to institute without a trial period.					1	2	3	4	5
28.	I do not feel that instructors will respond positively to distance education in the classroom.					1	2	3	4	5
29.	I am often confused by technical terms in distance education.					1	2	3	4	5

Section I. Attitude Towards Distance Education										
	Strongly Disagree 1	Disagree 2	Undecided 3	Agree 4	Strongly Agree 5					
30.	I do not feel that instructors will view distance education as a threat to their job security.					1	2	3	4	5
31.	Distance education can assist students in becoming more effective learners.[1]					1	2	3	4	5

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[1] This ends Section I. Please proceed to Section II.

Section II

Stages of Concern

The questions in this section form part of the *Concerns Based Adoption Model*. The items in this section were developed from typical responses of school and college instructors who were involved in the adoption of innovative practices in their respective institutions. For the purpose of this questionnaire, the *innovation* is defined as the *implementation of education using compressed video*.

A good portion of this questionnaire may appear to be of little relevance or irrelevant to you at this time. For the completely irrelevant items, please mark the circle "0" on the scale. Other items will represent those concerns you do have, in varying degrees of intensity and should be marked higher on the scale.

Example

Irrelevant	Not True of Me Now	Somewhat True of Me Now			Very True of Me Now	
0	1	2	3	4	5	6	7

Stages of Concern Questionnaire

Directions

Please respond to the items in terms of *your present concerns* or how you feel about your involvement or potential involvement with *distance education.* We do not hold any one definition of this program, so please think in terms of your own perceptions of what it involves. Remember to respond to each item in terms of your present concerns.

Section II. Stages of Concern

Irrelevant	Not True of Me Now		Somewhat True of Me Now			Very True of Me Now		
0	1	2	3	4	5	6		7

1.	I am concerned about students' attitudes towards this innovation.	0	1	2	3	4	5	6	7
2.	I know of some other approaches that might work better.	0	1	2	3	4	5	6	7
3.	I am more concerned about another innovation.	0	1	2	3	4	5	6	7
4.	I am concerned about not having enough time to organize myself each day.	0	1	2	3	4	5	6	7
5.	I would like to help other faculty in their use of the innovation.	0	1	2	3	4	5	6	7
6.	I have very limited knowledge about the innovation.	0	1	2	3	4	5	6	7
7.	I would like to know the effect of the innovation on my professional status.	0	1	2	3	4	5	6	7
8.	I am concerned about conflicts between my interests and my responsibilities.	0	1	2	3	4	5	6	7
9.	I am concerned about revising my use of the innovation.	0	1	2	3	4	5	6	7
10.	I would like to develop working relationships with both our faculty and outside faculty using this innovation.	0	1	2	3	4	5	6	7
11.	I am concerned about how this innovation affects students.	0	1	2	3	4	5	6	7
12.	I am not concerned about this innovation at this time.	0	1	2	3	4	5	6	7

Section II. Stages of Concern

Irrelevant	Not True of Me Now	Somewhat True of Me Now	Very True of Me Now		
0	1	2	3 4 5	6	7

13.	I would like to know who will make the decisions in this new system.	0	1	2	3	4	5	6	7
14.	I would like to discuss the possibility of using the innovation.	0	1	2	3	4	5	6	7
15.	I would like to know what resources are available if we decide to adopt this innovation.	0	1	2	3	4	5	6	7
16.	I am concerned about my inability to manage all the innovation requires.	0	1	2	3	4	5	6	7
17.	I would like to know how my teaching or administration is supposed to change.	0	1	2	3	4	5	6	7
18.	I would like to familiarize other departments or persons with the progress of this new approach.	0	1	2	3	4	5	6	7
19.	I am concerned about evaluating my impact on students.	0	1	2	3	4	5	6	7
20.	I would like to revise the innovation's approach.	0	1	2	3	4	5	6	7
21.	I am preoccupied with other things other than the innovation.	0	1	2	3	4	5	6	7
22.	I would like to modify our use of the innovation based on the experiences of students.	0	1	2	3	4	5	6	7
23.	I spend little time thinking about the innovation.	0	1	2	3	4	5	6	7
24.	I would like to excite my students about their part in this approach.	0	1	2	3	4	5	6	7
25.	I am concerned about time spent working with nonacademic problems related to this innovation.	0	1	2	3	4	5	6	7
26.	I would like to know what the use of this innovation will require in the immediate future.	0	1	2	3	4	5	6	7
27.	I would like to coordinate my effort with others to maximize the innovation's effects.	0	1	2	3	4	5	6	7
28.	I would like to have more information on time and energy commitments required by this innovation.	0	1	2	3	4	5	6	7
29.	I would like to know what other faculty are doing in this area.	0	1	2	3	4	5	6	7
30.	Currently, other priorities prevent me from focusing my attention on the innovation.	0	1	2	3	4	5	6	7
31.	I would like to determine how to supplement, enhance, or replace the innovation.	0	1	2	3	4	5	6	7

Section II. Stages of Concern

Irrelevant		Not True of Me Now		Somewhat True of Me Now			Very True of Me Now		
0		1	2	3	4	5	6		7

32.	I would like to use feedback from students to change the program.	0	1	2	3	4	5	6	7
33.	I would like to know how my role will change when using the innovation.	0	1	2	3	4	5	6	7
34.	Coordination of tasks and people is taking too much of my time.	0	1	2	3	4	5	6	7
35.	I would like to know how this innovation is better than what we have now.[2]	0	1	2	3	4	5	6	7

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[2] This ends Section II. Please proceed to Section III.

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Self-Efficacy

Please answer these questions using the following scale.

	Section III. Self-Efficacy.									
	Strongly Disagree 1	Disagree 2	Undecided 3	Agree 4	Strongly Agree 5					
	Comfort/Anxiety									
1.	I feel at ease learning about distance-education technologies.					1	2	3	4	5
2.	The thought of using distance-education technologies frightens me.					1	2	3	4	5
3.	I am not the type to do well with electronic technologies such as compressed video.					1	2	3	4	5
4.	I feel comfortable about my ability to work with distance-education technologies.					1	2	3	4	5
5.	Distance-education technologies are confusing to me.					1	2	3	4	5
6.	I am anxious about using distance-education technologies because I don't know what to do if something goes wrong.					1	2	3	4	5
	Electronic Mail *I feel confident. . .*									
7.	. . .logging onto e-mail.					1	2	3	4	5
8.	. . .reading mail messages on e-mail.					1	2	3	4	5
9.	. . .responding to messages on e-mail.					1	2	3	4	5
10.	. . .deleting messages received on e-mail.					1	2	3	4	5
11.	. . .sending mail messages on e-mail.					1	2	3	4	5
12.	. . .sending the same message to more than one person on e-mail.					1	2	3	4	5
13.	. . .logging off e-mail.					1	2	3	4	5
	Fax Machine *I feel confident…*									

	Section III. Self-Efficacy.					

		Strongly Disagree 1	Disagree 2	Undecided 3	Agree 4	Strongly Agree 5					
14.	. . .connecting to a number at a receiving site.						1	2	3	4	5
15.	. . .faxing a one-page document.						1	2	3	4	5
16.	. . .faxing a multiple-page document.						1	2	3	4	5
	Videoteleconferencing **I feel confident. . .**										
17.	. . .dialing remote sites.						1	2	3	4	5
18.	. . .adjusting camera for receiving site.						1	2	3	4	5
19.	. . .adjusting camera for viewing remote sites.						1	2	3	4	5
20.	. . .using the microphone appropriately to speak to remote sites.						1	2	3	4	5
21.	. . .recording sessions using the integrated VCR.						1	2	3	4	5
22.	. . .operating the document camera effectively.						1	2	3	4	5
	Serving as a "change agent" *I feel confident. . .*										
23.	. . .helping students learn using distance-education technologies.						1	2	3	4	5
24.	. . .conducting a discussion session or collaborative activities using materials provided by the distance-learning instructor.						1	2	3	4	5
25.	. . .helping students communicate with the instructor and students at other remote sites using the videoconferencing system.						1	2	3	4	5
26.	. . .managing a distance-education course.						1	2	3	4	5
27.	. . .helping to implement distance education at Renaissance Community College.						1	2	3	4	5
28.	. . .using the distance-education system to deliver programming to a community audience.[3]						1	2	3	4	5

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[3] This ends Section III. Please proceed to Section IV.

Section IV

Demographic Information

Please circle your answers.

1. What is your role in this project?
 	
    a. Full-time Faculty
 	
    b. Adjunct Faculty
 	
    c. Classroom Facilitator
 	
    d. Tech Support
 	
    e. Administrator
 	
    f. Other_____
	2. What is your gender?
	
	    a. Female
	
	    b. Male

3. What is your status in this project?
 	
    a. Faculty
 	
    b. Paid Classroom Facilitator
 	
    c. Tech Support
 	
    d. Administrator
 	
    e. Other _____
	4. How many years have you been employed in an academic setting?
	
	    a. 0 – 2
	    b. 3 – 6
	    c. 7 – 12
	    d. 13 – 20
	    e. 21 – 30
	    f. 30 – +

5. How many years have you been in your current position?
 	
    a. 0 – 2
 	
    b. 3 – 6
 	
    c. 7 – 12
 	
    d. 13 – 20
 	
    e. 21 – 30
 	
    f. 30 – +
	6. What is your highest level of education?
	
	    a. High School
	
	    b. AA
	
	    c. BA/BS
	
	    d. MA/MS
	
	    e. MA/MS + 30
	
	    f. Doctorate[4]

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[4] Thank you for your time and interest in taking this survey.

APPENDIX B

Open-Ended Survey

Renaissance Community College Rural Telecommunications Network

The following information is for tracking and **RESEARCH** purposes only. No attempt

will be made to report the identity of either the individual or the division/department.

(The following information is for tracking purposes only) Please record a check mark beside the name of your division/department:		
Business/Science	Developmental Studies	Health
Liberal Arts	Career & Technical Ed	

We value your opinions and need your support in order to provide you with the

best information and materials we can to assist you in implementing distance education at

Renaissance Community College.

Please check the appropriate staff development session:

	1. Distance Education: History, Theory, and Instructional Format.
	2. Videoconferencing and other equipment: Instructions and Practice.
	3. Sample Lesson

1. What was positive about your experiences today?

2. What was negative about your experiences today?

3. What was interesting about your experiences today?

4. What concerns do you have?

5. What suggestions do you have for improvement?

APPENDIX C

Final Interview Questions

The Eastern New Mexico College-Roswell Instructional Television Network (ITV) became operational in January 1999. You were among the first to use the system. Subsequently, the College adopted online teaching in the fall of 2000. I would like to compare your attitudes and experiences with both distance teaching mediums.

1. How did you feel adopting a new medium, Instructional Television (ITV), to teach?

2. Was it difficult transferring from face to face to ITV teaching?

3. What were the opportunities of this new innovation in your division?

4. What challenges did you encounter when moving from face-to-face teaching to teaching via ITV?

5. What are the rewards of teaching on television?

6. What is it about ITV teaching that you like?

7. What is it about ITV teaching that you dislike?

8. What are (were) the problems you experienced?

9. Do you believe this ITV innovation was a success?

10. If so, what made it successful for you?

11. What type of advice would you give others who are planning to adopt this innovation for use in a rural community college?

12. Did you transfer any techniques you learned in the ITV class to your face to face classes?

13. Are you still teaching by ITV?

14. What do you feel about this medium today?

15. Have you moved to online teaching (if yes, when did you start teaching online)?

16. How did you feel adopting a new medium (online teaching) to teach?"

17. Was it difficult transferring from face to face to online teaching?

18. What were the opportunities of this new innovation in your division?

19. What challenges did you encounter when moving from face-to-face teaching to teaching via online learning?

20. What are the rewards of teaching online?

21. What is it about online teaching that you like?

22. What is it about online teaching that you dislike?

23. What are (were) the problems you experienced?

24. Do you believe this online innovation was a success?

25. If so, what made it successful for you?

26. What type of advice would you give others who are planning to adopt this online innovation for use in a rural community college?

27. Did you transfer any techniques you learned in the online classes to your face-to-face classes?

28. Are you still teaching online?

29. What do you feel about this medium today?

How would you compare ITV and online courses? Was it easier for you to adopt online technology because you first a

APPENDIX D

Raw Data for Pre-Assessment Questionnaires Sections I and III

Section I

Section I. Attitude towards Distance Education									
Name	**Relative Advantage Question 1**			**Relative Advantage Question 6**			**Relative Advantage Question 11**		
	Distance education can be a valuable addition to the programs my division/ department offers.			Costs outweigh the potential benefits of distance education.			Distance education will expand and enhance our curricular offerings.		
	98	**03**	**09**	**98**	**03**	**09**	**98**	**03**	**09**
Albright	5	5	5	3	4	2	3	5	5
Anderson	4	4	5	3	5	2	3	4	4
Binx	4	5	5	3	4	4	3	4	5
Briggs	3	4	5	5	4	4	3	4	4
Candelaria	5	5	5	4	4	4	3	2	2
Crump	4	4	4	3	3	4	4	4	5
Jaramillo	4	5	5	3	4	2	3	5	5
Lamure	4	4	5	3	3	3	3	4	5
Landers	4	4	4	3	2	2	3	4	4
Madrid	4	5	5	3	5	3	4	5	5
Ramirez	5	5	5	3	5	5	5	5	5
Torres	4	4	5	3	4	4	2	4	5
Wright	4	4	4	3	4	2	2	3	4
Zamora	4	4	5	3	4	4	3	4	4
Raw Score	58	62	67	45	55	45	44	57	62
Mean	4.14	4.43	4.79	3.21	3.93	3.21	3.14	4.07	4.42
Standard Deviation	0.53	0.51	0.42	0.57	0.82	1.05	0.77	0.82	0.85

Section I. Attitude towards Distance Education									
Name	**Relative Advantage Question 16**			**Relative Advantage Question 21**			**Relative Advantage Question 26**		
	Distance education can do little to supplement and enhance my division's course offerings.			Distance education can help provide equity for school districts.			Distance education is effective in preparing students for learning in the "information age."		
	98	**03**	**09**	**98**	**03**	**09**	**98**	**03**	**09**
Albright	3	2	1	3	2	2	3	4	4
Anderson	3	2	2	3	1	1	3	4	4
Binx	3	1	1	3	4	4	4	4	4
Briggs	3	2	2	3	4	1	3	2	2
Candelaria	3	2	2	3	2	1	3	2	2
Crump	3	2	1	3	4	4	3	4	4
Jaramillo	3	2	2	2	2	2	3	2	2
Lamure	3	2	2	4	4	4	4	4	5
Landers	2	2	1	3	2	2	3	2	2
Madrid	2	2	2	3	2	2	3	3	4
Ramirez	2	2	1	4	4	5	4	4	5
Torres	2	2	2	2	2	4	3	3	4
Wright	2	2	1	3	4	4	3	4	5
Zamora	2	2	2	4	4	4	3	4	4
Raw Score	36	27	22	43	41	40	45	46	51
Mean	2.57	1.93	1.57	3.07	2.93	2.86	3.21	3.29	3.64
Standard Deviation	0.51	0.26	0.51	0.61	1.14	1.40	0.42	0.91	1.15

Section I. Attitude towards Distance Education									
Name	**Relative Advantage Question 31**			**Compatibility Question 4**			**Compatibility Question 9**		
	Distance education can assist students in becoming more effective learners.			Distance education is a current fad.			Distance education can provide valuable enrichment to courses at the College.		
	98	**03**	**09**	**98**	**03**	**09**	**98**	**03**	**09**
Albright	3	4	5	3	2	2	3	4	5
Anderson	3	3	3	3	2	1	3	4	4
Binx	3	3	3	2	2	1	3	3	4
Briggs	3	2	2	2	2	2	3	3	4
Candelaria	3	2	2	2	2	2	3	3	3
Crump	3	4	4	2	2	1	3	4	4
Jaramillo	3	2	2	3	2	1	3	4	4
Lamure	4	4	4	3	2	2	3	5	5
Landers	3	2	2	3	2	2	3	4	4
Madrid	3	3	5	3	2	2	3	2	4
Ramirez	4	4	4	2	2	2	4	5	5
Torres	3	4	4	3	2	2	2	3	3
Wright	3	4	5	3	2	1	3	3	4
Zamora	3	4	5	2	2	2	3	4	4
Raw Score	44	45	50	36	28	23	42	51	57
Mean	3.14	3.21	3.57	2.57	2.0	1.64	3.0	3.64	4.07
Standard Deviation	0.36	0.89	1.22	0.51	0	0.49	0.39	0.84	0.61

Section I. Attitude towards Distance Education									
Name	**Compatibility Question 14**			**Compatibility Question 19**			**Compatibility Question 24**		
	Distance-education programs are hard to coordinate when they involve more than one school system.			Distance-education technology is compatible with the goal of maximizing learning for each individual student.			The public is in favor of distance education being initiated in the school districts that the College serves.		
	98	**03**	**09**	**98**	**03**	**09**	**98**	**03**	**09**
Albright	3	1	5	3	4	4	3	4	4
Anderson	3	2	4	3	4	4	3	3	3
Binx	3	1	4	3	3	4	3	4	5
Briggs	3	4	5	2	2	4	3	2	2
Candelaria	2	2	2	3	4	5	3	2	2
Crump	2	4	4	2	2	3	4	2	2
Jaramillo	3	4	5	2	3	4	3	3	4
Lamure	3	5	5	3	3	4	4	4	4
Landers	4	4	4	3	4	4	3	2	2
Madrid	2	3	5	3	2	2	3	4	5
Ramirez	3	3	4	3	2	1	5	5	5
Torres	3	4	4	2	2	2	3	4	4
Wright	4	4	4	1	1	1	4	4	4
Zamora	3	5	5	3	1	1	4	3	3
Raw Score	41	46	60	36	37	43	48	46	49
Mean	2.93	3.29	4.29	2.57	2.64	3.07	3.43	3.29	3.5
Standard Deviation	0.61	1.32	0.82	0.64	1.08	1.38	0.64	0.99	1.16

Section I. Attitude towards Distance Education									
Name	**Compatibility Question 30**			**Complexity Question 5**			**Complexity Question 10**		
	I do not feel that instructors will view distance education as a threat to their job security.			Distance education is not difficult to understand.			It is very difficult to find non-technical articles or reports about distance-education technology.		
	98	**03**	**09**	**98**	**03**	**09**	**98**	**03**	**09**
Albright	4	4	5	3	4	4	3	3	3
Anderson	4	4	4	2	4	4	3	3	3
Binx	4	5	5	2	4	4	3	2	1
Briggs	3	4	4	1	4	4	3	2	2
Candelaria	3	2	3	3	2	2	3	2	1
Crump	4	5	5	2	4	5	3	2	2
Jaramillo	3	3	4	3	4	4	3	2	2
Lamure	3	4	4	3	4	4	3	3	2
Landers	2	3	4	2	2	4	3	2	1
Madrid	2	3	4	3	4	5	3	2	2
Ramirez	4	4	5	4	5	5	2	1	1
Torres	1	2	2	1	2	3	3	2	2
Wright	3	4	4	1	2	4	2	2	2
Zamora	4	4	4	3	4	4	3	2	2
Raw Score	44	51	57	33	49	56	40	30	26
Mean	3.14	3.64	4.07	2.36	3.5	4.0	2.86	2.14	1.86
Standard Deviation	0.94	0.92	0.82	0.92	1.01	0.78	0.36	0.53	0.66

Section I. Attitude towards Distance Education									
Name	**Complexity Question 15**			**Complexity Question 20**			**Complexity Question 25**		
	It is difficult to know where to begin when you want to start a distance-education program.			Distance education stresses technology more than educational principles.			I feel comfortable with distance-education technology.		
	98	**03**	**09**	**98**	**03**	**09**	**98**	**03**	**09**
Albright	5	5	5	3	4	2	2	4	5
Anderson	3	4	4	2	2	2	3	4	5
Binx	3	4	4	3	4	2	4	4	5
Briggs	3	4	5	3	2	2	1	3	4
Candelaria	3	3	3	3	2	2	1	3	4
Crump	4	5	5	2	2	2	3	5	5
Jaramillo	3	4	4	3	4	2	3	5	5
Lamure	3	4	4	3	2	2	3	4	5
Landers	2	3	4	3	2	2	1	3	4
Madrid	3	4	4	3	2	4	2	3	4
Ramirez	3	4	4	3	2	1	5	5	5
Torres	3	3	3	3	2	2	1	2	4
Wright	4	5	5	3	3	3	3	4	4
Zamora	5	5	5	3	2	1	2	3	4
Raw Score	47	57	59	40	35	29	34	52	63
Mean	3.36	4.07	4.21	2.86	2.5	2.07	2.43	3.71	4.5
Standard Deviation	0.84	0.73	0.69	0.36	0.85	0.73	1.22	0.91	0.51

Section I. Attitude towards Distance Education									
Name	Complexity Question 29			Trialability Question 7			Trialability Question 2		
	I am often confused by technical terms in distance education.			It is not necessary to have a trial period before purchasing distance-education equipment.			Distance education should be tried on a small scale first.		
	98	03	09	98	03	09	98	03	09
Albright	2	1	1	1	2	2	5	5	5
Anderson	5	3	1	3	2	2	3	4	4
Binx	3	2	1	2	1	1	4	5	5
Briggs	1	1	1	3	1	2	4	5	5
Candelaria	3	2	1	3	2	2	5	5	5
Crump	1	1	1	3	2	2	4	5	4
Jaramillo	2	3	4	3	2	2	3	4	5
Lamure	1	1	1	2	2	2	3	4	4
Landers	4	2	1	3	2	1	3	4	4
Madrid	1	1	1	2	2	2	3	5	5
Ramirez	1	1	1	3	2	2	5	5	5
Torres	4	3	1	3	2	1	3	4	4
Wright	2	2	1	3	2	2	3	4	5
Zamora	3	2	2	1	2	2	4	5	5
Raw Score	33	25	18	35	26	25	52	64	65
Mean	2.36	1.79	1.29	2.5	1.86	1.79	3.71	4.57	4.64
Standard Deviation	1.33	0.80	0.82	0.75	0.36	0.42	0.82	0.51	0.49

Section I. Attitude towards Distance Education									
Name	**Trialability Question 12**			**Trialability Question 17**			**Trialability Question 22**		
	If distance-education programs are unsuccessful, there should be a way to terminate them within a short period of time.			It is not necessary to involve school administrators in distance-education in-service programs.			Distance-education programs belong more in developing countries than in the United States.		
	98	**03**	**09**	**98**	**03**	**09**	**98**	**03**	**09**
Albright	1	2	2	3	2	1	1	1	1
Anderson	2	2	2	3	2	2	1	1	1
Binx	3	2	2	1	1	1	1	1	1
Briggs	3	2	2	3	1	1	1	1	1
Candelaria	1	2	2	3	2	1	3	1	1
Crump	1	1	1	3	1	2	1	1	1
Jaramillo	3	4	4	3	1	1	3	1	1
Lamure	1	2	2	3	2	2	1	1	1
Landers	1	1	1	3	2	1	1	1	1
Madrid	3	2	4	3	1	1	1	1	1
Ramirez	1	1	1	1	1	1	1	1	1
Torres	4	5	5	2	2	1	1	1	1
Wright	2	2	3	1	1	1	1	1	1
Zamora	5	5	5	2	2	2	1	2	1
Raw Score	31	33	36	34	21	18	18	15	14
Mean	2.21	2.36	2.57	2.43	1.5	1.29	1.29	1.07	1
Standard Deviation	1.31	1.33	1.39	0.85	0.51	0.46	0.72	0.26	0

Section I. Attitude towards Distance Education									
Name	**Trialability Question 27**			**Observability Question 3**			**Observability Question 8**		
	Distance education is too hard to institute without a trial period.			Distance education can motivate instructors to use a variety of resources in the classroom to address different learning styles.			Distance education can show instructors and students how institutions can utilize technology effectively to aid learning.		
	98	**03**	**09**	**98**	**03**	**09**	**98**	**03**	**09**
Albright	4	5	5	4	4	4	3	3	4
Anderson	3	4	4	3	4	4	3	4	4
Binx	4	4	4	3	4	5	3	4	5
Briggs	3	4	4	3	2	2	3	3	3
Candelaria	3	4	4	3	2	1	3	4	4
Crump	4	5	5	3	4	4	3	4	4
Jaramillo	4	4	4	3	4	4	3	4	5
Lamure	3	4	5	3	5	5	3	3	4
Landers	3	4	4	3	4	4	3	4	5
Madrid	3	4	4	3	3	4	3	5	5
Ramirez	4	4	4	4	4	5	4	5	5
Torres	3	4	4	2	2	2	3	4	4
Wright	3	4	5	3	4	4	3	4	4
Zamora	4	4	4	3	4	4	3	3	4
Raw Score	48	58	60	43	50	52	43	54	60
Mean	3.43	4.14	4.29	3.07	3.57	3.71	3.07	3.86	4.29
Standard Deviation	0.51	0.36	0.46	0.47	0.93	1.20	0.26	0.66	0.61

Section I. Attitude towards Distance Education									
Name	**Observability Question 13**			**Observability Question 18**			**Observability Question 23**		
	Distance education will not lead to increased student interest in classroom learning.			I do not believe that I will see more interaction between teacher and student when distance education is used in the classroom.			I will expect to see both students and teachers using distance education in the classroom.		
	98	**03**	**09**	**98**	**03**	**09**	**98**	**03**	**09**
Albright	3	3	3	4	4	4	3	4	4
Anderson	3	4	4	3	4	2	3	4	5
Binx	3	3	1	3	2	2	4	4	5
Briggs	3	1	4	3	3	2	4	4	4
Candelaria	2	2	3	3	3	4	3	3	3
Crump	3	3	3	3	4	4	3	4	4
Jaramillo	3	2	2	3	1	1	3	3	4
Lamure	3	2	1	3	2	1	4	4	5
Landers	3	4	5	3	4	4	3	4	4
Madrid	3	4	4	3	3	4	4	5	5
Ramirez	3	4	4	1	2	1	5	5	5
Torres	3	3	3	3	2	2	3	4	5
Wright	3	2	2	3	2	1	3	4	4
Zamora	3	4	4	3	3	3	3	4	4
Raw Score	41	41	43	41	39	35	48	56	61
Mean	2.93	2.93	3.07	2.93	2.79	2.5	3.43	4.0	4.36
Standard Deviation	0.26	0.99	1.20	0.61	0.97	1.28	0.64	0.55	0.63

Section I. Attitude towards Distance Education									
Name	**Observability Question 28**								
	I do not feel that instructors will respond positively to distance education in the classroom.								
	98	**03**	**09**	**98**	**03**	**09**	**98**	**03**	**09**
Albright	3	2	2						
Anderson	2	2	2						
Binx	3	3	2						
Briggs	2	2	1						
Candelaria	3	2	2						
Crump	3	2	1						
Jaramillo	3	2	2						
Lamure	3	3	2						
Landers	3	2	2						
Madrid	2	2	2						
Ramirez	2	2	2						
Torres	3	2	2						
Wright	3	2	2						
Zamora	3	2	1						
Raw Score	38	30	25						
Mean	2.71	2.14	1.79						
Standard Deviation	0.46	0.36	0.42						

Table 1. Stages of Concern Raw Score: Percentile Conversion Chart for the Stages of Concern Questionnaire

Raw Scale Score	Percentile Scores						
	Stages						
	0	1	2	3	4	5	6
0	0	5	5	2	1	1	1
1	1	12	12	5	1	2	2
2	2	16	14	7	1	3	3
3	4	19	17	9	2	3	5
4	7	23	21	11	2	4	6
5	14	27	25	15	3	5	9
6	22	30	28	18	3	7	11
7	31	34	31	23	4	9	14
8	40	37	35	27	5	10	17
9	48	40	39	30	5	12	20
10	55	43	41	34	7	14	22
11	61	45	45	39	8	16	26
12	69	48	48	43	9	19	30
13	75	51	52	47	11	22	34
14	81	54	55	52	13	25	38
15	87	57	57	56	16	28	42
16	94	60	59	60	19	31	47
17	94	63	63	65	21	36	52
18	96	66	67	69	24	40	57
19	97	69	70	73	27	44	60
20	98	72	72	77	30	48	65
21	99	75	76	80	33	52	69
22	99	80	78	83	38	55	73
23	99	84	80	85	43	59	77
24	99	88	83	88	48	64	81
25	99	90	85	90	54	68	84
26	99	91	87	92	59	72	87
27	99	93	89	94	63	76	90
28	99	95	91	95	66	80	92
29	99	96	92	97	71	84	94
30	99	97	94	97	76	88	96
31	99	98	95	98	82	91	97
32	99	99	96	98	86	93	98
33	99	99	96	99	90	95	99
34	99	99	97	99	92	97	99
35	99	99	99	99	96	98	99

Table 2. Stages of Concern Quick Scoring Device – Mary Albright 1998, 2003, 2009

Name:	Albright, Mary																												
Stage		0				1				2				3				4				5				6			
		Unconcerned				Informational				Personal				Management				Consequence				Collaboration				Refocusing			
			Year				Year				Year				Year				Year				Year				Year		
		#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09
		3	1	2	2	6	6	2	0	7	7	3	0	4	4	4	2	1	7	7	6	5	1	3	4	2	1	2	5
		12	1	2	1	14	6	3	0	13	7	4	0	8	5	4	2	11	7	7	6	10	4	5	4	9	1	3	5
		21	7	2	2	15	6	2	0	17	6	3	0	16	5	4	1	19	7	7	6	18	1	2	5	20	1	2	5
		23	6	1	1	26	7	2	0	28	7	3	0	25	7	4	1	24	4	4	6	27	1	3	5	22	1	3	5
		30	7	1	1	35	7	2	0	33	7	4	0	34	4	4	1	32	1	4	6	29	6	7	5	31	1	4	6
Raw Score			22	8	7		32	11	0		34	17	0		25	20	7		26	29	30		13	20	23		5	14	26
Percentile Score			99	40	31		99	47	5		97	65	5		90	78	23		59	74	76		22	50	59		9	37	87

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Table 3. Stages of Concern Quick Scoring Device – Kate Anderson 1998, 2003, 2009

Name:	Anderson, Kate																											
Stage	0				1				2				3				4				5				6			
	Unconcerned				Informational				Personal				Management				Consequence				Collaboration				Refocusing			
		Year				Year				Year				Year				Year				Year				Year		
	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09
	3	2	3	7	6	2	2	0	7	1	1	0	4	5	3	2	1	6	6	3	5	4	5	1	2	4	5	1
	12	2	2	7	14	1	1	0	13	2	0	0	8	4	2	1	11	5	6	2	10	3	4	0	9	2	4	1
	21	2	2	7	15	3	1	0	17	1	0	0	16	4	3	1	19	6	6	4	18	4	4	0	20	3	4	1
	23	2	3	7	26	2	1	0	28	2	0	0	25	5	2	1	24	5	6	3	27	3	4	1	22	2	4	1
	30	2	3	7	35	2	2	0	33	2	0	0	34	4	2	1	32	5	6	3	29	3	4	1	31	2	4	1
Raw Score		10	13	35		10	7	0		8	1	0		22	12	6		27	30	15		17	21	3		13	21	5
Percentile Score		55	75	99		43	31	5		35	12	5		83	43	18		63	76	16		36	52	3		34	69	9

Table 4. Stages of Concern Quick Scoring Device – Zachary Binx 1998, 2003, 2009

Name:	Binx, Zachary																											
Stage		0				1				2				3				4				5				6			
		Unconcerned				Informational				Personal				Management				Consequence				Collaboration				Refocusing			
			Year				Year				Year				Year				Year				Year				Year		
		#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09
		3	5	1	7	6	5	1	1	7	3	1	1	4	6	2		1	7	2	3	5	5	2	2	2	6	4	7
		12	5	2	7	14	4	1	1	13	5	3	1	8	5	2		11	6	3	4	10	5	1	3	9	4	4	7
		21	5	1	7	15	6	1	1	17	4	1	1	16	5	1		19	7	2	3	18	4	1	2	20	5	4	7
		23	5	3	7	26	5	1	1	28	5	2	1	25	6	2		24	6	3	4	27	4	2	3	22	4	4	7
		30	5	1	7	35	5	1	1	33	5	2	1	34	5	2		32	7	2	3	29	4	1	3	31	4	4	7
Raw Score			25	8	35		25	5	5		22	9	5		27	9			33	12	17		22	7	13		23	20	35
Percentile Score			99	40	99		90	27	25		78	39	25		94	30	23		99	9	21		55	16	22		77	65	99

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Table 5. Stages of Concern Quick Scoring Device – Walter Briggs 1998, 2003, 2009

Name:	Briggs, Walter																											
Stage		0				1				2				3				4				5				6			
		Unconcerned				Informational				Personal				Management				Consequence				Collaboration				Refocusing			
			Year				Year				Year				Year				Year				Year				Year		
		#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09
		3	3	2	3	6	5	1	0	7	3	2	0	4	3	1	1	1	4	4	2	5	2	5	0	2	3	6	7
		12	2	1	4	14	4	0	0	13	4	1	0	8	3	1	0	11	3	3	1	10	3	5	0	9	2	5	7
		21	2	1	2	15	4	0	0	17	3	1	0	16	4	1	0	19	4	3	3	18	2	5	0	20	3	5	7
		23	3	1	3	26	4	1	0	28	5	1	0	25	3	1	0	24	4	3	1	27	4	5	0	22	2	4	7
		30	3	2	3	35	5	1	0	33	5	1	0	34	4	1	0	32	4	4	2	29	5	5	0	31	2	5	7
Raw Score			13	7	15		22	3	0		20	6	0		17	5	1		19	17	9		16	25	0		12	25	35
Percentile Score			75	31	87		80	19	5		72	28	5		65	15	5		27	21	5		31	68	1		30	84	99

Table 6. Stages of Concern Quick Scoring Device – Jim Candelaria 1998, 2003, 2009

		Stage 0 Unconcerned				Stage 1 Informational				Stage 2 Personal				Stage 3 Management				Stage 4 Consequence				Stage 5 Collaboration				Stage 6 Refocusing			
Name:	Candelaria, Jim																												
		#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09
		3	2	1	1	6	4	1	0	7	4	2	1	4	4	5	6	1	4	6	1	5	4	4	3	2	3	5	7
		12	1	2	1	14	5	1	0	13	4	4	0	8	3	4	6	11	3	5	1	10	3	5	2	9	2	5	7
		21	3	2	1	15	4	1	0	17	4	3	0	16	3	5	7	19	5	6	1	18	4	5	2	20	3	6	7
		23	2	1	1	26	4	1	0	28	4	2	1	25	4	5	7	24	4	6	1	27	3	3	2	22	2	4	6
		30	4	2	1	35	4	2	1	33	4	4	0	34	4	4	1	32	3	6	1	29	3	4	2	31	2	3	6
Raw Score			12	8	5		21	6	1		20	15	2		18	23	27		19	29	5		17	21	11		12	23	33
Percentile Score			69	40	14		75	30	12		72	57	14		69	85	94		27	71	16		36	52	16		30	77	99

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Table 7. Stages of Concern Quick Scoring Device – Helen Crump 1998, 2003, 2009

Name:		Crump, Helen																											
Stage		0				1				2				3				4				5				6			
		Unconcerned				Informational				Personal				Management				Consequence				Collaboration				Refocusing			
			Year				Year				Year				Year				Year				Year				Year		
		#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09
		3	2	2	4	6	3	2	0	7	1	0	0	4	4	1	2	1	6	6	3	5	4	3	2	2	4	5	7
		12	1	1	3	14	3	0	0	13	1	0	0	8	3	2	1	11	5	7	4	10	5	2	3	9	2	5	7
		21	1	1	5	15	3	0	1	17	1	0	1	16	3	2	1	19	5	4	2	18	4	3	2	20	3	5	7
		23	2	1	4	26	4	0	0	28	1	1	1	25	2	1	1	24	6	6	3	27	4	2	2	22	2	4	7
		30	2	1	5	35	3	0	0	33	1	0	0	34	2	2	2	32	5	6	3	29	4	4	2	31	3	4	7
Raw Score			8	6	21		16	2	1		5	1	2		14	8	7		27	29	15		21	14	11		14	23	35
Percentile Score			40	22	99		60	16	12		25	12	14		52	27	23		63	71	16		52	25	16		38	77	99

Table 8. Stages of Concern Quick Scoring Device – Mary Jaramillo 1998, 2003, 2009

Name:		Jaramillo, Mary																											
Stage		0				1				2				3				4				5				6			
		Unconcerned				Informational				Personal				Management				Consequence				Collaboration				Refocusing			
			Year				Year				Year				Year				Year				Year				Year		
		#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09
		3	3	0	1	6	5	1	0	7	6	2	0	4	3	3	1	1	4	7	5	5	3	6	3	2	3	5	7
		12	3	0	1	14	5	1	0	13	5	1	1	8	3	3	1	11	4	7	6	10	3	7	2	9	2	2	7
		21	4	0	1	15	4	1	0	17	5	2	0	16	4	3	1	19	4	7	7	18	4	7	2	20	4	4	6
		23	5	0	1	26	6	1	1	28	6	2	0	25	4	2	1	24	4	5	7	27	3	5	2	22	2	3	6
		30	6	0	1	35	4	1	0	33	5	1	1	34	4	3	1	32	4	6	7	29	4	6	2	31	3	4	7
Raw Score			21	0	5		24	5	1		27	8	2		18	14	5		20	32	32		17	31	11		14	18	33
Percentile Score			99	0	14		88	27	12		89	35	14		69	52	15		30	86	86		36	91	16		38	57	99

Table 9. Stages of Concern Quick Scoring Device – Carol Lamure 1998, 2003, 2009

Name:		Lamure, Carol																										
Stage		0				1				2				3				4				5				6			
		Unconcerned				Informational				Personal				Management				Consequence				Collaboration				Refocusing			
			Year				Year				Year				Year				Year				Year				Year		
		#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09
		3	2	1	3	6	4	1	2	7	4	0	2	4	4	2	2	1	4	7	4	5	3	7	3	2	2	7	7
		12	3	0	3	14	5	0	2	13	4	0	1	8	3	1	3	11	4	6	4	10	4	7	2	9	2	5	7
		21	2	1	3	15	4	0	1	17	5	1	1	16	3	1	1	19	4	6	4	18	3	7	2	20	3	7	7
		23	3	1	3	26	5	0	1	28	3	0	1	25	3	1	1	24	4	6	4	27	3	6	2	22	2	6	7
		30	3	1	3	35	4	0	0	33	3	0	1	34	3	1	1	32	4	6	4	29	4	7	2	31	2	6	7
Raw Score			13	4	15		22	1	6		19	1	6		16	6	8		20	31	20		17	34	11		11	31	35
Percentile Score			75	7	87		80	12	30		70	12	28		60	18	27		30	82	30		36	97	16		26	97	99

Table 10. Stages of Concern Quick Scoring Device – Missy Landers 1998, 2003, 2009

Name:		Landers, Missy																											
Stage		0				1				2				3				4				5				6			
		Unconcerned				Informational				Personal				Management				Consequence				Collaboration				Refocusing			
			Year				Year				Year				Year				Year				Year				Year		
		#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09
		3	1	1	2	6	7	1	0	7	7	2	0	4	7	3	2	1	6	7	2	5	1	3	2	2	1	6	1
		12	1	2	2	14	7	1	0	13	4	2	0	8	6	2	1	11	6	5	2	10	1	3	1	9	1	7	1
		21	6	1	5	15	7	1	0	17	6	1	0	16	6	1	1	19	6	6	3	18	1	4	0	20	1	5	1
		23	7	1	6	26	7	1	0	28	7	1	0	25	7	2	2	24	7	7	3	27	1	4	1	22	1	6	1
		30	6	2	7	35	1	1	0	33	7	1	0	34	1	2	1	32	2	5	5	29	6	3	0	31	1	7	1
Raw Score			22	7	22		29	5	0		31	7	0		27	10	7		27	30	15		10	17	4		5	31	5
Percentile Score			99	31	99		96	27	5		95	31	5		94	34	23		63	76	16		14	36	4		9	97	9

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Table 11. Stages of Concern Quick Scoring Device – Kathy Madrid 1998, 2003, 2009

Name:	Madrid, Kathy																											
Stage		0				1				2				3				4				5				6		
		Unconcerned				Informational				Personal				Management				Consequence				Collaboration				Refocusing		
			Year				Year				Year				Year				Year				Year				Year	
		#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09
		3	2	3	3	6	3	3	6	7	3	2	6	4	3	6	2	1	7	6	3	5	5	3	3	2	3	2	3
		12	1	2	3	14	3	2	4	13	3	3	6	8	4	5	1	11	5	5	3	10	3	4	3	9	4	3	2
		21	1	3	4	15	2	3	5	17	3	3	7	16	4	6	1	19	5	5	5	18	4	4	3	20	2	3	2
		23	3	1	3	26	3	4	6	28	4	1	7	25	6	4	2	24	6	7	4	27	4	4	4	22	3	5	3
		30	1	2	4	35	2	2	4	33	5	1	5	34	4	4	1	32	7	7	5	29	4	5	4	31	2	4	4
Raw Score			8	11	17		13	14	25		18	10	31		21	25	7		30	30	20		20	20	17		14	17	14
Percentile Score			40	61	94		51	54	90		67	41	95		80	90	23		76	76	30		48	48	36		38	52	38

Table 12. Stages of Concern Quick Scoring Device –Lloyd Ramirez 1998, 2003, 2009

Name:		Ramirez, Lloyd																													
Stage		0				1				2				3				4				5				6			
		Unconcerned				Informational				Personal				Management				Consequence				Collaboration				Refocusing			
			Year				Year				Year				Year				Year				Year				Year		
		#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09
		3	1	0	7	6	3	1	1	7	1	0	1	4	2	1		1	3	7	4	5	7	2	3	2	3	6	7
		12	1	1	7	14	7	0	0	13	0	0	1	8	1	1		11	5	5	4	10	6	3	4	9	2	7	7
		21	1	1	7	15	6	0	1	17	1	1	1	16	2	0		19	4	6	4	18	7	2	3	20	3	6	7
		23	1	1	7	26	7	0	1	28	1	0	1	25	1	1		24	3	6	4	27	5	2	4	22	3	7	7
		30	1	1	7	35	2	0	1	33	1	0	1	34	1	1		32	3	6	4	29	6	2	3	31	3	7	7
Raw Score			5	4	35		25	1	4		4	1	5		7	4			18	30	20		31	11	17		14	33	35
Percentile Score			14	7	99		90	12	23		21	12	25		23	11	23		24	76	30		91	16	36		38	99	99

Table 13. Stages of Concern Quick Scoring Device – Chris Torres 1998, 2003, 2009

Name:	Torres, Chris																											
Stage	0				1				2				3				4				5				6			
	Unconcerned				Informational				Personal				Management				Consequence				Collaboration				Refocusing			
		Year				Year				Year				Year				Year				Year				Year		
	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09
	3	6	1	7	6	3	1	0	7	4	2	1	4	3	2	2	1	4	7	3	5	2	7	2	2	2	4	6
	12	7	1	7	14	3	1	0	13	4	1	0	8	2	1	1	11	3	6	2	10	2	7	1	9	3	3	5
	21	7	1	7	15	3	1	1	17	5	1	0	16	2	1	2	19	4	6	2	18	2	7	2	20	2	4	5
	23	7	1	7	26	4	1	0	28	4	2	1	25	2	1	1	24	3	6	3	27	2	7	2	22	2	4	5
	30	6	1	7	35	3	1	1	33	4	1	1	34	3	1	1	32	3	6	2	29	2	6	2	31	2	4	6
Raw Score		33	7	35		19	5	2		21	7	3		12	6	7		17	31	12		10	34	9		11	19	27
Percentile Score		99	31	99		69	27	16		76	31	17		43	18	23		21	82	9		14	97	12		26	60	90

Table 14. Stages of Concern Quick Scoring Device – Brian Wright 1998, 2003, 2009

Name:	Wright, Brian																											
Stage		0				1				2				3				4				5				6		
		Unconcerned				Informational				Personal				Management				Consequence				Collaboration				Refocusing		
			Year				Year				Year				Year				Year				Year				Year	
		#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09
		3	7	1	3	6	1	0	1	7	0	2	1	4	2	3	2	1	6	6	4	5	4	6	3	2	1	4	7
		12	7	2	4	14	1	1	1	13	0	1	1	8	2	3	1	11	7	6	3	10	3	6	3	9	0	5	7
		21	7	1	4	15	1	1	1	17	0	1	1	16	2	2	1	19	6	6	4	18	4	5	2	20	0	3	7
		23	7	2	4	26	2	1	2	28	1	2	1	25	2	3	1	24	6	6	4	27	3	6	3	22	1	4	7
		30	7	1	4	35	1	1	1	33	0	2	1	34	2	3	2	32	6	6	3	29	3	6	3	31	1	4	7
Raw Score			35	7	19		6	4	6		1	8	5		10	14	7		31	30	18		17	29	14		3	20	35
Percentile Score			99	31	97		30	23	30		12	35	25		34	52	23		82	76	24		36	84	25		5	65	99

Table 15. Stages of Concern Quick Scoring Device – Jane Zamora 1998, 2003, 2009

Name:		Zamora, Jane																												
Stage		0				1				2				3				4				5				6			
		Unconcerned				Informational				Personal				Management				Consequence				Collaboration				Refocusing			
			Year				Year				Year				Year				Year				Year				Year		
		#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09	#	98	03	09
		3	3	1	5	6	5	0	0	7	4	2	0	4	5	2	0	1	5	6	0	5	4	5	1	2	1	2	6
		12	3	1	4	14	4	1	0	13	4	1	1	8	6	1	1	11	4	6	1	10	3	6	1	9	1	3	5
		21	3	1	4	15	5	1	1	17	5	1	0	16	5	1	1	19	4	6	1	18	4	4	1	20	1	3	5
		23	3	2	4	26	5	1	1	28	5	1	1	25	5	2	1	24	4	6	1	27	4	5	1	22	1	3	5
		30	3	1	4	35	5	1	1	33	5	1	1	34	5	1	0	32	5	6	0	29	3	5	1	31	1	3	6
Raw Score			15	6	21		24	4	3		23	6	3		26	7	3		22	30	3		18	25	5		5	14	27
Percentile Score			87	22	99		88	23	19		85	18	17		92	23	9		38	76	2		40	68	5		9	38	90

Section III

Section III. Self Efficacy									
Name	**Comfort/Anxiety Statement 1**			**Comfort/Anxiety Statement 2**			**Comfort/Anxiety Statement 3**		
	I feel at ease learning about distance-education technologies.			The thought of using distance-education technologies frightens me.			I am not the type to do well with electronic technologies such as compressed video.		
	98	**03**	**09**	**98**	**03**	**09**	**98**	**03**	**09**
Albright	3	5	5	2	1	1	1	1	1
Anderson	3	4	4	1	1	1	2	2	1
Binx	4	5	5	1	1	1	1	1	1
Briggs	3	4	4	4	1	1	3	2	1
Candelaria	3	4	4	3	1	1	2	1	1
Crump	5	5	5	1	1	1	1	1	1
Jaramillo	3	5	5	2	2	2	3	2	2
Lamure	4	4	4	3	1	1	3	2	2
Landers	3	4	4	5	2	2	4	2	2
Madrid	2	4	5	3	2	2	4	2	1
Ramirez	5	5	5	1	1	1	1	1	1
Torres	3	3	4	5	2	2	3	3	4
Wright	3	4	4	3	2	2	3	4	4
Zamora	3	4	4	3	2	2	3	4	4
Raw Score	47	60	62	37	20	20	34	28	26
Mean	3.35	4.28	4.42	2.64	2.23	1.42	2.42	2.00	1.85
Standard Deviation	0.84	0.61	0.51	1.39	2.97	0.51	1.08	1.03	1.23

Section III. Self Efficacy									
Name	**Comfort/Anxiety Statement 4**			**Comfort/Anxiety Statement 5**			**Comfort/Anxiety Statement 6**		
	I feel comfortable about my ability to work with distance-education technologies.			Distance-education technologies are confusing to me.			I am anxious about using distance-education technologies because I don't know what to do if something goes wrong.		
	98	**03**	**09**	**98**	**03**	**09**	**98**	**03**	**09**
Albright	3	4	4	3	2	2	4	4	4
Anderson	4	4	5	3	2	2	3	2	2
Binx	4	5	5	2	2	1	2	2	1
Briggs	3	3	4	4	2	2	4	2	1
Candelaria	2	4	4	4	2	2	5	2	1
Crump	4	5	5	2	1	1	2	1	1
Jaramillo	3	5	5	3	2	2	3	2	2
Lamure	4	4	4	3	4	5	3	2	1
Landers	3	3	4	5	3	2	4	2	1
Madrid	2	4	4	3	2	2	4	3	2
Ramirez	5	5	5	2	1	1	2	1	1
Torres	3	4	4	5	2	2	5	2	2
Wright	3	4	4	3	2	2	3	2	2
Zamora	3	1	1	3	2	1	4	2	2
Raw Score	46	55	58	45	29	27	48	29	23
Mean	3.35	3.92	4.14	3.21	2.07	1.92	3.42	2.07	1.64
Standard Deviation	0.84	1.07	1.02	0.97	0.73	0.99	1.01	0.73	0.84

Section III. Self Efficacy									
Name	**Electronic Mail Statement 7**			**Electronic Mail Statement 8**			**Electronic Mail Statement 9**		
	I feel confident logging onto e-mail.			I feel confident reading mail messages on e-mail.			I feel confident responding to messages on e-mail.		
	98	**03**	**09**	**98**	**03**	**09**	**98**	**03**	**09**
Albright	3	4	4	3	4	5	3	4	4
Anderson	3	4	4	3	4	4	3	4	4
Binx	3	4	5	4	5	5	3	5	5
Briggs	3	4	4	3	4	4	3	4	4
Candelaria	3	4	4	3	4	4	3	4	4
Crump	4	5	5	4	5	5	4	5	5
Jaramillo	4	5	5	3	5	5	3	5	5
Lamure	4	5	5	3	5	5	4	5	5
Landers	2	4	4	2	4	4	2	4	4
Madrid	2	4	4	2	4	5	1	4	4
Ramirez	5	5	5	5	5	5	5	5	5
Torres	2	4	4	2	4	4	2	4	4
Wright	3	4	4	3	4	5	3	4	4
Zamora	3	5	5	3	5	5	3	5	5
Raw Score	44	61	62	43	62	65	42	62	62
Mean	3.14	4.35	4.42	3.07	4.42	4.64	3.00	4.42	4.42
Standard Deviation	0.86	0.49	0.51	0.82	0.51	0.49	0.96	0.51	0.51

Section III. Self Efficacy									
Name	Electronic Mail Statement 10			Electronic Mail Statement 11			Electronic Mail Statement 12		
	I feel confident deleting messages received on e-mail.			I feel confident sending mail messages on e-mail.			I feel confident sending the same message to more than one person on e-mail.		
	98	03	09	98	03	09	98	03	09
Albright	3	4	4	3	4	4	3	4	4
Anderson	3	4	4	3	4	4	3	4	4
Binx	3	4	5	3	4	5	3	4	5
Briggs	3	4	4	3	4	4	3	4	4
Candelaria	3	4	4	3	4	4	3	4	4
Crump	4	5	5	4	5	5	4	5	5
Jaramillo	3	4	5	4	5	5	3	4	5
Lamure	4	5	5	4	5	5	4	5	5
Landers	2	4	4	2	4	4	2	4	4
Madrid	2	4	4	2	4	4	3	4	4
Ramirez	4	5	5	5	5	5	4	5	5
Torres	2	4	4	2	4	4	2	4	4
Wright	3	4	4	3	4	4	2	4	4
Zamora	3	4	5	3	5	5	3	4	5
Raw Score	42	59	62	44	61	62	42	59	62
Mean	3.00	4.21	4.42	3.00	4.35	4.42	3.14	4.21	4.42
Standard Deviation	0.67	0.42	0.51	0.67	0.49	0.51	0.86	0.42	0.51

Section III. Self Efficacy									
Name	**Electronic Mail Statement 13**			**Fax Machine Statement 14**			**Fax Machine Statement 15**		
	I feel confident logging off e-mail.			I feel confident connecting to a number at a receiving site.			I feel confident faxing a one-page document.		
	98	**03**	**09**	**98**	**03**	**09**	**98**	**03**	**09**
Albright	3	4	5	3	5	5	3	4	4
Anderson	4	4	4	3	4	4	3	4	5
Binx	4	5	5	3	5	5	3	5	5
Briggs	4	4	4	2	4	4	2	3	4
Candelaria	3	4	4	2	4	4	2	4	4
Crump	4	5	5	4	5	5	4	5	5
Jaramillo	3	5	5	2	5	5	2	5	5
Lamure	4	5	5	3	4	4	3	4	4
Landers	2	4	4	2	4	4	2	3	4
Madrid	3	4	5	2	4	5	2	4	4
Ramirez	5	5	5	4	5	5	4	5	5
Torres	3	4	4	2	3	4	2	4	4
Wright	3	4	5	3	4	4	3	4	4
Zamora	3	5	5	2	4	4	2	1	1
Raw Score	48	62	65	37	60	62	37	55	58
Mean	3.42	4.42	4.64	2.64	4.28	4.42	2.64	3.92	4.14
Standard Deviation	0.82	0.51	0.49	0.74	0.61	0.51	0.74	1.07	1.02

Section III. Self Efficacy									
Name	**Fax Machine Statement 16**			**Videoconferencing Statement 17**			**Videoconferencing Statement 18**		
	I feel confident faxing a multiple-page document.			I feel confident dialing remote sites.			I feel confident adjusting the camera for receiving site.		
	98	**03**	**09**	**98**	**03**	**09**	**98**	**03**	**09**
Albright	2	4	4	3	4	4	2	3	4
Anderson	2	4	4	3	4	4	2	3	4
Binx	3	5	5	3	4	4	2	3	4
Briggs	2	4	4	3	4	4	2	3	4
Candelaria	2	4	4	3	4	4	2	3	4
Crump	4	4	4	3	4	5	2	3	5
Jaramillo	2	4	4	3	4	5	2	3	5
Lamure	3	4	4	3	4	5	2	3	5
Landers	2	4	4	1	3	4	1	3	4
Madrid	2	4	4	2	4	5	2	4	5
Ramirez	4	4	5	3	5	5	3	5	5
Torres	2	4	4	1	4	5	1	4	5
Wright	2	4	4	1	4	4	1	4	4
Zamora	2	4	4	1	4	4	1	4	4
Raw Score	34	57	58	33	56	62	25	48	62
Mean	2.42	4.07	4.14	2.35	4.00	4.42	1.78	3.42	4.42
Standard Deviation	0.75	0.26	0.36	0.92	0.39	0.51	0.57	0.64	0.51

Section III. Self Efficacy									
Name	Videoconferencing Statement 19			Videoconferencing Statement 20			Videoconferencing Statement 21		
	I feel confident adjusting the camera for viewing remote sites.			I feel confident using the microphone appropriately to speak to remote sites.			I feel confident recording sessions using the integrated VCR.		
	98	03	09	98	03	09	98	03	09
Albright	1	4	4	3	4	4	2	4	4
Anderson	2	4	4	3	4	4	2	4	4
Binx	2	4	4	3	4	4	2	4	4
Briggs	2	4	4	3	4	4	3	4	4
Candelaria	1	4	4	3	4	4	2	4	4
Crump	2	4	5	3	4	5	3	4	5
Jaramillo	2	4	4	3	4	5	2	4	5
Lamure	3	4	4	3	4	5	3	4	5
Landers	1	3	4	1	3	4	1	3	4
Madrid	2	4	5	2	4	5	2	4	5
Ramirez	3	5	5	3	5	5	3	5	5
Torres	1	4	4	1	4	5	1	4	5
Wright	1	4	4	1	4	4	1	4	4
Zamora	1	4	4	1	4	4	1	4	4
Raw Score	24	56	59	33	56	62	28	56	62
Mean	1.71	4.00	4.21	2.35	4	4.42	2.00	4.00	4.42
Standard Deviation	0.72	0.39	0.42	0.92	0.39	0.51	0.78	0.39	0.51

Section III. Self Efficacy									
Name	**Videoconferencing Statement 22**			**Change Agent Statement 23**			**Change Agent Statement 24**		
	I feel confident operating the document camera effectively.			I feel confident helping students learn using distance-education technologies.			I feel confident conducting a discussion session or collaborative activities using materials provided by the distance-learning instructor.		
	98	**03**	**09**	**98**	**03**	**09**	**98**	**03**	**09**
Albright	3	4	4	4	4	4	3	4	4
Anderson	3	4	4	3	4	4	3	4	4
Binx	3	4	4	3	4	4	3	4	4
Briggs	2	4	4	3	4	4	3	4	4
Candelaria	2	4	4	3	4	4	3	4	4
Crump	2	4	5	4	4	5	4	4	5
Jaramillo	3	4	4	3	4	5	3	4	5
Lamure	3	4	4	4	4	4	3	4	5
Landers	1	3	4	2	3	4	3	3	4
Madrid	2	4	4	3	4	4	3	4	5
Ramirez	3	5	5	3	5	5	3	5	5
Torres	1	4	4	2	4	4	2	4	5
Wright	1	4	4	2	4	4	3	4	4
Zamora	1	4	4	3	4	4	2	4	4
Raw Score	30	56	58	42	56	59	41	56	62
Mean	2.14	4.00	4.14	3.00	4.00	4.21	2.92	4.00	4.42
Standard Deviation	0.86	0.39	0.36	0.78	0.39	0.42	0.47	0.39	0.51

Section III. Self Efficacy									
Name	**Change Agent Statement 25**			**Change Agent Statement 26**			**Change Agent Statement 27**		
	I feel confident helping students communicate with the instructor and students at other remote sites using the videoconferencing system.			I feel confident managing a distance-education course.			I feel confident helping to implement distance education at Renaissance Community College.		
	98	**03**	**09**	**98**	**03**	**09**	**98**	**03**	**09**
Albright	2	4	4	2	5	4	4	5	5
Anderson	2	4	4	2	4	4	3	5	5
Binx	2	4	4	3	4	4	4	5	5
Briggs	2	4	4	2	4	4	3	4	4
Candelaria	2	3	4	2	4	4	3	4	5
Crump	2	4	5	3	4	5	4	5	5
Jaramillo	2	4	5	2	4	4	3	4	5
Lamure	2	3	4	3	4	4	3	4	5
Landers	1	3	4	1	3	4	2	3	4
Madrid	2	4	4	2	4	4	3	4	5
Ramirez	3	5	5	3	5	5	3	5	5
Torres	1	4	4	1	4	4	3	4	5
Wright	1	4	4	1	4	4	3	4	4
Zamora	1	4	4	1	4	4	3	4	4
Raw Score	25	54	59	28	57	58	44	60	66
Mean	2.64	3.85	4.21	2.00	4.07	4.14	3.14	4.28	4.71
Standard Deviation	0.63	0.53	0.42	0.78	0.47	0.36	0.53	0.61	0.46

Section III. Self Efficacy									
Name	**Change Agent Statement 28**								
	I feel confident using the distance-education system to deliver programming to a community audience.								
	98	**03**	**09**	**98**	**03**	**09**	**98**	**03**	**09**
Albright	3	4	5						
Anderson	3	4	5						
Binx	3	4	5						
Briggs	2	4	4						
Candelaria	3	3	4						
Crump	3	4	5						
Jaramillo	3	3	4						
Lamure	3	4	5						
Landers	2	3	4						
Madrid	3	4	4						
Ramirez	3	5	5						
Torres	2	4	4						
Wright	2	4	4						
Zamora	2	4	4						
Raw Score	37	54	62						
Mean	2.64	3.85	4.42						
Standard Deviation	0.49	0.53	0.51						

APPENDIX E

University of New Mexico
Consent to Participate in Research

INTRODUCTION

You are asked to participate in a research study conducted by Diane J. Klassen, Doctoral Student from the College of Education, Department of Educational Leadership, at the University of New Mexico. This research will contribute qualitative insight into the process of change that occurs as distance education is implemented in the community college environment, and in particular, into the effect of distance education upon individuals who serve as instructors and tech support personnel.

PURPOSE OF THE STUDY

The purpose of the research is to identify and delineate the strategies that serve to advance, as well as the factors that may impede the efforts of rural community-college personnel who have been entrusted with planning, developing and implementing an effective distance education network.

PROCEDURES

As a participant, you will be asked to complete the following tasks:

	Task	Subject	Timeframe	Time	X	No.	Total
1	Questionnaires	Technology	Start & close of study	0.45 mins	X	2	1.50 hours
2	Workshops	Compressed Video Tech	3 Fridays Nov 2005	4.00 hours	X	3	12.00 hours
3	Surveys	Training Sessions	Following Training	0.10 mins	X	3	00.30 mins
4	In-Depth Interview	Distance Learning	Nov 2005 Semester	0.30 min to 1 hour	X	.5	1.50 hours
5	In-Depth Interview	Distance Learning	Nov-Dec 2008 Semester	0.30 min to 1 hour		.5	1.50 hours
6	Focus Group	Distance Ed Network	Nov 2005	2.00 hours	X	1	2.00 hours
					TOTAL		19.5 hours

POTENTIAL RISKS AND DISCOMFORTS

All of the research will be conducted in a commonly accepted educational setting and will not involve sensitive topics nor increase the level of risk or discomfort beyond normal, routine, educational practices.

1. The researcher will, with permission, audiotape training sessions and focus groups. In order to protect anonymity of participants, the tapes will be transcribed immediately after taping, with all identifying information excluded form the transcriptions. If you prefer not to be audio taped, data will be gathered without taping and with the same protection of privacy. The audiotapes will be stored in a locked filing cabinet in the researcher's office and will be destroyed (erased) at the close of the study.

2. The researcher will observe several distance education classes. All identifying information about individuals or divisions/departments will be excluded or disguised (e.g., by substituting pseudonyms) which only the researcher will know. No finding will be reported by individual name so that at no time will anyone be able to identify you by your responses.

3. Responses to written questionnaires will be completely anonymous. Identifying information will not be used for tracking and will not be linked to your individual name.

POTENTIAL BENEFITS TO PARTICIPANTS AND/OR SOCIETY

1. This study has implications for all community colleges that have been entrusted with the mission of introducing distance education via innovative, cutting-edge technologies, such as telecommunications and the Internet.

2. Launching a distance-education program imposes an obligation for all involved to master new technologies and new ways of teaching or learning. This study will delineate organizational factors crucial in planning and implementing a successful telecommunications network at a rural community college.

3. It will also contribute to the growing literature in the field of distance education.

4. Results of this study should provide useful information to institutions for future planning of distance education network use.

The overall results will be shared with you and the Vice President for Academic Affairs.

CONFIDENTIALITY

Any information in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law.

PARTICIPATION AND WITHDRAWAL

You can choose to participate in this study or not. If you volunteer to participate, you may withdraw at any time without penalty or loss of benefits to which you might otherwise be entitles. You may also refuse to answer any questions you do not want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise which warrant doing so.

IDENTIFICATION OF INVESTIGATOR AND REVIEW BOARD

If you have any questions or concerns about the research, please feel free to contact:

Diane J. Klassen
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Roswell, NM 88202-6000

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If you have other concerns or complaints, please contact the Human Subjects IRB Office at the University of New Mexico, Main Campus Institutional Review Board, 1717 Roma NE, Room 205, MSC05 3180, by calling 505-277-0067 or emailing to IRB@salud.unm.edu.

SIGNATURE OF RESEARCH PARTICIPANT

I understand the procedures described above. My questions have been answered to my satisfaction and I agree to participate in this study. I have been provided a copy of this form.

_____
Name of Participant (please print)

_____   _____
Signature of Participant   Date

SIGNATURE OF INVESTIGATOR

In my judgment, the participant is voluntarily and knowingly giving informed consent and possesses the legal capacity to give informed consent to participate in this research study.

_____   _____
Signature of Investigator   Date

UNM Internal Review Board Approval

Main Campus Institutional Review Board
Human Research Protections Office
1717 Roma NE, MSC05 3180
1 University of New Mexico~Albuquerque, NM 87131-0001
http://hsc.unm.edu/som/research/HRRC/

14-Jan-2009

Responsible Faculty: Charlotte Gunawardena
Investigator: Diane Klassen
Dept/College: Educ Leadership Orgn Learning ELOL

SUBJECT: IRB Approval of Research - Amendment
Protocol #: 25185
Project Title: Planning, Developing & Implementing Distance Education in a Rural Community College
Type of Review: Expedited Review
Approval Date: 05-Dec-2008
Expiration Date: 04-Dec-2009

The Main Campus Institutional Review Board has reviewed and approved the above referenced protocol. It has been approved based on the review of the following:

1. **Reinterview of 14 of the 30 original members of the enrolled subjects;**

2. **Use of the CBAM Interest Instrument (previously approved for original interview);**

3. **Thirty new interview questions, submitted 12/12/08.**

Consent Decision:

Study is closed to enrollment - no consents approved. When consent is required, it is the responsibility of the Principal Investigator (PI) to ensure that ethical and legal informed consent has been obtained from all research participants. A date stamped original of the approved consent form(s) is attached, and copies should be used for consenting participants during the above noted approval period.

As the principal investigator of this study, you assume the following responsibilities:

Renewal: Unless granted exemption, your protocol must be re-approved each year in order to continue the research. You must submit a Progress Report no later than 30 days prior to the expiration date noted above.

Adverse Events: Any adverse events or reactions must be reported to the IRB immediately.

Modifications: Any changes to the protocol, such as procedures, consent/assent forms, addition of subjects, or study design must be submitted to the IRB for review and approval.

Completion: When the study is concluded and all data has been de-identified (with no link to identifiers), submit a Final Report Form to close your study.

Please reference the protocol number and study title in all documents and correspondence related to this protocol.

Sincerely,

J. Scott Tonigan, PhD
Chair
Main Campus IRB

Sample Letter Regarding Distribution of Final Questionnaire

#1:   "Alert" Letter to Participants

Date

Walker Klassen
Renaissance Community College
P.O. Box 6000
Reformation, NM 88202-6000

Dear Walker Klassen,

It has been almost five years since you began participating in my distance education research project at Renaissance Community College. As you may remember, I am engaged in a doctoral program at the College of New Mexico, with research involving faculty adoption of distance education in a rural community college.

At the start of staff development activities in 1998, I administered a survey to all participants. It would be most helpful to me if you could complete the same survey. This note is just to alert you to expect an email within the next couple of weeks that will contain the survey access information.

The survey data will provide information on attitudes and concerns towards distance education and level of self-efficacy towards the new technologies associated with implementing distance education at this point in time, as well as a comparison with the original results. Responses of individuals are confidential. Pseudonyms will be used to refer to divisions/departments and individual responses in all reports. Overall results will be shared with divisions/departments and will enable effective planning and continued training for implementation of the full capacity of the system.

Should you have any questions, you can reach me at (505) 624-7284 or by e-mail at: diane.Klassen@Reformation.RCC.edu.

 Thank you for your support.

Sample Letter Regarding Distribution of Final Questionnaire

#2 Letter to Participants Accompanying Questionnaire

Date

Walker Klassen
Renaissance Community College
P.O. Box 6000
Reformation, NM 88202-6000

Dear Walker Klassen,

My doctoral research at the College of New Mexico involves following the progress of distance education at our institution. The Renaissance Rural Telecommunications Network is up and running; many students are taking advantage of this opportunity.

I welcomed the willingness of those of you who completed an initial survey last _____ involving your attitudes and concerns regarding distance education. Once again I would truly appreciate those of you who completed the first questionnaire to respond to the same survey at this point in time, as well as those who may have become involved with distance education during the past year. Your involvement in implementing distance delivery of education within the community-college environment is critical, and these two surveys allow a comparison of individuals' attitudes, concerns, and level of comfort to be made regarding the technology over time and help identify areas that need to be addressed before further progress can be made. Distance education takes from three to five years to implement fully, so you should not feel discouraged if you have not attained complete comfort or proficient use of this innovation in the curriculum. I am scheduling some focus groups in early _____ that will offer participants an additional opportunity to have an open discussion about the successes and challenges of using the telecommunications delivery system.

I have enclosed a stamped, self-addressed envelope for you to send me your completed survey. The coding on the first page is for tracking purposes only. All responses are confidential. Please try to return your questionnaire to me by _____.

Thank you for your support in helping me to complete my research.

Sincerely yours,

Diane Klassen

Sample Letter Regarding Distribution of Final Questionnaire

#3 1ˢᵗ Follow-Up Letter to Participants

Date

Ms. Cathy Compost
Renaissance Community College
P.O. Box 6000
Reformation, NM 88202-6000

Dear Ms. Compost,

Several weeks ago, I mailed you a questionnaire pertaining to Renaissance Community College Rural Telecommunications Network. Your response to the questionnaire, along with information obtained through open-ended questionnaires that followed each of the three workshops conducted by the Department of Learning Technologies last winter and spring and from focus groups that I am hosting the first week of November, will be of great help in implementing and improving the program. I am conducting a case study of the implementation process of distance education at our institution, and this study will be much improved if I have as many responses as possible from the original participants in the training.

I would also appreciate knowing how your division/department is planning to use the telecommunications Network (videoconferencing and/or WebCT) in the future. This information will be very valuable to the project and to other institutions in New Mexico and elsewhere in the United States who plan to incorporate distance-education courses into their curriculum. I have enclosed a survey and a stamped, self-addressed envelope for your response.

Thank you for your time and support. Should you have any questions you can reach me at (505) 624-7284 or through my e-mail address: diane.Klassen@Reformation.RU.edu.

Sincerely yours,

Diane Klassen, Director
Learning Technologies
Renaissance Community College

Sample Letter Regarding Distribution of Final Questionnaire

#4 2nd Follow-Up Letter to Participants

Date

Ms. Cathy Compost
Renaissance Community College
P.O. Box 6000
Reformation, NM 88202-6000

Dear Ms. Compost,

Several weeks ago, I mailed you a questionnaire pertaining to Renaissance Community College Rural Telecommunications Network. As of this date, I have not received your response. Through a follow-up call, I spoke with your division secretary, who indicated that you had misplaced the questionnaire and requested that I send an additional form. It is enclosed.

Your response to the questionnaire, along with information obtained through open-ended questionnaires that followed each of the three workshops conducted by the Department of Learning Technologies last winter and spring and from focus groups that I hosted the first week of November, will be of great help in implementing and improving the program. I am conducting a case study of the implementation process of distance education at our institution, and this study will be much improved if I have as many responses as possible from the original participants in the training.

Thank you for your time and support. Should you have any questions, you can reach me at (505) 624-7284 or through my e-mail address: diane.Klassen@Reformation.RU.edu.

Sincerely yours,

Diane Klassen, Director
Learning Technologies
Renaissance Community College

Enclosure: Questionnaire

APPENDIX H

Division/Deparment Chair's Narrative Report

Renaissance Community College Rural Telecommunications Network

How is your division/department currently using the telecommunications Network?

What future plans do you have for the Network? Please be as specific as possible.

--for dual enrollment courses?

--for high school courses?

--for WebCT courses?

--for staff development?

--other uses (co-curricular, community, etc.)?

What comments/concerns do you have regarding the Network?

Focus Group Interview Questions	
Domains	**Questions**
Value/Effect of the Three Workshops	1. What did you feel about the value of the workshops held this year regarding the Renaissance Community College Rural Telecommunications Network and use of the PolyCom equipment and/or WebCT? 2. How has your participation in the workshops affected your understanding of distance education? 3. How has your participation in the workshops affected your skill/ability to work with the technology associated with distance education?
Current Status of Network Equipment	1. How is the Network functioning at the distant sites? 2. How did you find the support provided by the Department of Learning Technologies in establishing operability of the Network?
Development of College and Community Awareness of the Network	1. How have you and your department/ division developed awareness of ITV/WebCt Distance Education among your staff, students, and the community? 2. What future plans do you have for creating awareness of distance-education opportunities?
Plans for Future Use of the Network	1. What future plans do you have for using ITV/WebCt? 2. What kinds of incentives would promote the use of the Network by students and instructors?
Current Utilization of the Network	1. How is the RCC Telecommunications Network currently being utilized by your division/department?

APPENDIX J

Goals and Objectives of Staff-Development Workshops

Goals of Workshops

1. Introduce participants to the use of compressed video in delivering distance-education instructional programs;

2. Develop an understanding among workshop participants of the changes in society brought about by developments in the realm of technology;

3. Create an awareness of the vision, goals, evolution, and operation of Renaissance Community College Rural Telecommunications Network;

4. Model and communicate effective strategies for teaching and learning that employ technology;

5. Create an understanding among participants that the educational changes involving technology need to focus on its value to the learner;

6. Foster an understanding that change is a process, not an event; and

7. Create a sufficient number of mentors in each division/department who will be able to exhibit leadership in promoting distance education.

Objectives for Workshops

After completing these workshops, you will be able to:

1. Define distance education and articulate the unique characteristics of this mode of education.

2. Define technology and identify some of the impact it has had on varied segments of our society.

3. Identify current instructional technologies that involve education at a distance.

4. Articulate various instructional strategies that use electronic technologies that can be employed to engage all categories of learners in the study of new materials.

5. Engage in group discussions regarding definitions of quality instruction and effective teaching practices, as well as ways to promote awareness of distance education.

6. Design and deliver a five minute visual presentation using compressed video.

7. Identify institutional support structures–classroom, administrative, community–for students enrolled in distance-education programs at Renaissance Community College.

8. Develop strategies for using technology to facilitate instruction.

9. Engage in learning environments in which sample mini-lessons are delivered using compressed video or WebCT.

10. Operate equipment typically used by instructors in the classroom that are connected by compressed video technologies.

11. Prepare a set of guidelines for students enrolled in distance-education classes.

12. Communicate via electronic mail.

APPENDIX K

Sample Agenda

Time	Event
Time	**Event**
8−8:30 A.M.	Participants Questionnaire Get Acquainted Activity
8:30 A.M.	Welcome Goals/Objectives Format: Ways of learning and interacting with information-(Power Point, Partial Notes)
8:50 A.M.	What is technology? (video) Small Group Discussion: Changes Due to Technology in Government, Business, Medicine, and Education School Restructuring and Change
9:15−9:30 A.M.	Break-Refreshments
9:30 A.M>	Distance Education Definition Requirements Model Interactions History Delivery Objective Determines Delivery Mode Advantages/Disadvantages/Opportunities Compressed Video: What is it? (video)
10:15 A.M.	Renaissance Community College Rural Telecommunications Network: Introductions Good Teaching Video and Small Group Discussion
11:00 A.M.	How do learners learn? Learning styles; varied models Role of the Instructor Use of technology in learning. ITV classrooms Summary: Homework and Preview of Things to Come
12:00 P.M.	Adjourn

Request for Permission to Use the CBAM

-----Original Message-----
From: Shirley Hord [mailto:shord@sedl.org]
Sent: Monday, February 17, 2003 11:59 AM
To: Klassen, Diane
Subject: Re: Seeking Permission to Use CBAM

DIANE,

I HAVE SENT YOUR REQUEST TO THE APPROPRIATE PERSON HERE AT
SEDL...IF YOU DON'T HEAR SOMETHING IN THE NEXT WEEK, CONTACT ME
AGAIN.

GOOD LUCK ON YOUR STUDY.

SH

February 17, 2003

Dear Dr. Hord:

I am a doctoral student in the College of Education, Department of Educational
Leadership, at the College of New Mexico. In this role, I am conducting a research
project concerning the development and implementation of an effective distance-
education Network in a rural community college.

This research will contribute qualitative insight into the process of change that occurs as
distance education is implemented in the community-college environment, and in
particular, into the effect of distance education upon individuals who serve as instructors
and tech-support personnel.

I am seeking permission from you to use the Concerns Based Adoption Model to (a)
identify each individual's level of concern about this innovation, and (b) to develop
appropriate interventions so as to alleviate concerns and move the individual further
along the process of adoption of the innovation.

Participants will be asked to respond to written questionnaires, administered before and
after training, allowing for a period of experimentation, regarding their attitude towards
distance education, their personal stage of implementation, and their feelings of self-
efficacy regarding this innovation. Short surveys will be administered following each
training session and after initial distance education programming so that the researcher
can respond to any perceived problems. In late spring, participants will be asked to take

part in a two-hour focus group in which they will be asked to provide personal commentary on the operation of the distance-education Network, as well as their concerns and needs.

Thank you for your consideration of my request. I look forward to hearing from you.

Diane Klassen, Director
Learning Technologies
Renaissance Community College
P.O. Box 6000
Reformation, NM 88202-6000
(505) 624-7284

Shirley M. Hord, Ph.D.
Program Manager
Strategies for Increasing
School Success Program
Southwest Educational Development Laboratory
211 East Seventh Street
Austin, Texas   78701-3281

voice - 512/476-6861
fax - 512/476-2286
e-mail - shord@sedl.org

Request to Adapt Survey Items Measuring Attitudes and Self-Efficacy

-----Original Message-----
From: Klassen, Diane
Sent: Monday, February 17, 2003 11:59 AM
To: 'kinzie@virginia.edu'
Subject: Re: Seeking Permission to Use CBAM

Dear Dr. Kinzie:

I am a doctoral student in the College of Education, Department of Educational Leadership, at the College of New Mexico. In this role, I am conducting a research project concerning the development and implementation of an effective distance-education Network in a rural community college.

This research will contribute qualitative insight into the process of change that occurs as distance education is implemented in the community-college environment, and in particular, into the effect of distance education upon individuals who serve as instructors and tech-support personnel.

I am seeking permission from you to use the Concerns Based Adoption Model to (a) identify each individual's level of concern about this innovation, and (b) to develop appropriate interventions so as to alleviate concerns and move the individual further along the process of adoption of the innovation.

Participants will be asked to respond to written questionnaires, administered before and after training, allowing for a period of experimentation, regarding their attitude towards distance education, their personal stage of implementation, and their feelings of self-efficacy regarding this innovation. Short surveys will be administered following each training session and after initial distance education programming so that the researcher can respond to any perceived problems. In late spring, participants will be asked to take part in a two-hour focus group in which they will be asked to provide personal commentary on the operation of the distance-education Network, as well as their concerns and needs.

Thank you for your consideration of my request. I look forward to hearing from you.

Diane Klassen, Director
Learning Technologies
Renaissance Community College
P.O. Box 6000
Reformation, NM 88202-6000
(505) 624-7284

First E-Mail Response to Request to Adapt Survey

Dear Ms. Diane Klassen (soon to be 'Dr. Klassen'):

It was nice talking with you today on the telephone; I had called to respond to your request and confirm receipt.

Based on our discussion of your request for permission to use the CBAM materials, here is what I understand: you would like to use it in handout or possibly online format (via the free access to Zoomerang.com), to administer pre- and post- to 35 faculty members.

Would you please provide the title of your dissertation? I may have an additional question or two to ask in future if you don't mind; and, 'on the flip side, if you have specific questions about using the CBAM, I would be happy to refer you to someone here (I mentioned D'Ette Cowan's name on the telephone, and there are several other staff members) who might be available, depending on their schedules for site work.

I hope that my info on the doctoral dissertation you sought was helpful. Do contact me anytime via e-mail at MWolcott@sedl.org) or phone (800-476-6861) with any further questions.

I'm happy to be of assistance!

Best regards,
Mary Wolcott
Information Associate
SEDL

APPENDIX O

Second E-Mail Response to Request to Adapt Survey

Hi Diane,

Just FYI, the language in the permissions will go basically as follows. Feel free to review and let me know if you have any questions. I'll send you a permissions form once the Director has signed it and ask you to sign and return.

SEDL is pleased to grant permission for use of the material cited above for the purpose of: print administration of the instrument for educational, non profit use only. Meeting the following conditions shall constitute your permission to use the material cited above. This permission shall terminate if the conditions of this agreement are not met.

1. No adaptations, deletions, or changes will be made in the material without the prior written consent of the Southwest Educational Development Laboratory, except to replace the phrase "the innovation" in survey items with the specific intervention being studied.

2. If you are using figures from the publication named above, a) you must not alter the figures, but reproduce them in their entirety, in a way that complies with appropriate professional style guidelines, your graduate school, or your publisher; and b) a note on each figure should read: "This figure reproduced with permission of the Southwest Educational Development Laboratory, Austin, Texas."

3. For Web-based administration, you must guarantee that the Web site will not be promoted or used for any purpose other than this specific dissemination. Finally, access to the Web site will be disabled as soon as all data have been collected, as specified in the research design.

4. This permission is nonexclusive, nontransferable, and limited to the use specified herein. SEDL expressly reserves all rights in this material.

5. You must give appropriate credit: "used with permission of Southwest Educational Development Laboratory" or attribute Southwest Educational Development Laboratory as appropriate to the professional style guidelines you are following.

Yours,
Mary Wolcott

APPENDIX P

Permission to Adapt Survey Items Measuring Attitudes and Self-Efficacy

Hello Diane:

Sounds like you are doing some interesting work!

Below is some of the information on the ACT and SCT measures, and citations for papers we've published about them. You are welcome to adapt the measures to suit your purposes. I will attach Microsoft Word documents containing the measures. We ask only that you cite the source.

Attitudes:

Form A of the ACT is designed for administration to a teaching population (preservice and in-service), and Form B is designed for an interdisciplinary population. Other than that, both forms of the measure address the same Usefulness and Comfort/Anxiety constructs.

Self-Efficacy:

Form A of the ACT has three self-efficacy scales. Form B of the SCT has three additional self-efficacy scales, for a total of 6. Both forms A and B of the SCT are written for an interdisciplinary population.

Form A Instrument development is reported in:

Delcourt, M.A.B., and Kinzie, M.B. (1993). Computer technologies in teacher education:

The measurement of attitudes and self-efficacy. *Journal of Research and Development in Education, 27*, 35−41.

Form B Instrument development is reported in:

Kinzie, M.B., Delcourt, M.A.B., and Powers, S.M. (1994). Computer technologies:

 Attitudes and self-efficacy across undergraduate disciplines. *Research in Higher*

 Education, 35, (6), 745–768.

 See also the more recent article reporting the attitudes and self-efficacy of several

cohorts of preservice teachers as they completed their college degrees:

Lin-Milbrath, Y.C., & Kinzie, M.B. (2000). Computer technologies: Preservice teachers'

 Attitudes and self-efficacy over time. *Journal of Technology and Teacher*

 Education, 8(4), 373–385.

 Best wishes with this project!

 Mable

 Mable B. Kinzie, Ph.D.

 Associate Professor, Instructional Technology

  Curry School of Education, College of Virginia

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APPENDIX Q

RCC Instructional Television Needs Assessment Survey

Please complete this survey and return it to Diane Klassen in the LRC Media Center.

Division:	
Name:	
Email Address:	
Office Phone:	
Fax Number:	
Three general training sessions will be conducted to familiarize you with the distance learning equipment installed in the Instructional Television. The following items will be addressed:	
1.	Turning the system on
2.	Checking microphones
3.	Multimedia devices
	PowerPoint
	Internet
	VCR/DVD player
	Document Camera
4.	Troubleshooting tips
5.	Shutting down the system
6.	ITV Course Material Distribution
	Labeling envelopes
	Sending materials
	Receiving materials
7.	Best Practices
	Techniques and methodology
	The ITV Classroom
	What to wear
8.	Technical Support
What curriculum needs would you like to see addressed concerning ITV?	

**Renaissance Community College
Policies and Procedures for Online Program**

(Draft)

Purpose:

In an effort to provide learning opportunities that are less restricted by time and place than our normal courses and programs scheduled on campus, Eastern New Mexico College-Roswell has enhanced its distance education program by developing web-based courses. Through our network, students may work toward a college degree, enhance their professional standing, or enrich their understanding of the world. The goals of Eastern New Mexico College-Roswell's distance education program are to:

1. Increase educational access for students unable to attend classes on campus.
2. Ensure that all online courses meet and maintain the highest of quality standards.
3. Fully utilize the resources of the College.
4. Enhance instruction by integrating technology into the curriculum.

This Memorandum of Understanding sets forth the policies which will be used to provide coordination guidelines and managerial oversight responsibilities to the web-based portion of Eastern New Mexico College-Roswell's distance education program. These policies follow the current policies and procedures approved by ENMU-Roswell and current NCA accreditation standards for online programs.

Priority Courses:

The Dean of Instruction, Division Chairs and Director of Distance Education will identity the priority courses and programs for online delivery. Only courses that have been approved by the appropriate Division Chair and Dean of Instruction will be offered electronically. Faculty members with disciplinary expertise in the priority program areas are encouraged to submit their names to their Division Chair as candidates for participation in the development of these courses.

Admission:

Any students wishing to take an online course will be admitted to the College. Information, advice, and the opportunity to ask questions and receive answers regarding admission requirements and procedures will be available to students applying for electronic courses, synchronously via telephone and asynchronously via the World Wide Web and e-mail.

Advising:

Comparable advising services, as determined by the College and/or department, will be available to students both on and off campus. This will be accomplished synchronously by telephone at specified, published times, and asynchronously by e-mail and fax. Students will be responsible for long distance telephone or Internet access costs incurred. Frequently requested advising information will be made available via the World Wide Web.

Student Assistance:

Issues such as library access, help desks, financial aid, bookstore (and others), will be available to students via the ENMU-Roswell home page. Any service available to students on campus will be provided to students enrolled in online courses via the World Wide Web.

Computer Accounts:

All students taking web courses must have access to a computer with Internet access, a web browser (variety, version, and configuration as required by course), e-mail account, and other software necessary to complete course requirements.

Course Completion Timetable:

Students will be required to complete an electronic course within the timeframe of the semester for which they enrolled, or as stated by the course syllabus. Instructors teaching courses that have a starting or ending date other than the normal semester start/stop dates are required to notify the Director of Distance Education through their Division Chair on the course request form.

Course Content:

The electronic course content will meet the same content standards as courses offered on campus. The only difference in the curriculum of an electronic course as compared to the equivalent on campus course will be the delivery mode. Due to the nature of the online environment, the syllabus for an online course may vary from the on campus syllabus in terms of format and detail (more detail is required for activities and grading criteria in an online course), but the goals and course objectives for both online and on campus will be identical.

Course Enrollment:

The maximum number of student that may enroll in a section of an electronic course will be determined through agreement between the instructor of record for that course and the appropriate Division Chair, but will not be lower than the same on campus sections of that course (Exception: if the instructor of record feels it is necessary to have a lower

maximum number, the instructor will request this exception in writing to the Division Chair who will forward the request to the Director of Distance Education). If an agreement on the maximum number of students for the class cannot be agreed upon, both the instructor of record and/or Division Chair can appeal the maximum number for the course to the Dean of Instruction whose decision will be final. If demand warrants an additional section, the Division Chair is responsible for notifying the Director of Distance Education for appropriate action. The minimum number of registered students required for a class to "make" will be consistent with the number required for on campus courses. If a class/section does not "make," it is the instructor's responsibility to deny student access to the content of that class/section and post an appropriate message on the homepage of the class/section. Only those courses officially "cross-listed" in the printed schedule will be merged into another section. These "cross-listed" courses must be annotated on the course request form.

Prerequisites:

Information regarding prerequisites will be included in course descriptions and completion of such will be required of students taking online courses in the same manner required of on campus students. Students who have not completed prerequisites for an electronic class will not be permitted to register for the online course unless "permitted" into the class by action of the appropriate Division Chair.

Textbook Selection:

Due to the special format of online delivery, it may be necessary to select a textbook especially conducive to distance learning. Approval of the Division Chair will be required for the adoption of a textbook not already selected for the course. If the instructor is using an e-pac (author constructed course), the instructor is responsible for insuring that all authorization codes have been ordered from the publisher and the EMNU-Roswell bookstore has been notified that this class/section will be using an authorization code. It is also the instructor's responsibility to annotate the use of authorization codes in the "special instructions" area of the Course Request Form.

Faculty Compensation for Course Development and Delivery:

If the course developed is a new online course, and the faculty member (full-time or adjunct) responsible for the development is developing a course (three credit) for the first time the faculty member will receive a one time $1,500 stipend when the training requirement (see Faculty Training) has been met (a two credit course is $1,000 and a one credit course is $500). This stipend will not be granted for developing a 293 (special topics) course. A $500 stipend will be granted to a faculty member (full-time or adjunct) who has received the initial stipend, for any subsequent new online course they develop (with the exception of 293 courses).

Online Course Agreement and Faculty Obligations:

Course Request Form

Faculty who wish to offer an electronic course are required to submit a Course Request Form, signed by the Division Chair, which obligates them to receive the required training (see Faculty Training), develop the requested course, and perform their duties as instructor of the course throughout the period specified in the syllabus. Divisions may consolidate this form, listing all the requested online courses for the appropriate semester. The date this form is due to the Director of Distance Education will be set by the Registrar and coincide with the final date of entering courses into Banner. The Director of Distance Education will forward a copy of this form to the Systems Administrator who will create the "shell" on the server. No course will be placed on the server without a complete, signed request form approved by the Director of Distance Education.

New Online Course Development and Completion Deadline
If this is a new course (course has not previously been offered online), the course must be complete four weeks prior to the semester start date. The instructor developing the course will notify the Division Chair and the Director of Distance Education when the course is ready for review. The course will then be reviewed by the Director of Distance Education who will then forward the results to the instructor and Division Chair. If changes are required, the changes must be made prior to the course being approved. New courses will not go "active" (students loaded into the course) until it has the approval of both the Division Chair and Director of Distance Education.

Previously Developed Online Courses and Completion Deadline

Courses that have been taught online previously are required to be complete the first day of class.

A complete class is defined as follows:
1. All required course areas available to students;
2. Complete and current syllabus available;
3. All assignments (to include any quizzes and exams) posted with availability dates listed; and
4. Any required links are available and working.

Courses will be checked for completeness the week before the start of the semester. The Division Chair and Dean of Instruction will be notified if any course is found to be not complete. Any course found incomplete the week prior to the start of a semester will be checked again the first day of class. If any course is found incomplete the first day of class, the Division Chair and Dean of Instruction will be notified for appropriate action. Division Chairs, with coordination of the Director of Distance Education, will insure that all course development meets these deadlines.

Teaching Assignments

The appropriate Division Chair will determine the teaching assignment for the web-based courses under his/her purview but is encouraged to consult with the Director of Distance Education to determine instructor suitability and/or instructor training. Consideration should also be given to the original designer of the course and their availability to teach the course.

Faculty Training:

All instructors developing or teaching web-based courses will be trained in course instruction and online teaching pedagogy by a certified instructor, or by an instructor designated by the Director of Distance Education. The successful completion of this training is mandatory requirement to receive any stipend for course development. Any instructor assigned to teach an online course is required to receive a minimum of ten hours of "teaching online" training before they begin teaching online. Training records will reflect any formal training received and will be forwarded to the Professional Development office. Division Chairs are responsible for insuring that all instructors teaching or developing online classes have met the training requirement. Open labs, remedial training, and special topics will be offered throughout the semester on campus.

Evaluation, Quality Assurance, and Outcome Assessment:

ENMU-Roswell will assess the ongoing effectiveness and quality of online courses from the perspective of the student, faculty, and Administration.

Student Perspective:

This evaluation will be accomplished through the use of surveys and student evaluations administered at the end of every semester. The Director of Distance Education is responsible for the creation and online posting of the end-of-course student survey. Results of the survey will be forwarded to the Division Chairs. The use of E-SIRs will also be used during the appropriate faculty evaluation cycle.

Faculty Perspective:

A faculty Online Course Survey will be generated and administered by the Director of Distance Education every semester. Results of this survey will be forwarded to the Division Chairs and Dean of Instruction.

Administration Perspective:

Course evaluations will be conducted on select courses by the Director of Distance Education each semester. The evaluation instrument (attached) to be used for course

evaluation will be an evaluation form approved by the institution. A copy of the completed evaluation will be forwarded to the instructor, the appropriate Division Chair, and Dean of Instruction with comments as to any suggestions for course improvement, if any, and/or suitability of the structure and construction of the course. If changes are required, and can be made without disrupting the facilitation of the course, they must be made within five days of the date of the evaluation. After the changes have been made those areas will be reviewed for completeness. If changes have not been made within five days, the supervising Division Chair and Dean of Instruction will be notified for appropriate action. The Director of Distance Education may also recommend additional mandatory training for the faculty member, if warranted.

Director of Distance Education Responsibilities:

The Director of Distance Education assumes the responsibility for overall management of these policies and supervision for the online portion of the distance education program at ENMU-Roswell. The individual in this position will also conduct appropriate faculty training, monitor course development, insure proper instructional procedures unique to the online format being used, maintain appropriate records and statistics, conduct course evaluations of online courses, and will supervise all responsibilities and duties of the Systems Administrator. This position requires full designer access to all courses on a continuing basis.

The Director of Distance Education will only access courses for the following reasons:
1. A request from the instructor.
2. Monitoring courses under development.
3. A request from a Division Chair.
4. Repeated reports of problems with a course from students.
5. Evaluation.
6. Checking for course completeness at the beginning of each semester.

The Director of Distance Education under no circumstances will change or modify any course content or course settings unless specifically requested by the instructor of record. To avoid possible conflicts, anyone requesting access to any course must have this request approved by the supervising Division Chair. If the request is approved, the individual will be granted access as a TA or, if requested, as a student. A request for designer access to a course from an individual other than the instructor of record must be requested by the instructor of record. These requests will be made directly to the Director of Distance Education.

The Director of Distance Education at ENMU-Roswell will act as the main point of contact between the Portales and Ruidoso campuses and WebCT Inc. for issues concerning distance education.

Ownership for Online Courses:

The policy for intellectual property is defined in Eastern New Mexico College-Roswell's Policy and Procedures Manual (30.11). In sum, for cases where the faculty member creates all course content, receives no assistance from the institution (release time, stipends), ownership of the content will be retained by the faculty member. For cases where the faculty member creates the material but does receive assistance from the institution, ENMU-Roswell shall own all intellectual property. Upon leaving the College, or, if the faculty member who has created the course elects not to teach the course, the faculty member may retain copies of any content material developed or created; however, ENMU-Roswell has the right to retain, modify, and offer the course using an alternate qualified instructor.

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