

**GROUNDING META-ANALYSIS OF QUALITATIVE CASE STUDY  
DISSERTATIONS IN DISTANCE EDUCATION PEDAGOGY**

By

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## CHAPTER 1

### DESIGN OF THE STUDY

Early forms of distance education were classified as correspondence study and introduced over 150 years ago (Holmberg, 1974, 1986). In Lund, Sweden, a university city, an advertisement printed in a weekly newspaper, *Lunds Weckoblad*, No. 30, 1833 offered “Ladies and Gentlemen, an opportunity to study Composition through the medium of the Post” (Holmberg, 1986, p.7). In Britain in 1840, Isaac Pitman offered a free course in shorthand via post. Students were to select Bible verses, transcribe them into shorthand, and send the shorthand on postcards to Pitman for evaluation. Eventually, Pitman established a distance education school, called the Sir Isaac Pitman Correspondence College (Holmberg, 1974, 1986). A few years later in America (1873), the daughter of a Harvard professor, Anna Eliot Ticknor, established the Society to Encourage Study at Home. Her students, primarily women, received monthly correspondence at their homes for instruction in the classical curriculum (Holmberg, 1986).

Correspondence study eventually included study by printed texts, mail, audio and video recordings, and telephone and computer interactions (Holmberg, 1974, 1986). As early as 1972, the term, distance education, was used in place of correspondence education. Most educators believed the term, correspondence, reflected only the written

component, whereas the term distance included all media forms (Holmberg, 1986).

Keegan (1986, 1996) described distance education as having five components: Separation of teacher and student, institutional preparation of teaching materials, technology as the liaison between teacher and learner, two-way communication, and a focus on individual (rather than group) learning. Holmberg (1995) defined distance education as:

Covering various forms of study, at all levels which aren't under the continuous, immediate supervision of tutors present with the students in lecture rooms or the same premises, but benefit from the planning, guidance and teaching of the supportive organization. (p. 2)

Higher education institutions have been increasingly involved in offering courses via distance education for two primary reasons. The first is ease of students' access or expansion of education. The second is reduced administrative costs or economies of scale (Perraton, 1981; Schlosser & Anderson, 1994).

Students benefit from distance education courses in several ways. Distance education builds self confidence because students must rely on their own faculties, and typically attempt assignments before asking for help. Distance education accommodates students with families, social obligations and full time occupations because students may be educated in their spare time, at times that are convenient to them. In addition, distance education allows students to enroll in classes to improve their professional knowledge, and ultimately, their standards of living and communities (Holmberg, 1986).

Distance education can be studied from three perspectives: The student, the teacher and the curriculum planner's perspectives (Keegan, 1993). By narrowing the

focus to one of these areas, the researcher can investigate more fully the complexity of the perspective. Whatever perspective, Minnis (1985) summarized distance education research as “being context-specific, with limited generalizability or comparative perspectives” (p. 190).

In a review of distance education literature, Schlosser and Anderson (1994) cited a need for a comprehensive study of case studies, rather than additional, singular case studies, which often lack generalizability to the field of distance education. Others have suggested the need for distance education studies which collate and compare evaluations for the purpose of extracting commonalities and synthesizing information (Kember, Lai, Murphy, Shaw & Yuen, 1992).

The term pedagogy is defined as the “function or work of a teacher” (Urdang, 1973, p. 978) and “the art or profession of teaching” (Berube, 1982, p. 914). Distance education pedagogy, then, includes instructor attitudes and actions toward teaching in a distance education setting.

#### Statement of the Problem

Hundreds of singular case studies have been completed on distance education. The abundance of case studies may be attributed to rapid changes in technology which have channeled researchers' time into developing and recording practical curricula for their own universities. However, these individual success stories may not be generalizable to other institutions with similar implementation needs because of a preponderance of qualitative data, singular in nature. “...Research has progressed to the point where scholars must take the time to analyze the existing research in an attempt to find the cement that glues...” (DeWitt-Brinks & Rhodes, 1992, p. 5).

The need for comprehensive studies, which subsume individual studies, and the remarkable absence of generalizable studies of distance education pedagogy co-exist because of the contextually specific nature of distance education. Each unique institution creates its own unique solution to its own unique distance education pedagogy needs. The result is a plethora of one-shot, one site case studies, of little assistance in meeting the theoretical needs of distance education pedagogy.

### Purpose

The purposes of this study were:

1. To develop a methodological procedure for a qualitative meta-analysis, using grounded theory data coding techniques developed by Strauss and Corbin (1990);
2. Using these procedures, identify and explain categories and themes that emerged from multiple distance education case studies, and develop testable hypotheses which might be useful in the development of a theory of distance education pedagogy; and
3. To evaluate the usefulness of these procedures for collectively analyzing case studies in distance education pedagogy.

### Orienting Conceptual Framework

Glass, McGaw and Smith (1981) introduced a meta-analysis as a way to review, summarize and compare existing empirical research. Meta-analysis is an “analysis of analyses” or a statistical summary of the findings of several quantitative studies (Glass, 1976, 1981). “A meta-analysis involves transforming the findings of individual studies into a common metric, coding the various characteristics of these studies, and then using standard statistical procedures to determine the overall effects, subsample effects, and the relations between the characteristics and the findings” (Short, 1985, p. 13).

Researchers have argued that meta-analysis could be adapted to qualitative studies (Rogers, 1981; Light & Pillemer, 1982; Short, 1985; Hossler & Scalese-Love, 1989; Miles & Huberman, 1991; DeWitt-Brinks & Rhodes, 1992). The application of meta-analysis to qualitative research using Strauss and Corbin (1990) grounded theory methodology and the Hossler and Scalese-Love (1989) qualitative meta-analysis technique was devised for this research. Grounded theory is a method of scientific research that allows the researcher to inductively derive a theory by systematically analyzing and interpreting data (Strauss & Corbin, 1990). According to Strauss and Corbin (1990), grounded theory researchers aim for a cumulative development of theoretical research in their discipline.

Drawing upon Glass' (1976, 1977, 1981) quantitative meta-analysis and Strauss and Corbin's (1990) grounded theory techniques, researchers Hossler and Scalese-Love (1989) introduced a grounded meta-analysis combining the two research methods. This grounded meta-analysis allowed for the synthesis of qualifying qualitative research and the development of theory, grounded in data. The characteristics of grounded theory were incorporated into this qualitative meta-analysis. Induction, cumulative development, systematic analyzing and interpreting data were components of grounded theory, the process initially used to analyze individual case studies. Hypotheses were inductively developed after the data were conceptually categorized (Strauss & Corbin, 1990). Hypotheses were not developed for individual case studies, but were developed based on data from multiple case studies.

The grounded theory process in this qualitative meta-analysis focused on building categorical relationships in a cumulative fashion. Similar phenomena were grouped in categories and re-analyzed to identify relationships. These categories became components

in the conceptual framework; data were simultaneously analyzed and interpreted, and relationships proposed between categories.

Each case study was similarly analyzed, and categories were developed. Cross-case comparisons of the categories were performed, eliciting commonalities among the case studies. These relationship findings could ultimately be used to develop a theory of distance education based on qualitative research.

Unlike grounded theory, which aims at theory building, this meta-analysis research aimed toward finding emergent themes and patterns useful in theory building.

### Procedures

The data needed, sources and methods for collection and analysis follow.

#### Data Needs and Sources

The data needed for the qualitative meta-analysis study were recent dissertation case studies reporting faculty activities and attitudes about distance education in U.S. higher education institutions. Dissertations were selected because each met the following criteria: Written in the English language; available through interlibrary loan; and contained observational or interview data from instructors about teaching strategies or attitudes, used or expressed by the instructor, to facilitate learning in a distance education class. A distance education setting was defined as a physical separation or lack of face-to-face contact between teacher and learner (Keegan, 1996).

All of the dissertations were identified by Dissertation Abstracts Online with the key terms “distance education,” “case study,” “higher education” and “teaching”. After procuring a list of 18 potential dissertations, abstracts were evaluated to determine if the



study contained pedagogical issues in distance education. Eight of the 18 potential dissertations contained pedagogical issues which could be useful in the grounded meta-analysis.

### Data Collection

Initially, two dissertations were ordered through interlibrary loan, to test and refine the Case Study Coding Form (See Appendix A). The Case Study Coding Form contained quality-assessing criteria determined by Hossler and Scalese-Love (1989) to be useful in evaluating studies for inclusion in a grounded meta-analysis. Additionally, criteria from Burlingame (1994) and Yin and Heald (1975) were included in the Case Study Coding Form. The evaluation criteria included a thick, rich description of the research methodology and findings, as well as validity and reliability. Components of the Case Study Coding Form included overall quality, problem statement, reliability, validity, research questions, purpose, major concepts, data sources and triangulation, site, subjects, method, descriptive adequacy, findings, conclusion, recommendations and limitations. Each of these components were assigned a level of confidence based on clarity of descriptions. The level of confidence contained the terms: Sure, not sure and no information. One of these levels was assigned for each component. After completing the Case Study Coding Form, the overall quality could be rated.

Slight alterations were made to the Case Study Coding Form (See Appendix B), after which the six remaining dissertations were ordered through interlibrary loan. One dissertation was unavailable through the library. Five were eventually received; four were analyzed in this study. It was necessary to entirely code each dissertation's data independently of the other dissertations because they were received at varying times

through interlibrary loan. The processes of open, axial and selective coding were performed separately for each dissertation. A cross-case analysis occurred after the individual dissertation coding processes.

### Data Analysis

Theoretical concepts were linked and categorized based on the Strauss and Corbin (1990) procedure for coding data. The three methods of coding for analysis were open, axial and selective. Code notes, or memos, were kept on each dissertation and were presented in Appendices C, D, E and F. Coding the data produced general categories for each dissertation, which represented the activities and attitudes of teachers believed to be important for the facilitation of student learning in a distance education setting. The coding process entailed breaking down the case study data into phenomena, then recombining the data into similar formats, significantly simplifying the grounded meta-analysis procedure, and allowing for familiarity with the individual case studies.

The data were interpreted by evaluating the conditions, events, actions and consequences that occurred temporally or as part of the implementation process in the case studies (Strauss & Corbin, 1990). Each story was conceptualized into a formal statement, showing the relationships among the categories. "A (conditions) leads to B (phenomenon), which leads to C (context), which leads to D (action/interactional strategies), which then leads to E (consequences)" (Strauss & Corbin, 1990, p. 124-125).

Data interpretations were expressed as hypothetical relationships between categories across case studies. Cross-case comparisons were performed, using the hypothetical statements. The meta-analysis focused on identifying the commonalities among the case studies' findings.

## Significance

To date, distance education research has emphasized the uniqueness of distance education programs, and has offered minimal contributions to generalizable research. This research was designed to bridge the singularity of practical case studies with the generalizability of a meta-analysis.

This study was significant for research in distance education. Rather than adding another case study to the growing list of dissertations, a unique and prescriptive technique for a qualitative meta-analysis which synthesized existing case studies, not previously generalizable, was developed. Ultimately, the data analysis provided an opportunity to re-define the traditional meta-analysis using qualitative standards, rather than quantitative. This much-needed comparison of qualitative research findings provides researchers a starting point for synthesizing qualitative research in education and developing theories based on qualitative meta-analysis research.

This study showed relationships among themes which may be considered by university practitioners charged with implementing distance education. Educators often attempt to teach at a distance using the same techniques as face-to-face instruction. Information on the unique aspects of distance education can be useful to practitioners as they facilitate student learning.

This study was significant for qualitative theory development. The newness of the distance education field has prevented the generation of significant numbers of theories. The findings from this study may be a basis on which a grounded theory is developed. Since much of the current research on distance education is in a case study format, the coding techniques for meta-analyses may be needed in other areas of distance education.

Meta-analysis findings can serve as a ground for theory development.

### Reporting

Chapter 2, Review of Literature, contains references to research in distance education and related pedagogical issues, and presents an explanation of meta-analysis. A variation of meta-analysis, grounded meta-analysis, using qualitative data, was discussed.

Chapter 3, Methodology, provides information on the selection of dissertations for data sources. Detailed descriptions of how the data were simultaneously collected and coded include explanations of open, axial and selective coding process. A discussion of the limitations of the study conclude the chapter.

Chapter 4, Data Analysis, provides evidence to answer the research questions. Each dissertation was summarized in terms of open, axial and selective coding. Based on a synthesis of the dissertations, hypotheses were developed and presented in this chapter.

Chapter 5, Summary, Discussion, Conclusions, Recommendations and Implications, provided a general overview of the research process. Specific data from the dissertations were presented in support of the generated hypotheses. Hypotheses discussions focused on general commonalities and anomalies. The hypotheses were compared to an existing theory of distance education teaching presented by Holmberg (1995). Recommendation for future research, and implications for research, practice and theory were discussed. The chapter concluded with a commentary on the entire research process.

### Summary

Vast numbers of case studies exist in educational research. The increasing contributions of qualitative researchers to the field have been both a blessing and a curse

to practitioners. Qualitative case studies provided numerous concepts which practitioners could adapt to their own educational settings, but the sheer number of case studies requires excessive time to sort and examine. The focus of this research was to develop a useful procedure for synthesizing case study research and extracting commonalities. The topic of distance education pedagogy was chosen because of the relative newness of the field, the lack of a theoretical base and the plethora of case studies in educational research.

Methods developed by Hossler and Scalese-Love (1989) and Strauss and Corbin (1990) were combined to similarly analyze multiple case studies' data and extract common themes. These were presented as testable hypotheses, which may be useful in developing a much-needed theory of distance education pedagogy.

## CHAPTER 2

### REVIEW OF THE LITERATURE

With a preponderance of singular case studies in distance education pedagogy, but limited theory, there existed a need to develop an assimilation procedure for these findings useful for advancing theory. This chapter focused on a general overview of the literature pertaining to distance education pedagogy and related theories, the use of case studies in distance education pedagogy; a discussion of meta-analysis, and the development of grounded meta-analysis, using case study data.

#### Distance Education Pedagogy

Distance education has been proposed by Keegan (1996) as the generic term which includes several categories: Computer-based instruction, correspondence courses, distance learning, distance teaching, external studies, home study, independent study, and open universities. These types of distance education all have a common factor - the physical separation between the teacher and the learner. There are numerous definitions of distance education (Moore, 1973, 1990; Holmberg, 1977; Garrison & Shale, 1987; Peters, 1988; Barker, Frisbie & Patrick, 1993; Portway & Lane, 1994; Keegan, 1996) and all refer to physical separation or lack of face-to-face contact between teacher and learner.

#### Theories of Distance Education Pedagogy

Researchers have studied distance education and developed a small number of formal theories to explain and predict distance education pedagogy (Schlosser &

Anderson, 1994). Several researchers have suggested the need for theory construction in distance education (Bååth, 1982; Keegan, 1996; Minnis, 1985; Morgan, 1984; Perraton, 1981; Schlosser & Anderson, 1994). Keegan (1996) recommended developing a theoretical base in distance education, which encompassed practical research. Keegan (1993) compared six theoretical frameworks proposed by researchers in distance education and determined that “four of six theories focused on the learner in adult education, and five of six theories had a communication theme” (p. 70). The theorists were Otto Peters, Michael Moore, Börje Holmberg, Desmond Keegan, D.R. Garrison (and Myra Baynton and Doug Shale) and John Verduin and Thomas Clark.

One of the earliest developers of a theory of distance education was Holmberg (1977, 1995). Holmberg (1995) published a theory of distance education with 13 testable hypotheses about distance teaching. These hypotheses showed the relationship between distance education teaching phenomena and the facilitation of learning. The relative newness of the theory and the field have prevented adequate testing of his hypotheses.

Holmberg's (1995) theory of distance education teaching contained the following 13 hypotheses which might be clustered into the following categories: Pedagogy, student activities and communication. These hypotheses are:

#### Pedagogy hypotheses

1. A course structure carefully based on required earlier learning, which makes subsumptions in Ausubel's sense possible.
2. A style of presentation that is easily accessible; a high degree of readability of printed course materials.
3. Graphical and typographical presentations facilitating access to printed

courses and selections of relevant subject matter.

4. Sequencing, a choice of media and other principles for course presentation adapted to student needs and to the requirements of subject areas studied, e.g. those of operations on knowledge and operations with knowledge (Change, et al., 1983, 14-16).
5. Quick handling of assignments so that students need not wait for more than a week to have their work returned with corrections and comments.
6. Friendly, helpful, and extensive tutor comments on assignments submitted, with suggestions expressed in a way to promote personal rapport between student and tutor.

#### Students' Activities hypotheses

7. Frequent submission of assignments requiring students to solve problems, evaluate texts or recordings; research findings indicated that this is valid if combined with hypothesis number six.
8. A presentation of course goals or objectives which engages the student in the evaluation of their relevance and, if at all possible, in their selection.
9. Self-checking exercises in pre-produced courses, through which students are encouraged to practice skills; not only model answers should be provided but also extensive comments based on course writers' experience of probable errors and misunderstandings (Holmberg, 1995, 176-178).

#### Communication hypotheses

10. Teaching and counseling can be effectively carried out by non-contiguous means; real mediated communication and simulated communication, incorporated



in distance education courses by conversational style and other personal approaches, make dialogue possible.

11. Personal (not necessarily or primarily contiguous) contacts with tutors and other representatives of the supporting organization promote emotional involvement.

12. Pre-produced courses characterized by a conversational style with invitations to an exchange of views and with attempts to involve the student emotionally.

13. Communication facilities (in writing, by computer, on the telephone, and/or by audio tape) constantly open to students for questions and exchanges of opinions with tutors and counselors (Holmberg, 1995, pp. 176-178).

Many universities are implementing distance education programs in spite of the lack of testing of the theoretical frameworks. Doctoral students frequently employ case study methods to identify and describe instructors' attitudes and actions in these distance education setting. These research projects are not usually theory-based; rather they are exploratory and phenomenologically descriptive. Most of these case studies are too limited in scope to ascertain theoretical concepts of distance education pedagogy. It was a goal of this research to assimilate the individual case study findings into a tentative theoretical framework.

### Case Studies in Distance Education

Case studies may be termed "illuminative evaluations" (Morgan, 1991, p. 6) and consist of examining particular incidences or events and the complex meanings associated

with those events. "The aim of case-study work is to chart the multiple realities of different interest groups involved in the issue, phenomena or organization under investigation, in a way which incorporates negotiation of the interpretations with the participants" (Morgan, 1991, p. 10). However, case studies have been criticized because of their lack of methodological rigor, event specificity and absence of comparative analysis (Morgan, 1991; Ogawa & Malen, 1991).

Morgan (1984) praised the use of distance education research using qualitative methodologies. He explained, "research and evaluation studies which have adopted qualitative methodologies generate rich descriptions of learning in specific contexts" (p.265). He further stated:

This type of research has a generalizability, obviously not in a statistical sense, but in a phenomenological sense. The readers and users of the findings can recognise a relevance to themselves and to their own contexts. This type of research aims to raise people's awareness of activities and events in particular settings so that links and parallels can be drawn to inform practice in other settings and new contexts.

(Morgan, 1984, p. 265)

The field of distance education was relatively new when Morgan's paper was published in 1984. Since that time, hundreds of qualitative dissertations on distance education topics have been completed and many employ a case study methodology. A computer search of Dissertation Abstracts Online produced 169 search results with the key terms distance education and case study.

A brief summary of the four used dissertations used as data sets are reviewed.

### Foster Dissertation.

The main story dealt with how the teacher and students interacted in a distance education setting. Various teaching styles were observed in the dissertation case study, including monologues, reading from the text, class discussions and small group activities. The instructor integrated humor with his teaching. As the semester progressed, the instructor adjusted his teaching style and used less monologue and reading from text, spending more class time on open discussions. As the semester progressed, the most frequent type of teaching style became class discussions in which the instructor asked open-ended questions and the students responded and debated (Foster, 1993).

### Gilchrist Dissertation.

The main story was a comparison of instructors' attitudes and feelings toward teaching at a distance. There were two variables used to describe instructors: Level of adoption and degree of use. Although some disagreement existed among users and non-users, and high adopters and low adopters, two common beliefs emerged, regardless of the experience of the faculty member. The faculty believed the primary advantage of distance education was its ability to provide education to students in remote locations. The primary disadvantage of distance education was believed to be a lack of face-to-face communication (Gilchrist, 1997).

### Blundell Dissertation.

The main story was about requiring instructors to teach a course via distance education, even though they may have misgivings about distance education. Instructors' concerns included: Less control over activities that affected student learning, loss of control over technology, loss of class time due to technology failures, inability to

physically monitor events at multiple locations, and inadequate performance of students and technical support staff. The instructor felt s/he had limited power, as compared to the control s/he traditionally experienced in a face-to-face classroom. Instructors depended on others (technicians and students) to self-monitor. Students who appeared frustrated in a distance education class were monitored for verbal and non-verbal cues, which signaled problems that needed to be addressed by the instructor. Distance education teachers applied conflict resolution procedures, adjusted their teaching techniques and took measures to ensure satisfaction among all groups involved. Ultimately, the teacher relinquished some classroom authority, empowered some or all students, and accepted that loss of control occurred in a distance education class (Blundell, 1997).

#### Liu Dissertation.

The main story was about the instructor's feelings and attitudes regarding the planning and implementation of an on-line chemistry class. The instructor evaluated his interactions with students and administrators. The instructor's frustration with others' performance was a theme throughout the story. However, the instructor strongly believed in the need for an interactive, on-line chemistry class, and was willing to face obstacles and tailor the class to meet the needs of remotely-located students (Liu, 1996).

#### Case Study Contributions to Theory Building in Distance Education Pedagogy

Morgan (1991) and McIsaac (1989) suggested a need for cumulative knowledge for theory development in distance education. Researchers (Morgan, 1991; Atkinson & Delamont, 1993) argued that individual case studies in distance education were not comparative or cumulative. "It is hoped that criticism will encourage comparative studies relating to, and extending earlier work in order to build up a stronger theoretical

understanding of distance education” (Morgan, 1991, p. 31). Atkinson and Delamont (1993) also criticized the singularity of case studies and the need for comparative analyses. “If studies are not explicitly developed into more general frameworks, then they will be doomed to remain isolated one-off affairs, with no sense of cumulative knowledge or developing theoretical insight” (p. 215). Researchers can contribute to a theoretical body of knowledge by evaluating case studies within a broader picture of “formal concepts” or “generic problems” (Atkinson & Delamont, 1993, p. 216).

Minnis (1985) believed much of the research in distance education was only peripherally concerned with theory development, usually at the beginning or completion of a research project. He advocated distance education research that focused on theory construction rather than context specific descriptions. Minnis (1985) suggested cross-case research designs and grounded theory were important methodologies for enhancing the development of distance education as a discipline. In a book called Classroom Ethnography, Hammersley (1990) explained: “Unless researchers work collectively on particular theories, investigating cases which are critical for those theories, there will be no cumulative development of knowledge” (p. 11).

### Meta-Analysis

The techniques of analyzing multiple research studies have been defined and discussed by many researchers. Numerous terms are used in the literature to describe the process. These include: Grounded meta-analysis, meta-analysis, meta-assessment, meta-ethnography, meta-evaluation, meta-research, exploratory case study, case-survey, cross-case research, cross-site synthesis, research synthesis, research integration, integrative review, and propositional inventory. Although the terminology varies, a common

assumption is that scientific research findings need integration in order to reveal trends and theories. In 1970, Glass used a mining metaphor to describe the vast quantities of unrelated research. The mines of science have mountains of accumulated, unrefined ore. Many of the raw findings get buried under new accumulations, even though science would be better served if the findings were refined and hammered into usable metal.

The large number of dissertation case studies in distance education illustrates this metaphor. Progress could be made toward an overall theory of distance education pedagogy if commonalities among the case studies were unearthed. Like Glass (1970), Berger (1982) advocated the importance of “integrating collective meanings among case studies on a certain topic” (p. 2). While Glass (1970) and Berger (1982) stressed the importance of relating similar research topics, the purposes of the relationships varied. Purposes included theory testing, theory building and synthesizing research from different disciplines (Short, 1985; Berger, 1982).

### Quantitative Meta-Analysis

Meta-analysis, was the term used to describe the methodology for this study. Originally, a meta-analysis referred to the application of summary statistics to results from multiple quantitative studies (Glass, 1976; Kulik, Kulik & Cohen, 1979; Cook & Leviton, 1980; Guskin, 1984). Glass, McGaw and Smith (1981) explained three fundamental components of a quantitative meta-analysis: 1) quantitatively synthesizing similar studies in a common problem area; 2) looking at all of the research in the common problem area; and 3) generalizing the findings. Kulik, Kulik and Cohen (1979) aptly summarized the need for meta-analyses: “Broad, integrative syntheses of research are obviously needed to help harried 20th-century researchers” (p. 307).

The quantitative meta-analysis technique was proposed by Glass in 1976, during his AERA presidential address (Short, 1985). Glass (1976) described the technique as an “analysis of analyses,” the “statistical analysis of the summary findings of many empirical studies” (Glass, et al., 1981, p. 21).

### Qualitative Meta-Analysis

Following the introduction of the quantitative meta-analysis, some researchers began to apply meta-analyses to qualitative data, although many different terms and slightly different methodologies were used to describe the qualitative meta-analysis. Generally, researchers were attempting to gain objectivity and generalizability in their research syntheses (Light & Pillemer, 1982; Short, 1985; Hossler & Scalese-Love, 1989; Miles & Huberman, 1991) while preserving the subtle nuances of real-life contexts (Ogawa & Malen, 1991). Short (1985) also argued that subjectivity should be acknowledged because a meta-analysis is a social construct, influenced by and reflective of the beliefs of those involved. She believed qualitative meta-analyses should strive for “consistent subjectivity” (p. 29). Generalizability could be gained because “having multiple sites increases the scope of the study and, thereby, the degrees of freedom” (Miles & Huberman, 1991, p. 151). The comparison of cases allows the researcher to determine the generality range of a finding and the conditions under which that finding occurs. In other words, the multiple case analysis has greater potential for generalizability, and greater explanatory power (Miles & Huberman, 1991).

A qualitative meta analysis differs from a singular qualitative research study because of this generalizability. Usually, singular qualitative research is viewed as having limited generalizability, limited to the extent that the readers “can recognise a relevance to

themselves and to their own contexts” (Morgan, 1984, p. 265). Yin and Heald (1975) stated:

The main shortcoming of case studies was that the insights from the studies could not be aggregated in any sense. The case survey method thus carries the classic case study method one major step forward; it enables aggregate reviews of individual case studies to be undertaken with scientific rigor (p. 372).

### Uses and Limitations of Meta-Analyses

Four purposes existed for qualitative and quantitative meta-analyses: 1) To assess progress in a field; 2) to validate previous theories or generate new theories; 3) to synthesize knowledge from dissimilar research types; and 4) to generalize from a set of studies (Jackson, 1980; Short, 1985; Hossler & Scalese-Love, 1989).

Although Short (1985) and Hossler and Scalese-Love (1989) believed in the usefulness of meta-analyses. Short stated, “It is not an objective means of uncovering the truth ... or a way to get at truth or facts. It provides a good state-of-the-art of current beliefs in a particular area” (1985, p. 29). A meta-analysis is subjective and is only one way of knowing (Light & Pillemer, 1982; Short, 1985; Hossler & Scalese-Love, 1989). Meta-analyses provide an understanding of and reflect current beliefs, however, this methodology does not encourage the evaluation of these current beliefs. The synthesizing nature of a meta-analysis inhibits the generation of new ideas (Short, 1985).

Individual biases are inherent in quantitative and qualitative studies. Reviewer bias also exists. The way in which the reviewer selects multiple studies for the meta-analysis may be biased (Ogawa & Malen, 1991). Ogawa and Malen (1991) recommended confronting issues such as excluding and including studies, and reducing ambiguity in data



collection and analysis. Researchers should attempt to discover and challenge biases, so their impact is reduced during coding and interpretation (Hossler & Scalese-Love, 1989).

Case studies and narrative reviews have been criticized for lack of reliability and generalizability (Cooper, 1982; Light & Pillemer, 1982; Guskin, 1984; Hossler & Scalese-Love, 1989). This grounded meta-analysis was designed to challenge this criticism, by providing a procedure to generate hypothetical statements across case studies which could ultimately be organized into a theory of distance education pedagogy.

### Grounded Meta-Analysis

An important qualitative variation of a meta-analysis is the grounded meta-analysis, proposed by Hossler and Scalese-Love (1989). Drawing upon the grounded theory approach developed by Glaser and Strauss (1967), the researchers combined quantitative and qualitative meta-analyses with the grounded theory framework. Hossler and Scalese-Love (1989) believed the grounded meta-analysis could be used to advance theory. "In grounded meta-analysis, relationships are discovered through the systematic analysis of related studies. Investigators search for convergent findings that suggest relationships among events and outcomes" (Hossler & Scalese-Love, 1989, p. 8). They developed this variation for several reasons: 1) To capture comparable categories of quantitative and qualitative studies, 2) to search for and make sense of emerging patterns and relationships, 3) to uniformly analyze related studies, and 4) to inductively derive hypotheses and theories.

Glaser and Strauss (1967) did not intend for researchers to use grounded theory development for synthesizing research data from published literature (Hossler and Scalese-Love, 1989). However, Hossler and Scalese-Love (1989) stated their grounded meta-

analysis was designed to “systematically examine two competing sets of knowledge claims” (p. 9). By systematically examining the knowledge claims, these researchers hoped to discover patterns, effects of context, and relationships among concepts.

The grounded meta-analysis developed by Hossler and Scalese-Love (1989) combined components of narrative research review, case survey method and quantitative meta-analysis. Their research questions asked for evidence of relationships between two variables, rational planning and organizational effectiveness. Their review of the literature revealed research in quantitative and qualitative formats which they aggregated for the meta-analysis. The grounded meta-analysis procedure was designed to investigate diverse researchers' viewpoints; to “capture comparable categories of information in both quantitative and qualitative studies, ...search for emerging patterns, look for relationships, and attempt to make sense of what was discovered” (p. 8). They developed an instrument to record detailed information about each study, similar to the case survey. A constant comparative method was used, in which data were simultaneously coded and analyzed. Coding sheets contained open-ended questions useful for eventual summarization. Patterns and categories were identified among the findings, and emergent categories were synthesized into a coherent whole. Findings from previously disparate research methodologies were integrated into meaningful statements of relationships, useful for advancing theory.

The grounded meta-analysis procedure developed by Hossler and Scalese-Love (1989) contained the following five elements:

1. Developing an open-ended survey or coding instrument that was revised as synthesis proceeded.

2. Coding both quantitative and qualitative information in a similar fashion that permitted comparisons of findings across studies.
3. An overlapping process of gathering the sample (the studies reviewed), coding information, and analyzing the data.
4. Evaluating each study in terms of quality, excluding low-quality studies.
5. Using a research team and peer debriefers to assure consistency of analysis and objectivity of results (Hossler and Scalese-Love, 1989, p. 9).

#### Explicit Acceptance Criteria

Ogawa and Malen (1991) generated a list of broad criteria on which to judge potential data sources. They recommended each document be evaluated on purpose, coverage and quality. More specifically, the documents should specify the certainty and position of the source, have a detailed and consistent content, and be logical in relation to other documents.

Yin and Heald (1975) recommended answering a complete set of closed-ended questions for each case study, enabling the researcher to aggregate the answers for the case survey and improve reliability. They recommended assigning a confidence level (sure, not-sure, or no information) for each question, indicating the meta-analyst's perception of a weak or strong response. Characteristics of a case study described in great detail were considered strong responses and given high confidence levels; poorly described characteristics, requiring reader inferences, were considered weak responses and given low confidence levels. Also, the standards of confidence should be high enough to distinguish poorly documented characteristics from well-documented characteristics. Ultimately, Yin and Heald (1975) suggested categorizing the individual case studies into

lower, medium and high quality.

#### Explicit Rejection Criteria

After carefully examining and evaluating case studies in a topic area, a researcher may choose to omit certain case studies from the meta-analysis. The studies may be rejected based on criteria such as marginal relevance to the topic or poor quality (Yin & Heald, 1975). Guskin (1984) explained qualitative researchers classified studies as unusable if inappropriate operational definitions were used. Similarly, Ogawa and Malen (1991) recommended excluding data that did not conform to the conceptual definition or lacked a clearly defined topic determined by the researcher. These parameters were more important for guiding data selection than methodological adequacy. "Conformity to the conceptual definition is the primary criterion for seeking and selecting information--not methodological adequacy" (Ogawa & Malen, 1991, p. 276-277).

Hossler and Scalese-Love (1989) developed a case study coding form for measuring each study's quality. The coding form provided open-ended questions about important components of the case study. Overall, the studies were rated as low, medium or high based on these predetermined criteria. Case studies receiving low ratings were excluded from the meta-analysis. Low ratings were based on: 1) Inadequate richness or thickness of description and outcomes; 2) excessive researcher or participant biases; and 3) case study researchers reporting non-significant findings to justify their biases (Hossler & Scalese-Love, 1989).

Yin and Heald (1975) suggested the rejection criterion was as important to the meta-analysis as the inclusion criterion, and should be explicitly stated. They also mentioned the possibility of a future research topic comparing the included and excluded

groups of case studies.

### Reliability and Validity

Reliability is the likelihood that a different researcher would arrive at similar analyses and conclusions when reviewing the same data (Yin & Heald, 1975; Morgan, 1991). When expanded to meta-analyses, this concept suggests the establishment of reliability during the initial decision to include or exclude a case study from the meta research. They recommended more than one researcher evaluate each case study's fit with the predetermined selection criteria. "The amount of interanalyst agreement is then the measure of reliability" (p. 373). Reliability, or the establishment of replicability, during the coding process can be posed as a question (Yin & Heald, 1975; Nicotera, 1993). Would another researcher develop and link similar categories and concepts across case studies? Reliability is enhanced when the researcher carefully leaves an audit trail, delineating precise steps for conducting the study (Yin & Heald, 1975).

Validity has been likened to "recognizable reality." Do the subjects involved in the case study feel the researcher's account has a "ring of truth?" (Morgan, 1991, p. 12). Reviewing multiple qualitative studies poses a risk to validity because "the rules of inference employed are usually unstated" (Guskin, 1984, p. 76). During data analysis, the researcher may misinterpret findings from individual qualitative research. The process of summarizing findings becomes difficult for the meta-analyst. However, Guskin was concerned about this threat to validity in both qualitative and quantitative meta-analyses. He cautioned researchers against assuming that coding data is the key to ensuring validity. Burlingame (1994) and Yin and Heald (1975) explained external validity as generalizability to other situations. In the Yin and Heald (1975) case survey of public

service areas involved in urban decentralization, they were unable to establish external validity. They believed “there is no satisfactory way of knowing how to generalize from community to community or from one time period to another” (Yin & Heald, 1975, p. 377). However, in this research, external validity was accomplished by using multiple sites (case studies) which contained thick, rich descriptions.

Construct validity is the “establishment of clear definitions, accurate measures, and sound indicators of the phenomenon under study” (Ogawa & Malen, 1991, p. 277).

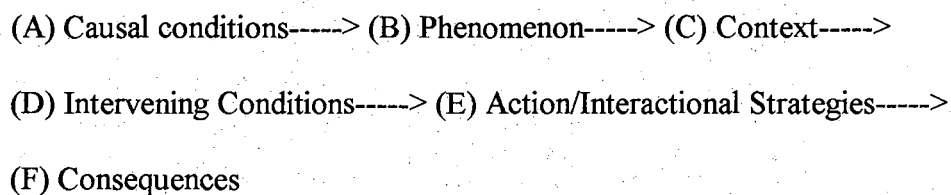
Construct validity is an important check on biases and errors when multiple and varied sources are used in a study. Clear conceptual definitions allow the researcher to determine which documents to include or exclude as data (Ogawa & Malen, 1991).

### Data Coding

Hossler and Scalese-Love (1989) recommended using the Strauss and Corbin (1990) grounded theory technique to perform a grounded meta-analysis. Strauss and Corbin (1990) delineated three major methods for coding data in grounded theory. The three methods of coding were open coding, axial coding and selective coding. These methods, documented as code notes, were the processes by which theoretical concepts were linked and categorized.

Open Coding. The initial coding procedure, open coding, is defined as “the process of breaking down, examining, comparing, conceptualizing, and categorizing data” (Strauss & Corbin, 1990, p. 61). Data were fractured, and similar concepts were grouped into identifiable categories, with properties and dimensions. “Properties are the characteristics or attributes of a category. Dimensions represent locations of a property along a continuum” (Strauss & Corbin, 1990, p. 69).

Axial Coding. “Axial Coding is a set of procedures whereby data are put back together in new ways” (Strauss & Corbin, 1990, p. 96). Connections were made between categories, with a result of more complex subcategories. Through axial coding, Strauss and Corbin (1990) developed the Paradigm Model in which “subcategories are linked to categories in a set of relationships denoting causal conditions, phenomenon, context, intervening conditions, action/interactional strategies and consequences” (p. 99). The Strauss and Corbin Paradigm model (1990, p. 99) is shown as:



“**Causal Conditions** refer to the events or incidents that lead to the phenomenon” (Strauss & Corbin, 1990, p. 100). Usually, more than one causal condition is responsible for the development of a phenomenon, and may determine the degree to which the phenomenon occurs. Specific words in the data, such as “due to” or “because of” may be indicators of causal conditions.

“The **phenomenon** is the central idea, event, happening, about which a set of actions/interactions is directed at managing or handling, or to which the set is related” (Strauss & Corbin, 1990, p. 100).

**Context** is defined as “the specific set of properties that pertain to a phenomenon; and the conditions within which the action/interactional strategies are taken to manage, carry out, and respond to a specific phenomenon (Strauss & Corbin, 1990, p. 101). These specific conditions, which represent context, may be identified in the data with words such as “when,” “how,” “type of,” and “duration”. The context influences intervening

conditions, the broad and general conditions bearing upon action/interactional strategies; and include: Time, economic status, and technological status” (Strauss & Corbin, 1990, p. 103). Intervening Conditions may speed or slow the action/interaction.

**Action/Interactional Strategies** are evolutionary and are usually sequenced in a purposeful manner, leading to a goal. Both successful and unsuccessful strategies or tactics are important when building a grounded theory. Strauss and Corbin (1990) explained that successful strategies occur when the action or interaction purposefully (occasionally, reflexively) occurs. Unsuccessful strategies or tactics occur when an expected action or interaction, which would ordinarily occur, does not occur.

**Consequences** are the outcomes of the “action and interaction taken in response to, or to manage a phenomenon” (Strauss & Corbin, 1990, p. 106). If actions and interactions do not occur in response to a phenomenon, these failed actions/interactions are also consequences. Consequences may actually or potentially occur, and may happen immediately or eventually.

The consequences of one set of actions may become part of the conditions affecting the next set of action/interactions occurring in a sequence--or even part of conditions that follow in still another sequence. Consequences of an action/interaction at one point in time may become part of the conditions of another. (Strauss & Corbin, 1990, p. 106)

In Axial Coding, the coding paradigm or Paradigm Model was used for linking and developing multidimensional categories.

Selective Coding. Selective Coding involved integrating concepts to produce a theory (Strauss & Corbin, 1990). It was “the process of selecting the core category,



systematically relating it to other categories, validating those relationships, and filling in categories that need further refinement and development” (p. 116). Selective coding involved explicating and conceptualizing the story line. Each story line included an integration of the major categories, and the relationships among those categories. The development of hypotheses, relating categories was a final component of selective coding. The prescribed format for a hypothesis was: “Under these conditions (listing them) this happens; whereas under these conditions, this is what occurs” (Strauss & Corbin, 1990, p. 127). The conditions, events, actions and consequences that occurred temporally or as part of the implementation process in the case studies were evaluated during selective coding.

### Summary

Researchers tended to agree that comparative analyses were important for both quantitative and qualitative studies. The quantitative meta-analysis, proposed by Glass (1977), was widely accepted as a rigorous scientific process for synthesizing empirical data. Less universal acceptance was given to this procedure for synthesizing qualitative studies, although many researchers agreed scientific “procedures for collecting, aggregating, and analyzing coded data” (Ogawa & Malen, 1991, p. 270) were needed. Typically, the primary arguments against a qualitative meta-analysis were researcher bias and lack of methodological rigor. However, Ogawa and Malen (1991) provided specific guidelines for reducing researcher bias and increasing methodological rigor in their exploratory case study method.

Frequent citations in the literature stated that research in distance education needed to contribute to a theoretical base (Minnis, 1985; McIsaac, et al., 1989;

Hammersley, 1990; Morgan, 1991; Atkinson & Delamont, 1993). The relative newness of the distance education field has prevented many researchers from focusing on theory development. Instead, past researchers focused on more practice-oriented aspects of distance education, such as learning, teaching and implementation.

## CHAPTER 3

### METHODOLOGY

Hossler and Scalese-Love (1989) designed a grounded meta-analysis procedure used to “investigate the effects of rational planning and organizational culture upon organizational effectiveness” (p. 6). Their unique research synthesis design was based in part on the Glaser and Strauss (1967) grounded theory approach, and in part on a meta-analysis technique proposed by Glass (1976). The resulting qualitative meta-analysis framework, tested by Hossler and Scalese-Love (1989), was modified and used in this research.

Hossler and Scalese-Love (1989) used both qualitative and quantitative studies in their grounded meta-analysis. Due to the large number of qualitative case studies in distance education, this project was limited to qualitative case studies. The decision to use only qualitative data for this research, rather than both quantitative and qualitative research, provided a unique aspect in this research process, and differentiated it from the grounded meta-analysis developed by Hossler and Scalese-Love (1989).

#### Data Sources

A perusal via Dissertation Abstracts Online produced 169 records of dissertations with the key terms “distance education” and “case study”. To further delimit the number of potential dissertations, additional key terms, “higher education” and “teaching,” were

added to the search. This modification produced a more manageable list of 18 potential dissertations. Data were comprised of the most recent dissertation case studies reporting faculty activities and attitudes about teaching distance education in higher education institutions.

### Data Selection

Abstracts obtained from Dissertation Abstracts Online were reviewed and evaluated for the 18 potential dissertations. Usable abstracts contained data about distance education pedagogical attitudes and actions. Non English dissertations were eliminated. An exact number of case studies to be used in the study was not initially specified because each dissertation had to be evaluated on particular criteria specified in the Case Study Coding Form (Appendices A & B). Eight dissertations were selected, seven were procured and four were ultimately used for this study.

Ten dissertations identified in the search were not selected due to one of these factors: Non-English language, unrelated to pedagogy, unrelated to higher education, or involved only students' opinions. Eight dissertations were determined to be potential data sources and were ordered through interlibrary loan. One was inaccessible by the interlibrary loan department.

The seven available and relevant case studies were evaluated based on the criteria in Appendices A and B, the pilot and modified Case Study Coding Forms, adapted from one developed by Hossler and Scalese-Love (1989), with contributions from Yin and Heald (1975) and Burlingame (1994). The Case Study Coding Form (See Appendix A) was initially tested on two dissertations to determine its usability and to establish a logical sequence of evaluative questions.

The Case Study Coding Form contained specific acceptance or rejection criteria which was used to determine the applicability of the seven available dissertations. Researchers (Yin & Heald, 1975; Hossler & Scalese-Love, 1989; Burlingame, 1994) stressed the necessity of specifying the procedures used to collect the case studies. The process of reviewing heterogeneous case studies, of uneven quality, was similar to survey research in which individual case study findings were treated as data sets, or responses to survey items (Ogawa & Malen, 1991).

Yin and Heald (1975) recommended the inclusion of a confidence level for each question, indicating the meta-analyst's perception of a weak or strong response. The terms, sure, not sure and no information, were recommended by Yin and Heald (1975) to classify each component of an individual case study. The standards of confidence were high enough to distinguish poorly documented characteristics from well-documented characteristics (Yin & Heald, 1975). These recommended confidence levels were included in many sections of the Case Study Coding Form.

### Pilot Coding

The first draft of the Case Study Coding Form was designated the pilot instrument. The pilot Case Study Coding Form (See Appendix A) contained objective and subjective information about the study. This included references to the following objective components: Problem statement, research questions, purpose, concepts, data sources, site, subjects, method, findings, conclusion and recommendations. The subjective information in the coding form included: Quality, reliability, validity, and confidence levels in the information presented in the study.

According to Hossler and Scalese-Love (1989), the open-ended coding instrument

was to be revised as the synthesis proceeded. After initially completing the pilot coding form for two dissertations, two minor changes were made to the pilot coding form (See Appendix B). The alterations were: Changing the term “Study Information” to “Bibliography” because bibliographical information was critical for the research; and moving the term “Site” closer to “Research Subjects Description and Size” because they were typically discussed in the same section in dissertations.

The resulting case study coding form was uniformly completed for each of the seven potential dissertations and provided a general standard, which enhanced the methodological rigor. According to Ogawa and Malen (1991), “rigor involves adherence to principles and procedures, methods, and techniques that minimize bias and error in the collection, analysis, interpretation, and reporting of data” (p. 267). The completion of the modified coding form for each dissertation became a rigorous strategy designed to standardize the methodological procedure (See Appendix B).

A second researcher served to audit the completed Case Study Coding Forms. The independent perusal of each coding form was further evidence of internal validity.

#### Data Collection and Coding

The dissertations were selected using a modified Hossler and Scalese-Love (1989) coding form (See Appendix B). This Case Study Coding Form was useful for creating a research abstract on each dissertation, in a standardized format. From this form, the dissertations were determined to be usable or unusable, depending on the richness and quality of the study information and evidence of teachers’ attitudes and actions.

After completing the Case Study Coding Form, data from each case study were recorded, coded and analyzed, using the grounded theory approach developed by Strauss

and Corbin (1990). (Appendices C, D, E & F contained coding for the four dissertations used as data). Because each dissertation contained vast data and numerous phenomena, thoroughly coding each dissertation through all three stages, open, axial and selective coding, became a necessity. Only after the selective coding process were multiple case study data combined. Summaries of the coded data were located in Chapter IV.

For each case study, theoretical concepts were linked and categorized, using open, axial and selective coding processes (Strauss & Corbin, 1990). Open coding involved identifying phenomena and grouping similar phenomena into dimensional categories. Axial coding involved reassembling the data from open coding in new ways. Selective coding involved the building of hypotheses from identified relationships among categories (Strauss & Corbin, 1990).

The entire coding process was completed for each dissertation before cross-case analyzing. It was necessary to present each case study in a similar format before attempting to compare multiple case studies. The constant comparative technique, an integral part of grounded theory data analysis, was ultimately based on thorough code notes recorded before the dissertations were returned to the lending libraries.

### Open Coding

“Open coding fractures the data and allows one to identify some categories, their properties, and dimensional locations” (Strauss & Corbin, 1990, p. 97). Before conducting open coding, the dissertation findings were perused. After reading, the relevant data from commentary and transcriptions of the case were recorded line by line (See Part 1 of Appendices C, D, E and F for concepts and phenomena). Concepts referred to instructors’ beliefs or ideas and phenomena referred to instructors’ actions.

Each mentioned instructor concept or phenomena was listed, such as “asks questions,” “uses humor,” or “monologue.” Duplicate ideas or actions were listed only once, but frequency of occurrence was noted after the idea or action. Table 1 depicts an excerpt of concepts and phenomena derived from data in the Foster (1993) dissertation. (For complete data records, see Part 1, Appendices C, D, E and F).

Table 1

Sample Concepts and Phenomena Data Derived During Open Coding

---

initiates student introductions

personal anecdote sharing his nervousness

engages in humorous banter with student (noted five times)

maintains good eye contact with students

briefly loses eye contact with most of class

asks question (noted ten times)

monologue (noted five times)

---

After all transcribed instructor ideas and actions were recorded as concepts and phenomena, similar concepts or phenomena were grouped according to categories. These categories were broad enough to encompass the related concepts or phenomena. Strauss and Corbin (1990) defined categories as labels placed on occurring phenomena or concepts.

Table 2 represents the open coding stage of developing the category labels to group similar concepts and phenomena within each dissertation. None of the categories were used in all four dissertations. Although a category may have been used in more than



one dissertation, the dimensions within the category may be different across categories. In other words, the meaning of the category label was dissimilar, although the same term might have been used. (For complete data records, see Part 2, Appendices C, D, E and F).

Table 2

Categories Encompassing Concepts and Phenomena Derived During Open Coding

---

Foster Dissertation Categories

Tension Reducer

Barometer

Information Disseminator

Non-verbal Actor

Learner

Politician

Blundell Dissertation Categories

Pragmatist

Service Marketer

Team Player

Developing Professional

Non-verbal Communicator

Information Disseminator

Gilchrist Dissertation Categories

Politician

Non-verbal Interpreter

Learner

Powerless Commander-in-Chief

Creative Teacher

Barometer

Liu Dissertation Categories

Service Marketer

Pioneer

Team Player

Politician

Devoted Teacher

Barometer

Non-Visual Communicator

Information Disseminator

Powerless Commander-in-Chief

Frustrated Middleman

---

The final component of open coding entailed dimensionalizing each property according to frequency, duration, degree or other conditions which could later be developed into hypotheses (See Part 3 of Appendices C, D, E and F).

Table 3 is the Dimensional Profile of Properties within Categories Derived During Open Coding. It depicts an excerpt of this dimensionalizing process for the Foster (1993) dissertation data. (For complete data records, see Part 3, Appendices C, D, E and F).

Table 3

Dimensional Profile of Properties within Categories Derived During Open Coding

---

Category: Instructor as Tension Reducer

Property: telling humorous anecdotes/jokes

Dimensions:

1. Jokes seem to be a two-way street. Instructor presents and receives jokes from students.
  2. Jokes are often used to lighten a serious tone in the class.
  3. Personal anecdotes are often used to begin the first and second half of a class period.
  4. Jokes are often used when technical difficulties occur.
  5. Instructor uses anecdotes/jokes to reduce his own tensions, as well as the students.
- 

After open coding each dissertation, the analysis was checked against the dissertation author's analysis of the case study findings. Any properties recorded by the meta-analyst, which contradicted the dissertation author's analysis were reviewed and

revised. These few discrepancies were due to unclear presentations of data in the dissertations. The dissertation author, having first-hand knowledge of the phenomena, was determined a more accurate source.

### Axial Coding

Once the data were fractured by the open coding process, axial coding was used to reassemble and relate data in new ways “by making connections between a category and its subcategories” (Strauss & Corbin, 1990, p. 97). Following the Strauss and Corbin (1990) Paradigm Model, subcategories were linked to a category (See Part 4 of Appendices C, D, E and F, Axial Coding). The subcategories were specific features of a category. The Paradigm Model designated six specific features: Causal conditions, phenomenon, context, intervening conditions, action/interactional strategies, and consequences (Strauss & Corbin, 1990).

Causal conditions referred to the happenings which lead to the occurrence of the phenomenon and were causal or intervening. Causal conditions were identified by terms such as: “Due to” or “on account of.” Additionally, causal conditions were determined when the researcher identified what events preceded the phenomenon. The phenomenon was identified by asking the question, “To what are these data referring?” Context referred to a specific set of conditions under which the phenomenon occurred. It was identified by asking the question, “Under what conditions did this occur?” Intervening conditions referred to outside influences affecting the actions/interactions. They were identified by asking the question, “Which conditions facilitated or constrained the actions/interactions?” Action/interactional strategies referred to how the phenomenon was managed and the reflexive or purposeful actions in response to phenomena. They

were identified by asking the question, “What was done or said in response to the phenomena?” Consequences referred to what happened as a result of the action and interaction, as well as responses or outcomes resulting from the actions/interactions. They were identified by asking the question, “What happened as a result of the action/interaction?” (Strauss & Corbin, 1990).

The above questions were asked to hypothetically denote relationships between a subcategory and the category. Relationship statements took this form: Under these conditions (listing them) what strategies are used for (list the category). Once denoted, the relationships were verified against the data. That is, given the data, did the proposed relationships make sense? The verification procedure helped clarify the relationships (Strauss & Corbin, 1990).

Another purpose of asking questions during axial coding was to scrutinize the data, looking for other properties of the categories, as well as the dimensional locations of the properties. Dimensional locations were revealed in the data, located on a continuum, and included descriptions of frequency, extent, intensity or duration. The data was continuously searched for clues which may not have been uncovered during open coding (Strauss & Corbin, 1990).

Table 4 depicts an excerpt of the axial coding process for the Foster (1993) dissertation data. Part 4 of Appendices C, D, E and F contains complete data records for the actual connections between the categories and the subcategories for each of the four dissertations.

Table 4

Sample of Axial Coding

---

Category: Instructor as Tension Reducer

---

**CAUSAL CONDITION**

Technical difficulties----->

**PHENOMENON**

Reducing tension

**Context of technical difficulties**

interrupts dialogue  
usually quickly corrected  
length of down time

**Action/interactional strategies  
for reduced tension**

self effacement  
laughing at others' jokes  
teasing students  
group activities using student leaders

**Consequences**

Tension is lowered for instructor and  
students

---

During axial coding, a search for patterns in the data of each dissertation occurred.

According to Strauss and Corbin (1990, p. 110), researchers “note patterns in data in terms of dimensional locations of events, incidents pertaining to the property of a phenomenon.” These patterns set the foundation for the third stage, selective coding.

Selective Coding

Selective coding was the integration of concepts into theories. It required a higher level of thinking, an abstract level of analysis. The rich and comprehensive categories developed during open and axial coding became a picture of reality. This reality was conceptual, comprehensible and grounded in the data (Strauss & Corbin, 1990).

The steps in selectively coding the four dissertations were: Explicating the story line (describing and conceptualizing); relating other categories to the core category; developing statements to validate category relationships; refining the abstract story line; and developing hypotheses for each dissertation. The 51 percent rule was applied, meaning those hypotheses appearing in at least three of the four dissertations were broadened and extracted. Those composite hypotheses might be used for the formulation of a theory. Because of the exploratory nature of this research, only broad hypothetical statements of categorical relationships were developed. These hypotheses were compared against Holmberg's (1995) 13 hypotheses of distance education teaching. The intent of this research was to use the grounded meta-analysis process, but not to develop a grounded theory. Part 5 of Appendices C, D, E and F represented the steps in selective coding.

The first step, explicating the story line, began with a brief description, identifying the essence of the story in a few sentences. After the description, the story line was conceptualized by selecting the most encompassing of categories to be the core category. For example, in the Foster dissertation selective coding (Part 5, Appendix C) the selected core category, Teacher as Barometer, was broad enough to encompass all of the other categories and fit the story represented.

The second step of selective coding involved relating subsidiary categories (other categories) to the core category by means of the paradigm. The paradigm encompassed the conditions, phenomenon, context, action/interactional strategies and consequences:

(A) Causal conditions-----> (B) Phenomenon-----> (C) Context----->  
(D) Intervening Conditions-----> (E) Action/Interactional Strategies----->  
(F) Consequences.

The categories were listed and assigned to the components of the paradigm model.

The third step in selective coding was developing a hypothetical statement to validate the relationships among the categories. The subsidiary categories were arranged according to their paradigmatic relationships as outlined in the story line. The story was expanded to include these sequentially-ordered subsidiary categories. According to Strauss and Corbin, "Using such a story as a guideline, the analyst can begin to arrange and rearrange the categories in terms of the paradigm until they seem to fit the story, and to provide an analytic version of the story" (1990, p. 127).

Table 5 depicts an excerpt of the selective coding process for the Foster (1993) dissertation data. This process involved relating the subcategories to the core category by developing a hypothetical statement showing the relationships among all of the categories. Part 5 of Appendices C, D, E and F contains complete data records of the process for relating subcategories to the core category for the four dissertations.

Table 5

Relating Subcategories to the Core Category

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Categories:

- tension reducing (conditions)
- monitor and adjust (phenomenon)
- information dissemination (context)
- non-verbal actions (actions/interactional strategies)
- politicizing (actions/interactional strategies)
- learning from students (consequences)

Hypothetical Statement to Validate the Relationship

Under tense conditions (“conditions”) of distance education, complicated by lack of face-to-face interaction, the instructor monitors student progress and adjusts his actions (“phenomenon”) and attitudes during information dissemination (“context”) in the classroom. The instructor uses many verbal and non-verbal techniques (“action/interactional strategies”) to manage tension, including humor, asking questions, intense listening, allowing student-made decisions, and maintaining eye contact. These actions lead to instructor awareness of student needs, which leads to learning from students (“consequences”). This information is then used to adjust his teaching style, and the cycle begins again.

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The fourth step in selective coding was refining the abstract story line. This step entailed rewriting the story in a less technical form, presenting relationship statements within the narrative.



The fifth step in selective coding was the development of multiple hypotheses, relating the categories at the dimensional level. The hypotheses were written as statements using the format: "Under these conditions, this happens; whereas under these conditions, this is what occurs" (Strauss & Corbin, 1990, p.131). Hypotheses were developed for each dissertation separately. These findings were compared and similarities were recorded if the similarities appeared in at least 51% or three of the four dissertations. These similarities, written as hypotheses were compared to Holmberg's (1995) hypotheses of distance education teaching.

Because this research was a qualitative research design, unusual or anomalic hypotheses were also considered and discussed. Anomalic hypotheses were those that were generated by only one dissertation data and were unusual or different from traditional instructor attitudes and activities.

### Limitations

Qualitative research has been repeatedly criticized for its lack of rigorous scientific methods. During the review of the literature, numerous statements were encountered criticizing case studies in particular. The criticisms typically dealt with the individualistic nature of case studies, which were neither comparative nor cumulative (Morgan, 1991; Atkinson & Delamont, 1993). They expressed a hope that researchers would develop comparative studies for the purpose of developing theories. This research was designed as both cumulative and comparative, for the purpose of contributing to a theoretical body of knowledge.

In spite of this qualitative progress, several limitations existed in this study. The first limitation was suggested by Elmore (1991) as a limitation of case study literature

reviews. It was also considered a limitation of this grounded meta-analysis. The data were of a secondary nature, from dissertations, produced and constructed by other researchers. The grounded meta-analysis process required summarizing of other researchers' data, making sense of the data, and linking concepts across the data sources. Hossler and Scalese-Love (1989) and Ogawa and Malen (1991) advocated the importance of discovering and challenging case study researchers' biases in order to reduce or understand their effects on the grounded meta-analysis. Yin and Heald (1975) explained a case survey method might require the analysis of disparate case studies, possibly following dissimilar research paradigms. The logic applied to individual case studies might result in different conclusions.

Researchers have recommended potential studies to be read and rated by multiple investigators to reduce reviewer bias (Yin & Heald, 1975; Lincoln & Guba, 1985; Hossler & Scalese-Love, 1989; Ogawa & Malen, 1991). This technique was claimed to improve reliability. Ogawa and Malen (1991) were concerned that reviewers could subjectively exclude studies, or at least selectively ignore information. A "research team approach served as a forum for identifying and challenging the assumptions and biases each individual brought to the study" (Hossler & Scalese-Love, 1989, p. 14). A team approach also allows researchers to analyze a large number of studies. A singular researcher would be faced with extensive reading of each data source and a labor-intensive review of the studies (Hossler & Scalese-Love, 1989). Two researchers reviewed data recorded on the Case Study Coding Forms, which determined the inclusion or exclusion of each case study for this research.

Some researchers have developed standardized formats for summarizing and

evaluating qualitative studies, including case studies (Yin & Heald, 1975; Hossler & Scalese-Love, 1989; Burlingame, 1994). Standardization assists researchers in performing reliable, aggregate reviews of case studies (Yin & Heald, 1975). A modification of a team approach was used in this study. A standardized form delineating explicit acceptance criteria, which improved reliability was developed.

Another limitation of reviewing literatures was the possible lack of methodological adequacy in individual studies. Ogawa and Malen (1991) explained “although the documents may allude to sentiment surveys, site visits, informal interviews, in-progress program evaluations, or research findings, information needed to assess the methodological adequacy of data collection and analysis procedures is not provided” (p. 268). This limitation was reduced by designing a modified coding form to initially qualify or exclude individual case studies, before the grounded meta-analysis procedure was attempted.

Some researchers might suggest this qualitative meta-analysis was no more generalizable than the dissertations it represented. It was not the intent of this research to develop an overarching theory of distance education pedagogy, complete with testable hypotheses. Instead, the tentative conclusions could be used to compare to, even compete with, conceptual perspectives generated by other researchers, such as Holmberg (1995). Additionally, designing and testing a rigorous methodological process for qualitative meta-analyses was equally important to this research.

### Summary

The initial component of this research followed a modified Hossler and Scalese-Love (1989) coding process, which facilitated the process for selecting case studies. Once

the dissertations were selected, the Strauss and Corbin (1990) grounded theory methodology was used to develop hypotheses of distance education pedagogy. Although the purpose of the Strauss and Corbin (1990) open, axial and selective coding processes was to develop a grounded theory, a different goal was envisioned for this research: To work through a step-by-step process, which combined a meta-analysis with a grounded theory process for developing hypotheses. Therefore, where Strauss and Corbin would expect a theory to emerge, grounded in data, this research was designed to develop a scientifically rigorous procedure for analyzing multiple qualitative case study data, and hypotheses about the topic under review. These hypotheses represented themes about teachers' attitudes and activities which might later contribute to a theory of distance education pedagogy.

Before a cross-case analysis was performed, the entire coding process was completed for each dissertation. Due to the unique presentations of the case studies, it was necessary to similarly format them before attempting to compare multiple case studies. The constant comparative technique, an integral part of grounded theory data analysis, was based on written records of thorough code notes.

## CHAPTER 4

### DATA ANALYSIS

The data analysis procedure used for this research was both sequential and cumulative. The analysis process began with the reading of each case study. After a thorough perusal, each case study was evaluated by means of a Case Study Coding Form (Appendix B). If the case study met the predetermined criteria, the data were open, axial and selective coded, independently of the other cases. After the individual coding, the findings were reviewed side by side with a goal of extracting commonalities in concepts and themes. These findings were presented as seven broad hypotheses, grounded in data. These hypotheses can potentially contribute to a theory of distance education pedagogy. They were compared to Holmberg's (1995) hypotheses of distance education teaching.

#### Findings

A methodological procedure was developed for performing a qualitative meta-analysis of case studies. The grounded theory data coding techniques developed by Strauss and Corbin (1990) were used to code the individual dissertations. Using the methodological procedure developed for meta-analyzing case studies, common categories and themes were identified and explained. These categories and themes emerged from a cross-case or meta-analysis of the multiple distance education case studies. Testable hypotheses were developed and can be used in the development of a theory of distance

education pedagogy.

### Overview of Selected Dissertations

Three of the seven loaned dissertations were determined to be unusable. The first of these three provided data representing only administrators' opinions of faculty attitudes. The second dealt with attitudes and feelings of students toward their teachers, rather than teachers' beliefs. The third only dealt with face-to-face interactions between teacher and students, not distance interactions. Four of the seven dissertations were determined to be usable because each reported firsthand data from interviews and observations of faculty members and met the inclusion criteria. Tables 6 and 7 depict the excluded and included dissertations, as well as brief statements regarding the content, quality and usefulness of data.

Table 6

Excluded Case Study Dissertations

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AUTHOR	Miller, Charles
TITLE	Technology-based distance learning: Case studies of business and higher education (1992).
CONTENT	Directors of five businesses and five higher education institutions were interviewed.
RATING	Findings based on administrators' opinions of teachers' attitudes toward distance education rather than actual teachers' attitudes.

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AUTHOR	McCabe, Margaret
TITLE	Online classrooms: Case studies of computer conferencing in higher education (1997).
CONTENT	Attitudes and feelings of students toward their teachers.
RATING	Limited data on teachers' beliefs, primarily about classroom management styles when teaching any course, not necessarily at a distance.

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AUTHOR	Hagevik, Sandra
TITLE	Professional education at Keystone Resort: An MBA program delivered at a distance (1992).
CONTENT	Instructors and students face-to-face in a non-traditional classroom, away from the traditional university setting.
RATING	Does not fit definition of distance education.

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Table 7

Included Case Study Dissertations

AUTHOR	Foster, Beverly Brown
TITLE	The effects of interactive teleconferencing as an instructional medium in the learning environment for students (1993).
CONTENT	Videotaped distance education classroom sessions; observations of instructor's interactions with students.
RATING	Good - Based on 13 levels of confidence (12 sure, 1 not sure) and content
AUTHOR	Gilchrist, Cheryl
TITLE	Faculty attitudes and perceptions toward utilizing interactive television: A case study (1997).
CONTENT	Categorized faculty as adopters and non adopters; low, moderate and high users. Interviewed faculty to identify facilitators and barriers in the adoption process.
RATING	Good - Based on 13 levels of confidence (13 sure) and content
AUTHOR	Blundell, Patricia
TITLE	A case study: Perceptions of the induction process into college distance learning teaching (1997).
CONTENT	Interviews with one distance education instructor. Focused on his development as a distance educator, as well as his concerns.
RATING	Good - Based on 13 levels of confidence (13 sure) and content
AUTHOR	Liu, Daonian
TITLE	Teaching chemistry on the Internet (A qualitative case study) (1996).
CONTENT	Description of chronological events primarily narrated by researcher. Limited numbers of observable actions or direct quotes from teacher.
RATING	Fair - Based on 13 levels of confidence (10 sure, 2 not sure, 1 no information) and content



## Categories and Themes

The selected dissertations were uniquely reported by the researching graduate students. Formats ranged from direct observations of teaching, to interviews with one or more instructors. A summary of each dissertation and the emergng categories and themes were presented in the following sections.

### Foster Dissertation

This case study involved a transcription of all teaching phenomena observed in a class. The class alternated face-to-face instruction with distance education, during which the instructor was physically separated from the students. Only the data from the distance education class periods were analyzed. Most of the phenomena recorded in the Foster (1993) dissertation were simply observations dealing with general pedagogical issues, whether face-to-face or at a distance.

Open Coding Summary. Tension in the classroom was caused by technical difficulties, instructor nervousness, materials presentation and classroom management. The instructor's ability to monitor and adjust to students' needs increased as the semester progressed. The instructor learned by listening and observing students. Information was disseminated through personal stories, monologues, text readings and metaphors. The instructor sent and received communications nonverbally, but the technology inhibited the non-verbal communication. The instructor developed unique ways to improve communications as the semester progressed. The instructor provided opportunities for students to discuss topics from which both instructor and students could learn. The instructor played a political role in the distance education classroom by resolving problems, and stimulating thinking and interactions (Foster, 1993).

The following categories were derived from the data presented in the Foster (1993) dissertation:

- tension reducing (conditions)
- monitor and adjust (central phenomenon)
- information dissemination (context)
- non-verbal actions (actions/interactional strategies)
- politicizing (actions/interactional strategies)
- learning from students (consequences)

Axial Coding Summary. Under tense conditions of distance education, complicated by lack of face-to-face interaction, the instructor monitored student progress and adjusted his actions and attitudes during information dissemination in the classroom. The instructor used many verbal and non-verbal techniques to manage tension, including humor, asking questions, intense listening, allowing student-made decisions, and maintaining eye contact. These actions led to instructor awareness of student needs, which in turn led to learning from students. This information was then used to adjust his teaching style, and the cycle began again (Foster, 1993).

Selective Coding Summary. The main story dealt with how the teacher and students interacted in a distance education setting. Various teaching styles were observed in the dissertation case study, including monologues, reading from the text, class discussions and small group activities. The instructor integrated humor in his teaching. As the semester progressed, the instructor adjusted his teaching style and used less monologue and reading from text, spending more class time on open discussions. Progressively, the most frequent type of teaching style became class discussions in which

the instructor asked open-ended questions and the students responded and debated (Foster, 1993).

#### Gilchrist Dissertation

This case study involved interviews with several faculty, ranging from non-users or low users to high users. The faculty were also divided into groups of adopters and non-adopters. Perceived advantages and disadvantages of distance education were the foci of the study. No specific class was observed in this case study (Gilchrist, 1997).

Open Coding Summary. Instructors felt that practical, economic matters took precedence over the real purpose of teaching. They believed distance education was a way to reach the masses, but some felt this should not be a major focus or concern. A common frustration was the lack of quality technicians present during class time, which were needed in case of equipment failures. Distance education was seen as a form of professional development. The instructors perceived a primary problem to be excessive time required for materials development. They were less concerned with the lack of monetary compensation. The lack of face-to-face interactions and physical confinement were limitations of distance teaching. These limitations were minimized by visiting all sites and reformatting the information presentation. Less information dissemination occurred in a distance education course. The instructors allowed time for more interaction with the students, which decreased the time spent presenting new materials in class (Gilchrist, 1997).

The following categories were derived from the data presented in the Gilchrist (1997) dissertation:

- service marketing (conditions)

- pragmatism (central phenomenon)
- team playing (context)
- non-verbal communication (actions/interactional strategies)
- information dissemination (actions/interactional strategies)
- professional development (consequences)

Axial Coding Summary. Instructors were initially pragmatic in their opinions of distance education, and felt that universities were possibly losing sight of the true meaning of education in their scramble to recruit a previously untapped target market. Instructors felt compelled to teach at a distance for reasons such as supporting the department faculty team (boosting enrollment or doing a favor for the department chair). As instructors disseminated information at a distance, they began to “read” students non-verbal cues. Distance education became a two-way learning process, whereby students mastered course objectives while instructors developed professionally (Gilchrist, 1997).

Selective Coding Summary. The main story was a comparison of instructors’ attitudes and feelings toward teaching at a distance. There were two variables used to describe instructors: Level of adoption and degree of use. Although some disagreement existed among users and non-users, and high adopters and low adopters, two common beliefs emerged, regardless of the experience of the faculty member. The faculty believed the primary advantage of distance education was its ability to provide education to students in remote locations. The primary disadvantage of distance education was believed to be a lack of face-to-face communication (Gilchrist, 1997).

#### Blundell Dissertation

This case study involved an interview with an instructor who agreed to teach a

distance education course in order to get hired at a university. The instructor discussed the positive and negative issues of simultaneously teaching two sections of a course:

Remote and on-site students (Blundell, 1997).

Open Coding Summary. The instructor found extensive training sessions on the technological equipment helpful. The instructor allowed some student decision-making, so the students would have ownership in the class. However, he felt the students did not always make the best decisions for the class. The instructor's distance from the students required him to look for cues other than eye contact. Changes in teaching were made based on reading body language of the students. Problems included controlling behavior of students, equipment failures and increase in time spent preparing teaching materials. The instructor planned group activities during class to offset the isolation caused by the distance. The instructor's teaching style evolved as the semester progressed due to an increase in his awareness of the equipment requirements and students' needs (Blundell, 1997).

The following categories were derived from the data presented in the Blundell (1997) dissertation:

- political (conditions)
- feelings of powerlessness (central phenomenon)
- non-verbal interpreter (context)
- creative teaching (actions/interactional strategies)
- teacher as learner (actions/interactional strategies)
- barometer (consequences)

Axial Coding Summary. Political conditions in a distance education setting led to instructor feelings of powerlessness, which led to a heightened awareness of non-verbal student cues. This caused the instructor to monitor students' actions and adjust his teaching style to best fit their needs. Ultimately, the teacher learned from mistakes and successes teaching at a distance (Blundell, 1997).

Selective Coding Summary. The main story was about requiring instructors to teach a course via distance education, even though they may have misgivings about distance education. Instructors' concerns included: Less control over activities that affected student learning, loss of control over technology, loss of class time due to technology failures, inability to physically monitor events at multiple locations, and inadequate performance of students and technical support staff. The instructor felt s/he had limited power, as compared to the control s/he traditionally experienced in a face-to-face classroom. Instructors depended on others (technicians and students) to self-monitor. Students who appeared frustrated in a distance education class were monitored for verbal and non-verbal cues, which signaled problems that needed to be addressed by the instructor. Distance education teachers applied conflict resolution procedures, adjusted their teaching techniques and took measures to ensure satisfaction among all groups involved. Ultimately, the teacher relinquished some classroom authority, empowered some or all students, and accepted the loss of control occurred in a distance education class (Blundell, 1997).

#### Liu Dissertation

This case study involved the instructor's perception of successes and failures of an on-line chemistry course. The data included issues regarding obtaining administrative

approval, course development, progression and completion. The instructor interacted solely with students via the Internet. Students were chemistry teachers in varying locations (Liu, 1996).

Open Coding Summary. The instructor believed the course development to be a form of pioneering research. He experienced difficulties getting approval from administrators. Once approved, he solicited help from technical experts to develop the course. The course had to be modified because the students did not have the same technical capabilities that the instructor used at the university. He allowed students to tailor some assignments which would meet their classroom needs. The instructor experienced frustration with the lack of student motivation and communication via Internet (Liu, 1996).

The following categories were derived from the data presented in the Liu (1996) dissertation:

- service marketing (conditions)
- pioneering (central phenomenon)
- devotion to teaching (context)
- team player; politician; barometer; verbal communication  
(actions/interactional strategies)
- frustrated acceptance (consequences)

Axial Coding Summary. Under conditions of providing convenience to students, complicated by administrative resistance and a lack of face-to-face interaction with students, the instructor proposed, developed and explored techniques of instruction which most effectively met the students' needs. The instructor employed negotiation strategies,

relied on others, adapted to students' limitations, and continuously interacted with students to make the class successful. In the end, the instructor conceded a frustrated acceptance of the course outcomes (Liu, 1996).

Selective Coding Summary. The main story was about the instructor's feelings and attitudes regarding the planning and implementation of an on-line chemistry class. The instructor evaluated his interactions with students (primarily) and administrators (secondarily). The instructor's frustration with others' performances was a theme throughout the story. However, the instructor strongly believed in the need for an interactive, on-line chemistry class, and was willing to face obstacles and tailor the class to meet the needs of remotely-located students (Liu, 1996).

#### Integrated Hypotheses and Explanations

After coding the case studies individually and developing general categories and specific hypotheses, a cross-case comparison was made. Breaking down the case study data first, then recombining them in similar formats, significantly simplified the complex procedure. It also allowed for familiarity with the individual case studies.

General hypothetical statements of distance education pedagogy were developed from emerging similarities across at least 51% of the dissertations. Distance education pedagogy is a broad term, encompassing the functions of a teacher (Urdang, 1973). Teacher attitudes and actions toward distance education were potential components of the hypotheses. This included attitudes toward teaching at a distance, activities of course development, instruction, and classroom management techniques. They were developed based on recurring conceptual relationships emerging from three or four of the studies.



They were presented in the following format: Under these conditions this happens; whereas under these conditions, this happens. The hypotheses were not rank-ordered, but those hypotheses derived from all four case studies were listed first, and those hypotheses derived from only three case studies were subsequently listed. All the hypotheses were presented in a testable format. The hypotheses and an explanation of each follow.

Hypothesis 1: Under conditions where faculty view teaching at a distance positively, they believe the most important benefit is serving students in remote locations; whereas under conditions where faculty view teaching at a distance negatively, they believe the main drawback is the lack of face-to-face communication with students (Foster, 1993; Liu, 1996; Blundell, 1997; Gilchrist, 1997).

This hypothesis was also supported by Perraton (1981) who hypothesized that distance teaching was a way to reach potential students who would not be reached in a traditional manner. Foster (1993) attempted to teach the distance education students as though they were face-to-face in a traditional classroom. Liu (1996) hoped to make advanced education available to remote students and formatted the class in an attempt to fill in the void left by the lack of face-to-face communications. Blundell (1997) believed a campus without walls was the future of education, but was frustrated by the loss of control he felt with remote site students. Gilchrist (1997) summarized numerous faculty opinions of the advantages and disadvantages of distance education. The most frequent responses were outreach services as the primary advantage and lack of interaction as the primary disadvantage.

Hypothesis 2: Under conditions of teaching at a distance, instructors experience more difficulty keeping remote-site students attentive and motivated; whereas under conditions

of teaching face-to-face, instructors experience less difficulty keeping students attentive and motivated (Foster, 1993; Liu, 1996; Blundell, 1997; Gilchrist, 1997).

Foster (1993) referred to the consistent interspersion of anecdotes and humor during lecture, in order to maintain student interest. Foster's observations included frequent instructor attempts to keep the students' attention during classes. Liu (1996) data indicated significant instructor frustration with lack of student motivation. To illustrate this concern, only eight of 21 students completed the course. Blundell (1997) data showed instructor feelings of being ignored by students and problems with noisy students at the remote site noise. The instructor implemented student self-monitoring to control the problems. Gilchrist (1997) indicated instructors believed the technology impeded engaging students' interest.

Hypothesis 3: Under conditions of teaching at a distance, instructors rely heavily on creating verbal exchanges and interactive techniques to overcome the lack of face-to-face interaction; whereas under teaching in a face-to-face setting, instructors rely more heavily on visually monitoring students and reading student body language, and less on creating a discussion atmosphere (Foster, 1993; Liu, 1996; Blundell, 1997; Gilchrist, 1997).

Increased interaction in a classroom has been linked to increased learning. Researchers (Bloom, 1981; Perraton, 1981; Holmberg, 1985; Daly, Friedrich & Vangelisti, 1990; Kruh & Murphy, 1990; Threlkeld, Behm & Shiflett, 1990) reviewed studies and concluded a connection between classroom interaction and learning. They determined feedback and interaction in distance education were necessary for positive student learning.

In the Foster (1993) dissertation, interaction took the form of classroom

discussions, facilitated by the instructor. Foster (1993) data indicated the instructor encouraged and provided class time for discussions. Monologues decreased in number and length as the semester progressed, while encouraging class discussions and fielding students' questions increased as the semester progressed. Liu (1996) data indicated the instructor had no opportunities to visually monitor the students, so he relied solely on student feedback via the computer. The instructor encouraged the students to "talk" more. Blundell (1997) recorded comments in which the instructor explained he encouraged verbal communications in the distance education classroom, whereas before he would simply interpret the students' facial expressions. Gilchrist (1997) data recorded faculty difficulty reading body language and facial expressions. Distance education adopters believed interaction was essential. In contrast, the group of faculty considered non-adopters believed distance education was better taught as lecture, and interaction was not recommended for complex issues.

Hypothesis 4: Under conditions when the instructor traveled to the remote site to meet the distance students, s/he had a more positive rapport with students; whereas under conditions before the instructor traveled to the remote site, s/he had a less positive rapport with students (Foster, 1993; Blundell, 1997; Gilchrist, 1997).

Data from the three dissertations indicated instructor feelings of improved relationships after traveling to the remote sites and meeting the students face-to-face. This hypothesis was also supported by an ethnographic study in which the researchers suggested the instructor travel to the receiving sites so students could meet them face-to-face (McHenry & Bozik, 1995).

Foster (1993) reported the instructor alternated weekly teaching between the

campus site and the remote site. Blundell (1997) recorded instructor feelings of student appreciation, when visiting the remote site for the first time. The instructor felt his trip improved rapport with remote site students. Gilchrist (1997) reported faculty feelings of a loss of connection with the remote site students, and beliefs that switching the location of the broadcast improved connective feelings.

Hypothesis 5: Under conditions of preparing to teach a distance education course, instructors devote more time to preparing instructional materials; whereas under conditions of preparing to teach a course in a traditional classroom, instructors devote less time to preparing instructional materials (Liu, 1996; Blundell, 1997; Gilchrist, 1997).

One frustration mentioned in the three dissertations was the extensive time spent developing a course format suitable for teaching at a distance. Compensation for the additional time spent of distance education courses, either with release time or monetarily, was mentioned only by Gilchrist (1997). However, Gilchrist was the only study of the four which recorded data from multiple faculty members. Foster (1993), Liu (1996) and Blundell (1997) each recorded data from only one instructor.

Hypothesis 6: Under conditions in which departmental budget cutbacks require faculty to teach at a distance, faculty may be less receptive to teaching a distance education course; whereas when faculty are not required to teach at a distance, they may be more receptive, even requesting, to teaching a distance education course (Liu, 1996; Blundell, 1997; Gilchrist, 1997).

This hypothesis pertained to attitudes of faculty toward teaching at a distance. Faculty who agreed to teach at a distance indicated a variety of reasons for their compliance. The reasons could be classified as obligatory, such as to obtain employment

(Blundell, 1997) or to help out the department chair (Gilchrist, 1997). Other faculty offered reasons of personal enrichment (Liu, 1996; Gilchrist, 1997).

Hypothesis 7: Under conditions in which faculty teach at a distance, they rely more heavily on support personnel, such as peer coaches, computer experts, technicians or students at receiving sites;

whereas when faculty teach in a traditional, face-to-face classroom, they are more likely to work autonomously (Liu, 1996; Blundell, 1997; Gilchrist, 1997).

Attitudes toward support personnel ranged from positive to negative. Peer coaching, computer experts and training personnel received positive ratings (Liu, 1996; Blundell, 1997). On-site technicians were criticized by the faculty (Blundell, 1997; Gilchrist, 1997). Students were used as receiving site technicians, but were considered unsatisfactory technicians (Gilchrist, 1997). Computer experts were mentioned, but not evaluated (Liu, 1996).

These hypothetical statements, showing relationships among the data categories, may be useful for developing theoretical concepts. Researchers may also use these findings to compare or contrast relationships with other theories of distance education pedagogy, such as Holmberg's (1995) hypotheses of distance education teaching.

#### Anomalous Hypotheses and Explanations

Each case study was analyzed in a similar format, and individual hypotheses were developed before attempting to compare multiple studies. The individual case studies hypotheses were evaluated for anomalies or digressions from expected instructor attitudes and actions (For a complete list of hypotheses, see Part 5, Appendices C, D, E, and F). Two hypotheses departed from the expected findings. They were listed and discussed in

the following paragraphs.

1. Under conditions where the instructor perceives group dissension, he tries to bring the students to a consensus; whereas under periods of relative agreement among students, the instructor asks thought-provoking questions to get students to analyze their own beliefs (Foster, 1993).

This anomalic hypothesis may be a characteristic of both distance education and face-to-face education. It may simply be a teaching technique used by instructors to stimulate class discussions. However, it may be that in a distance education classroom, instructors find this a useful tool to stimulate verbal exchanges, which becomes increasingly important when face-to-face interaction is not possible.

2. Under conditions of instructor as pioneer, before actually teaching the course, s/he experiences excitement and feelings of "breaking new ground," whereas under conditions of instructor as frustrated middleman, well into the semester, s/he experiences a disappointment over lack of course and students' outcomes (Liu, 1996).

Some questions were developed from this hypothesis. Was this change in attitude related to teaching at a distance, or is it a characteristic of teaching a new subject, regardless of whether the setting is face-to-face education or distance education? Is the level of student success lower for distance education courses than for traditional face-to-face courses? With less than 50 percent of the students completing the course (8 of 21), is this percent reflective of distance education courses in general?

Given the large number of hypotheses generated in this research, almost all were expected relationships. However, in qualitative research, the anomalies can be windows into unusual circumstances worthy of exploring in more depth.

## Methodological Contributions

This research was characterized by a meshing of previous research results. Hossler and Scalese-Love (1989) were credited with demonstrating that qualitative data could be meta-analyzed and providing a general outline for the process. Strauss and Corbin (1990) provided a detailed procedure for grounded theory development. However, this research was designed to pave the way for other researchers to meta-analyze numerous, unique case studies, similar in topic, but different in methodology. This research lends support for qualitative researchers who argue that a meta-analysis can be just as effective for qualitative data, as it is for the quantitative data for which it was originally designed.

## Usefulness of Grounded Theory

The four dissertation researchers reported data in unique ways. The difficulty of the grounded meta-analysis procedure was reconfiguring each unique case study into a general format, suitable for deriving conceptual hypotheses.

Many specific teacher activities and attitudes were presented in each case study and were reported as concepts and phenomena in Part 1 of Appendices C, D, E and F. However, a purpose of this study was to generate general hypotheses representing cumulative findings or “the big picture” of distance education pedagogy.

The grounded meta-analysis method was useful for a singular case analysis and a cross-case analysis. The methodology provided specific, as well as general insights.

## Summary

Much of the data reflected typical teaching attitudes and actions, which were basic tenets of teaching, whether face-to-face or at a distance. In many instances of these four case studies, distance education pedagogy was shown to be quite similar to traditional

class room education. Some previous researchers have questioned the need for a theory of distance education, indicating that teaching is teaching, no matter where or how (Schlosser & Anderson, 1994). Teaching at a distance may create unique challenges which should be studied separately from traditional classroom teaching. The four case studies provided a wealth of data supporting the notion that teaching at a distance is quite different from teaching face-to-face. Other meta-analyses of distance education case studies can further the progress toward developing a theory of distance education pedagogy, grounded in data.



## CHAPTER 5

### SUMMARY, DISCUSSION, CONCLUSIONS, RECOMMENDATIONS AND IMPLICATIONS

The success of this research project was attributed to the sequentially-stepped, cumulative procedure for analyzing case study data. A detailed procedure for a grounded meta-analysis of case studies was not available and it was necessary to develop a method which could be replicated by other researchers.

In disciplines, such as education and social sciences, a plethora of case studies may be available, but bear little relation to one another. A lack of generalizability has been a limitation. This research project is offered as a way to overcome this limitation, condensing multiple, data-burdensome case studies, and extracting conceptual trends across individual case study boundaries.

#### Summary

A grounded meta-analysis technique designed to analyze multiple case studies was the research process used in this study. The process followed the Strauss and Corbin (1990) grounded theory data coding technique and drew from the Hossler and Scalese-Love (1989) recommendations for a grounded meta-analysis. The goals were: To develop a methodological procedure for meta-analyzing multiple case studies; to identify case study categories and themes; and to develop testable hypotheses which might be useful in

a theory of distance education pedagogy.

This research idea was conceived after determining the existence of abundant case studies in distance education. These contextually-specific case studies lacked generalizability which might allow the findings of each to contribute to a broad theory base in distance education pedagogy. A need existed for a comprehensive study technique, subsuming individual qualitative case studies, similar to the quantitative meta-analysis technique developed by Glass (1976). The resulting technique followed the outline presented by Hossler and Scalese-Love (1989). Their grounded meta-analysis technique used a grounded theory method and was presented as a way to code both quantitative and qualitative studies. By contrast, this research project was an in-depth procedure for meta-analyzing qualitative case studies.

#### Data Sources

A perusal of Dissertation Abstracts Online provided a list of 18 potential case study abstracts with the key terms: Distance education, higher education, case study and teaching. The criteria for inclusion were: Dissertations were written in the English language; available through interlibrary loan; and contained observational or interview data from instructors about their attitudes and actions toward teaching in a distance education setting. Additionally, each potential dissertation was evaluated on a case study coding form to ensure conformity (See Appendix B). Four of the original 18 dissertations met these specific criteria.

#### Data Collection and Analysis

Initially, each dissertation was read for content. The Strauss and Corbin (1990)

coding procedures for developing a grounded theory were adapted to this research project. This process contained three major components: Open coding, axial coding and selective coding. Open coding involved breaking down case study data into discrete phenomena and grouping them in categories. Axial coding involved analyzing the data in a different way; that is, recombining categories into alternative data groups. Selective coding involved the discovery of relationships among data categories and rewriting the story line showing conceptual relationships. Strauss and Corbin (1990) further developed the selective coding process, by developing hypotheses useful for contributing to a theory.

This research project differed from the Strauss and Corbin (1990) method during the selective coding process because individual case study hypotheses were too specific for the goal of this grounded meta-analysis. However, two anomalous hypotheses, derived from individual case studies, were discussed separately. These anomalies showed unusual instructor attitudes and activities, and were determined to be unique pedagogical relationships, worthy of further investigation.

As part of the meta-analysis, broad hypotheses were derived from similarities in at least 51 percent, or three of the four case studies. These findings were compared to Holmberg's (1995) hypotheses of distance education teaching. The aim of the research was not to develop a theory, but to contribute to a conceptual base, useful for theory development in the future.

### Findings

Instructional activities and attitudes were identified by breaking down the data in each dissertation into discrete phenomena, grouped according to classification. An analysis of the data revealed that each case was unique and the interactions that occurred

within the case were complex and numerous. However, some consistencies among attitudes and activities of distance education instructors were identified among the three or four unique cases.

The diversity of the individual case studies created numerous categories, with many of the categories used for only one of the dissertations. This might have been attributed to the different angles from which the researchers focused their attention and recorded their data. For example, the category, Instructor as Tension Reliever, was an essential component of the Foster (1993) dissertation, but was not a category used in the other three dissertations. By contrast, Instructor as Barometer, was important in three of the four dissertations. This category dealt with the instructor's ability to monitor and adjust, an important pedagogical concept. No category was used in all four of the dissertations.

Seven general hypotheses were developed and based on a meta-analysis of the usable dissertations. These hypotheses stemmed from the coding of data, using the Strauss and Corbin (1990) grounded theory method and the Hossler and Scalese-Love (1989) grounded meta-analysis technique. Hypotheses were developed when a similar conceptual relationship occurred in at least three of the four dissertations. The testable hypotheses were:

Hypothesis 1: Under conditions where faculty view teaching at a distance positively, they believe the most important benefit is serving students in remote locations; whereas under conditions where faculty view teaching at a distance negatively, they believe the main drawback is the lack of face-to-face communication with students.

Hypothesis 2: Under conditions of teaching at a distance, instructors experience more

difficulty keeping remote-site students attentive and motivated; whereas under conditions of teaching face-to-face, instructors experience less difficulty keeping students attentive and motivated.

Hypothesis 3: Under conditions of teaching at a distance, instructors rely heavily on creating verbal exchanges and interactive techniques to overcome the lack of face-to-face interaction; whereas under teaching in a face-to-face setting, instructors rely more heavily on visually monitoring students and reading student body language, and less on creating a discussion atmosphere.

Hypothesis 4: Under conditions when the instructor travels to the remote site to meet the distance students, s/he had a more positive rapport with students; whereas under conditions before the instructor travels to the remote site, s/he had a less positive rapport with students.

Hypothesis 5: Under conditions of preparing to teach a distance education course, instructors devote more time to preparing instructional materials; whereas under conditions of preparing to teach a course in a traditional classroom, instructors devote less time to preparing instructional materials.

Hypothesis 6: Under conditions in which faculty were required to teach at a distance, faculty may be less receptive to teaching a distance education course; whereas when faculty are not required to teach at a distance, they may be more receptive, even requesting, to teaching a distance education course.

Hypothesis 7: Under conditions in which faculty teach at a distance, they rely more heavily on support personnel, such as peer coaches, computer experts, technicians or students at receiving sites; whereas when faculty teach in a traditional, face-to-face

classroom, they are more likely to work autonomously.

Two hypotheses were determined to be anomalic hypotheses. Each was generated by only one dissertation and the hypotheses represented unusual or non-traditional relationships. They were:

Anomalic Hypothesis 1: Under conditions where the instructor perceives group dissension, he tries to bring the students to a consensus; whereas under periods of relative agreement among students, the instructor asks thought-provoking questions to get students to analyze their own beliefs (Foster, 1993).

Anomalic Hypothesis 2: Under conditions of instructor as pioneer, before actually teaching the course, s/he experiences excitement and feelings of “breaking new ground;” whereas under conditions of instructor as frustrated middleman, well into the semester, s/he experiences a disappointment over lack of course and students’ outcomes (Liu, 1996).

The grounded theory methodology was useful for meta-analyzing qualitative case studies in distance education pedagogy. The methodology was useful for a number of reasons, but most importantly it provided a step-by-step recipe for a novice researcher. A systematic and scientifically rigorous process was employed in the grounded meta-analysis. At each coding level, the researcher could cross-case compare the dissertations. This constant comparative method contributed to the internal validity of the research.

### Discussion

Important to this research was the grounded meta-analysis designed in this research project. It was intended to be comprehensive, so future researchers could replicate the methodology for use meta-analyzing other topics in education. This useful

methodological tool may serve as a foundation on which researchers can build, modify and improve similar research.

Schlosser and Anderson (1994) aptly summarized the relationship between traditional face-to-face pedagogy and distance education pedagogy. "It is known that good distance education pedagogy is good pedagogy in any classroom" (p. 14).

However, pedagogical issues which arise in a distance education classroom may not be a part of traditional face-to-face classrooms. The seven testable hypotheses generated in this research were specific to distance education pedagogy, rather than face-to-face pedagogy. This research provided evidence that pedagogical issues in distance education may be different than traditional, face-to-face pedagogical issues.

#### Comparison to Holmberg's Hypotheses

In 1995, Holmberg developed a list of 13 testable hypotheses about distance education teaching. After the development of hypotheses for this research project, a comparison was made between the 13 hypotheses generated by Holmberg (1995) and the seven hypotheses generated in this research. Overall, Holmberg's hypotheses were more specific, geared toward instructional techniques which facilitated learning.

Holmberg's (1995) 13 hypotheses are:

1. A course structure carefully based on required earlier learning, which makes subsumptions in Ausubel's sense possible.
2. A style of presentation that is easily accessible; a high degree of readability of printed course materials.
3. Graphical and typographical presentations facilitating access to printed courses and selections of relevant subject matter.

4. Sequencing, a choice of media and other principles for course presentation adapted to student needs and to the requirements of subject areas studied, e.g. those of operations on knowledge and operations with knowledge (Change et al., 1983, 14-16).
5. Quick handling of assignments so that students need not wait for more than a week to have their work returned with corrections and comments.
6. Friendly, helpful, and extensive tutor comments on assignments submitted, with suggestions expressed in a way to promote personal rapport between student and tutor.
7. Frequent submission of assignments requiring students to solve problems, evaluate texts or recordings; research findings indicated that this is valid if combined with hypothesis number six.
8. A presentation of course goals or objectives which engages the student in the evaluation of their relevance and, if at all possible, in their selection.
9. Self-checking exercises in pre-produced courses, through which students are encouraged to practice skills; not only model answers should be provided but also extensive comments based on course writers' experience of probable errors and misunderstandings (Holmberg, 1995, 176-178).
10. Teaching and counseling can be effectively carried out by non-contiguous means; real mediated communication and simulated communication, incorporated in distance education courses by conversational style and other personal approaches, make dialogue possible.
11. Personal (not necessarily or primarily contiguous) contacts with tutors



and other representatives of the supporting organization promote emotional involvement.

12. Pre-produced courses characterized by a conversational style with invitations to an exchange of views and with attempts to involve the student emotionally.

13. Communication facilities (in writing, by computer, on the telephone, and/or by audio tape) constantly open to students for questions and exchanges of opinions with tutors and counselors (Holmberg, 1995, pp. 176-178).

In contrast to Holmberg (1995), the seven hypotheses generated by grounded theory in this research were broad, often comparing distance education instruction with traditional face-to-face instruction.

Each of the seven hypotheses generated by this research was contrasted and compared with the Holmberg (1995) hypotheses.

Hypothesis 1: Under conditions where faculty view teaching at a distance positively, they believe the most important benefit is serving students in remote locations; whereas under conditions where faculty view teaching at a distance negatively, they believe the main drawback is the lack of face-to-face communication with students.

This hypothesis, grounded in data from all four case studies, was dissimilar to Holmberg's 13 hypotheses. This hypothesis represented a relationship between faculty attitudes and beliefs about distance education teaching. By contrast, Holmberg's hypotheses did not explore faculty attitudes, rather they discussed techniques used by faculty to facilitate student learning.

Hypothesis 2: Under conditions of teaching at a distance, instructors experience more difficulty keeping remote-site students attentive and motivated; whereas under conditions of teaching face-to-face, instructors experience less difficulty keeping students attentive and motivated.

Hypothesis 3: Under conditions of teaching at a distance, instructors rely heavily on creating verbal exchanges and interactive techniques to overcome the lack of face-to-face interaction; whereas under teaching in a face-to-face setting, instructors rely more heavily on visually monitoring students and reading student body language, and less on creating a discussion atmosphere.

Hypotheses 2 and 3 explained the relationship between instructor attitudes and activities in a distance education setting and the attitudes and activities in a face-to-face setting. None of Holmberg's (1995) hypotheses explained the relationships between these two settings.

Hypothesis 4: Under conditions when the instructor travels to the remote site to meet the distance students, s/he had a more positive rapport with students; whereas under conditions before the instructor travels to the remote site, s/he had a less positive rapport with students.

This hypothesis showed the relationship between an instructor's personal contact with students and teacher-student rapport. Holmberg's (1995) second hypothesis was similar, using the phrase, "emotional involvement" (p. 176) to describe the results of face-to-face contact.

Hypothesis 5: Under conditions of preparing to teach a distance education course, instructors devote more time to preparing instructional materials; whereas under

conditions of preparing to teach a course in a traditional classroom, instructors devote less time to preparing instructional materials.

This hypothesis showed the relationship between instructors' activities in a distance education setting and instructors' activities in a face-to-face setting. Holmberg's (1995) Hypotheses 6 and 7 reflected specific techniques for preparing teaching materials, whereas the hypothesis generated for this research considered the amount of time needed to create the materials.

Hypothesis 6: Under conditions in which faculty were required to teach at a distance, faculty may be less receptive to teaching a distance education course; whereas when faculty are not required to teach at a distance, they may be more receptive, even requesting, to teaching a distance education course.

Hypothesis 7: Under conditions in which faculty teach at a distance, they rely more heavily on support personnel, such as peer coaches, computer experts, technicians or students at receiving sites; whereas when faculty teach in a traditional, face-to-face classroom, they are more likely to work autonomously.

None of Holmberg's 13 hypotheses were similar to Hypotheses 6 and 7 of this research. This may have been attributed to Holmberg's (1995) emphasis on teaching techniques.

Overall, the grounded theory hypotheses generated in this research differed from Holmberg's (1995) hypotheses about distance education teaching. Holmberg's (1995) hypotheses could be described as "how to," that is, how to facilitate learning in a distance education setting. The grounded theory hypotheses could be described as "what," that is, what differences exist between distance education settings and face-to-face settings?

## Conclusions

A plethora of case studies exist in distance education research literature.

Typically, case studies are research techniques commonly used when a field is relatively new, as is distance education. Rapid technological changes have channeled researchers' time developing and recording practical curriculums for their own universities. This record keeping is often manifested as a case study. Since case studies relate detailed information about a specific site, time frame and occurrence, they are rarely considered generalizable to other settings.

It was this lack of generalizability, combined with a preponderance of case studies on distance education, that lead to the development of this grounded meta-analysis. This grounded meta-analysis was a comprehensive study, subsuming individual qualitative case studies. It provided a qualitative researcher a procedure for deriving hypothetical statements from multiple case studies.

Some similarities existed among the three or four case studies surveyed. They included both teacher attitudes and activities, and were presented as seven broad, testable hypotheses.

Numerous differences existed among the four case studies surveyed. This was primarily attributed to the individual focus of each case. The differences were not direct contrasts among cases, rather they were various facets of pedagogy, or "what" was being studied.

## Recommendations and Implications

This experiment in research techniques offers qualitative researchers an opportunity to generalize findings from case studies, previously deemed ungeneralizable.

It fills a void in research techniques, by combining the existing qualitative methods, grounded theory and meta-analysis. This research focused only on meta-analyzing a specific genre of qualitative research: Case studies.

This focus on cross-case analyses was designed to refine the technique so other distance education researchers might generate additional hypotheses. Combining these hypotheses could lead to a theory of distance education pedagogy, grounded in case study data. To take the research a step further, it is recommended that other researchers explore the question, "Can a single grounded meta-analysis of qualitative case study data produce hypotheses and generate a theory?"

The question arose, why do these seven hypotheses differ from Holmberg's (1995) 13 testable hypotheses of distance education teaching? These seven hypotheses were broader in scope, often a comparison of faculty attitudes and activities between distance education settings and face-to-face settings. By contrast, Holmberg's 13 hypotheses were based on specific teaching techniques which facilitated student learning in a distance education setting.

### Research

This study was helpful in two ways: It contributed a creative methodology and it generated some useful testable hypotheses. The grounded meta-analysis procedure was extensively detailed in this dissertation. It would be possible to replicate this methodology on case studies outside of the distance education setting, such as issues in traditional, face-to-face classrooms. As long as educational researchers and graduate students continue generating large numbers of case studies, there will be a useful place for this methodology. It is worthy of consideration that researchers perform a grounded meta-analysis of existing

case studies, rather than contributing another singular case study to the ever growing pile of case studies in distance education pedagogy.

The purpose of presenting hypotheses of distance education pedagogy was to offer some testable relationships between concepts, which could be compared to other research findings. After replicating this methodology on other distance education case studies, researchers could compare findings, refine and add hypotheses.

The seven hypotheses developed from this grounded meta-analysis may be components of a more comprehensive theory of distance education pedagogy derived from meta-analyzing qualitative case studies. External validity was evidenced by support from similar findings of other researchers.

It is recommended that other researchers compare instructor attitudes and activities for face-to-face classrooms and distance education classrooms. The research questions could be based on the hypotheses developed in this research.

Existing case studies in both distance education settings and face-to-face settings could be searched for data that were related to the hypotheses generated by this grounded meta-analysis. By performing a grounded meta-analysis of specific data in these case studies, these seven hypotheses could be tested.

Anomalous hypotheses, or hypotheses that appear to be contrary to existing instructor attitudes and activities, can be tested in other distance education settings. The two hypotheses determined to be anomalies in the four case studies, were:

1. Under conditions where the instructor perceives group dissension, he tries to bring the students to a consensus; whereas under periods of relative agreement among students, the instructor asks thought-provoking questions to get students to analyze their own beliefs

(Foster, 1993).

2. Under conditions of instructor as pioneer, before actually teaching the course, s/he experiences excitement and feelings of “breaking new ground;” whereas under conditions of instructor as frustrated middleman, well into the semester, s/he experiences a disappointment over lack of course and students’ outcomes (Liu, 1996).

Several research questions were generated from these anomalies. Were these anomalies characteristics of face-to-face education as well as distance education? Were they simply teaching techniques used by veteran instructors to stimulate class discussions? Were changes in instructor attitudes related to teaching at a distance, or were they characteristics of teaching a new subject, regardless of whether the setting was face-to-face education or distance education? Overall, is the level of student success lower for distance education courses than for traditional face-to-face courses? These research questions could be more fully explored in future research.

Researchers and graduate students might find this detailed dissertation helpful when developing their own grounded theory based on the Strauss and Corbin (1990) method. Additionally, those attempting a cross-case analysis could follow this tested methodology, which exhibits reliability and validity.

### Practice

This research was based on practice. Case studies have proven to be excellent documentations of field experiences. Case studies provide valuable information for practitioners to apply to their own unique situations. A grounded meta-analysis is an excellent means of summarizing multiple case studies, allowing practitioners to sift through large amounts of data in a much shorter time period. If a practitioner wants more

detailed information on a case, the coded data presented in the appendices provides outstanding synopses of individual cases for perusal. Research should ultimately be seen by practitioners, but it must be presented in a manageable format. The grounded meta-analysis condenses data into meaningful categories and shows the relationships among categories.

### Theory

Teaching at a distance is a relatively recent concept in the education field, dating back to the first half of the nineteenth century (Holmberg, 1974, 1986). Most researchers have come to some agreement on the definition of distance education, yet a theory of distance education has been the subject of controversy. Some researchers question the need for a theory of distance education, citing the traditional educational theories suffice (Schlosser & Anderson, 1994). Based on the findings of this grounded meta-analysis, there should be a theory of distance education pedagogy, separate from traditional pedagogy theories.

Some theories of distance education have been proposed and tested. Researchers such as Thomas Clark and John Verduin, D. R. Garrison, Börje Holmberg, Desmond Keegan, Michael Moore, Charles Wedemeyer, Hilary Perraton and Otto Peters have developed unique theories of distance education. Parts of these theories infer that distance education is merely a form of conventional education, while other components of the theories were exclusive to teaching at a distance (Schlosser & Anderson, 1994).

An interpretation of the findings of this research also indicated that much of the data was not unique or exclusive to teaching at a distance. Often, the instructor's attitudes or actions were similar to those of an instructor in a traditional, face-to-face



classroom. However, some conceptual relationships emerged which were exclusive to teaching at a distance. These relationships were presented as hypotheses of distance education pedagogy.

Theories are based on extensive research findings. It is difficult to conduct a single piece of short-term research and generate a theory grounded in the data. The goal of this research was not to generate a theory, but to provide testable hypotheses which might contribute a portion to the larger picture which is an overall theory of distance education pedagogy.

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## APPENDIX A

### Pilot Case Study Coding Form for Assessing Study Quality

#### Study Information:

- \_\_\_\_\_ 1. Statement of the Problem
- \_\_\_\_\_ 2. Overall Quality
- \_\_\_\_\_ 3. Reliability (replicability)
  - \_\_\_\_\_ Level of Confidence (sure; not sure; no information)
- \_\_\_\_\_ 4. Internal Validity (Does the study's research design support the conclusion?)
  - \_\_\_\_\_ Level of Confidence
- \_\_\_\_\_ 5. External Validity (Generalizability?)
  - \_\_\_\_\_ Level of Confidence
- \_\_\_\_\_ 6. Research Question(s)
  - \_\_\_\_\_ Level of Confidence
- \_\_\_\_\_ 7. Stated Purpose
  - \_\_\_\_\_ Level of Confidence
- \_\_\_\_\_ 8. Major Concepts (Conceptual definition relevant?)
  - \_\_\_\_\_ Level of Confidence

\_\_\_\_ 9. Data Sources; Triangulation?

\_\_\_\_ Level of Confidence

\_\_\_\_ 10. Site (Research setting and time frame)

\_\_\_\_ Level of Confidence

\_\_\_\_ 11. Research Subjects Description and Size

\_\_\_\_ 12. Method

\_\_\_\_ Level of Confidence

\_\_\_\_ 13. Descriptive Adequacy (logical story construction?)

\_\_\_\_ Level of Confidence

\_\_\_\_ 14. Findings of the Case Study (Research questions answered?)

\_\_\_\_ Level of Confidence

\_\_\_\_ 15. Specific Teacher Attitudes Presented in Findings?

\_\_\_\_ Level of Confidence

\_\_\_\_ 16. Conclusion (Evident & logical linkage to “problem?”)

\_\_\_\_ Level of Confidence

\_\_\_\_ 17. Recommendations

A) Teachers

B) Researchers

\_\_\_\_ 18. Researcher/Subject Relationship

\_\_\_\_ 19. Hawthorne Effect? 1=yes; 2=no



Sources:

Burlingame, M. (1994). *Tools for linking research and practice in the helping professions: Research abstract worksheets and personal reviews of the literature*. Stillwater, OK (ERIC Document Reproduction Service No. ED 379 733)

Hossler, D. & Scalese-Love, P. (1989). Grounded meta-analysis: A guide for research synthesis. *The Review of Higher Education*, 13, 1-28.

Yin, R. & Heald, K. (1975). Using the case survey method to analyze policy studies. *Administrative Science Quarterly*, 20, 371-380.

## APPENDIX B

### Case Study Coding Form for Assessing Study Quality Final Draft

Bibliography:

- \_\_\_\_\_ 1. Overall Quality
- \_\_\_\_\_ 2. Statement of the Problem
- \_\_\_\_\_ 3. Reliability (replicability)  
\_\_\_\_\_ Level of Confidence (sure; not sure; no information)
- \_\_\_\_\_ 4. Internal Validity (Does the study's research design support the conclusion?)  
\_\_\_\_\_ Level of Confidence
- \_\_\_\_\_ 5. External Validity (Generalizability?)  
\_\_\_\_\_ Level of Confidence
- \_\_\_\_\_ 6. Relevant Research Question(s)  
\_\_\_\_\_ Level of Confidence
- \_\_\_\_\_ 7. Stated Purpose  
\_\_\_\_\_ Level of Confidence
- \_\_\_\_\_ 8. Major Concepts (Conceptual definition relevant?)  
\_\_\_\_\_ Level of Confidence
- \_\_\_\_\_ 9. Data Sources; Triangulation?  
\_\_\_\_\_ Level of Confidence
- \_\_\_\_\_ 10. Site (Research setting and time frame)  
\_\_\_\_\_ Level of Confidence

\_\_\_\_ 11. Research Subjects Description and Size

\_\_\_\_ 12. Method

\_\_\_\_ Level of Confidence

\_\_\_\_ 13. Descriptive Adequacy (logical story construction?)

\_\_\_\_ Level of Confidence

\_\_\_\_ 14. Findings of the Case Study (Research questions answered?)

\_\_\_\_ Level of Confidence

\_\_\_\_ 15. Specific Teacher Attitudes Presented in Findings?

\_\_\_\_ Level of Confidence

\_\_\_\_ 16. Conclusion (Evident & logical linkage to “problem?”)

\_\_\_\_ Level of Confidence

\_\_\_\_ 17. Recommendations

A) Teachers

B) Researchers

\_\_\_\_ 18. Researcher/Subject Relationship

\_\_\_\_ 19. Hawthorne Effect? 1=yes; 2=no

\_\_\_\_ 20. Notes:

Sources of information for Appendix B:

Burlingame, M. (1994). *Tools for linking research and practice in the helping professions: Research abstract worksheets and personal reviews of the literature*. Stillwater, OK (ERIC Document Reproduction Service No. ED 379 733)

Hossler, D. & Scalese-Love, P. (1989). Grounded meta-analysis: A guide for research synthesis. *The Review of Higher Education*, 13, 1-28.

Yin, R. & Heald, K. (1975). Using the case survey method to analyze policy studies. *Administrative Science Quarterly*, 20, 371-380.

## APPENDIX C

### Part 1

#### Foster Dissertation Open Coding

##### Concepts and Phenomena

###### **Class Session #2, (at a distance)**

initiates student introductions  
personal anecdote sharing his nervousness  
engages in humorous banter with student (noted five times)  
maintains good eye contact with students  
briefly loses eye contact with most of class  
asks question (noted ten times)  
monologue (noted five times)  
instructor looks at camera to give students a sense of eye contact  
gestures with hands and arms (noted four times)  
answers students' questions (numerous times)  
allows student-students dialogue/debates (noted two times)  
intervenes in dialogue; shifts attention to reading text  
debates with student  
seems to ask question when students' attention is waning  
asks students how is it going (referring to telecast)

###### **Class Session #4, (at a distance)**

asks questions of class  
clarifies unclear points during discussion  
allows students to guide dialogue  
insists the class members try to answer their own questions (tries to get class to construct its own understanding)  
becomes impatient with whining students  
is unable to accommodate students who want to stay after class and ask questions  
monologues (2 minutes)

###### **Class Session #6, (at a distance)**

light conversation about sports, weather, and colors he has chosen to wear for telecast  
dialogues with students  
reads newspaper articles for discussion  
reprimands talking students  
refuses to negotiate any further with students on additional requests  
reviews previous class materials  
asks questions of students (frequent)  
monologue (4 min)  
uses overhead camera  
tries to slow students down from making hasty decisions  
checks class understanding  
mutual teasing (limited extent)

**Class Session #8 (at a distance)**

housekeeping duties/agenda

Asks students how is it going (referring to telecast)

calls class to order twice during technical difficulties

monologue (noted eight times)

gestures (noted twice)

maintains eye contact

asks question (noted six times)

affirms students responses

allows student-student dialogue and debate (noted twice)

tries to bring the class back together, after much student input  
and interaction

allows student-student dialogue while explaining

engages in humorous banter with students (noted three times)

responds well to student corrections of technical problems (does as the students request  
when they can't hear/see him) (noted twice)

asks for student presenters

**Class Session #10 (at a distance)**

light conversation

reviews agenda

shows models on overhead camera

uses humor to restore order

accepts student recommendations to adjust equipment

lectures from workbook, text or overheads

asks questions (frequent)

**Class Session #12 (at a distance)**

light conversation

monologues (2-4 min)

uses overhead camera (noted twice)

reads short passages from text

asks for students' responses

allows for student-initiated dialogue

**Class Session #14 (at a distance)**

humorous interchange with students

monologue (noted twice)

ignores question during monologue

asks question, but answers it himself

shares personal anecdotes with class

dialogues and debates with students

guides the above

allows guest speaker (former student) to present

summarizes what was said

allows student-student dialogue

uses overhead camera to show material (noted twice)

Source:

Foster, B.B. (1993). The effects of interactive teleconferencing as an instructional medium on the learning environment for students (Doctoral dissertation, University of North Carolina at Chapel Hill, 1993). Dissertation Abstracts Online, 1997.

## APPENDIX C

### Part 2

#### Foster Dissertation Open Coding

##### Categories Encompassing Concepts/Phenomena

\*Instructor as tension reducer. Attributes and properties of an instructor good at reducing tension in a distance education setting:

- includes telling jokes
- includes humorous banter
- includes periodic understanding checks

\*Instructor as barometer. Attributes and properties of an instructor good at monitoring and adjusting in a distance education setting:

- includes allowing student discussion to continue
- includes allowing students to interrupt him during the instructor monologue
- includes answering students' questions with clear explanations
- includes reading faces of students
- includes getting students back on task at hand
- includes providing in-class time for small group discussions
- includes dividing students into small groups according to their leadership abilities

\*Instructor as information disseminator. Attributes and properties of an instructor good at disseminating information in a distance education setting:

- includes housekeeping chores
- includes monologues
- includes reading from text
- includes giving examples
- includes using overheads and visual teaching aids

\*Instructor as non-verbal actor. Attributes and properties of an instructor good at communicating non-verbally in a distance education setting:

- includes hand and arm gestures and body size in camera
- includes animated movements
- includes eye contact

\*Instructor as learner. Attributes and properties of an instructor willing to learn from students in a distance education setting:

- includes attentive listening to student-student dialogue
- includes asking questions of students
- includes allowing students to contribute to class discussions

\*Instructor as politician. Attributes and properties of an instructor good at effective communications/interactions in a distance education setting:

- includes allowing students to make some decisions
- includes a tolerance for diverse student opinions
- includes debating with students
- includes trying to persuade students



The phrase, beginning with an “\*” represents the **category**.  
Each subtopic, beginning with “includes” represents the **conceptual label**.

Source:

Foster, B.B. (1993). The effects of interactive teleconferencing as an instructional medium on the learning environment for students (Doctoral dissertation, University of North Carolina at Chapel Hill, 1993). Dissertation Abstracts Online, 1997.

## APPENDIX C

### Part 3

#### Foster Dissertation Open Coding

##### Dimensional Profile of Properties within Categories

##### Category: Instructor as Tension Reducer

###### **Property: telling humorous anecdotes/jokes**

###### **Dimensions:**

1. Jokes seem to be a two-way street. Instructor presents and receives jokes from students.
2. Jokes are often used to lighten a serious tone in the class.
3. Personal anecdotes are often used to begin the first and second half of a class period.
4. Jokes are often used while technical difficulties occur.
5. Instructor uses anecdotes/jokes to reduce his own tensions, as well as the students.

###### **Property: humorous banter**

###### **Dimensions:**

1. Teasing students occurs later in the course.
2. Teasing occurs during instruction (such as dialogue or questioning the class, but not usually during housekeeping chores or explaining assignments)
3. banter occurs while trying to restore order (he's teasing, but he's Not teasing)
4. humorous banter seemed to be a regular and integral part of his instructional style.

###### **Property: periodic understanding checks**

###### **Dimensions:**

1. occurred when technical difficulties interrupted teaching
2. occurred when difficult matter was presented to students

##### Category: Instructor as Barometer

###### **Property: monitoring students**

###### **Dimensions:**

1. guided discussions to keep students on task
2. grouped students according to their leadership style

###### **Property: adjusting to student needs**

###### **Dimensions:**

1. allowed for students to interrupt instructor's monologues with questions
2. decreased monologues as course progressed throughout the semester
3. increased class discussion as course progressed throughout semester
4. elaborated on information when it was unclear (verbally or non-verbally expressed by students)

Category: Instructor as Information Disseminator

**Property: monologues**

**Dimensions:**

1. gradually lessen in length as semester progresses
2. likely to be interrupted by instructor at earlier classes
3. likely to be interrupted by students at later classes
4. limited time spent on this (maximum 7 minutes).
5. monologues were longer at earlier classes than later classes

**Property: reading from text**

**Dimensions:**

1. usually short passages
2. asks students to read along (which they do, instead of looking at monitor)
3. used as an interruption to students' dialogues (to get students back on task)

**Property: giving examples**

**Dimensions:**

1. relates his past experience in private industry
2. relates examples from previous students' experiences
3. gets former student to guest lecture
4. often uses metaphors (particularly in earlier classes)

**Property: using overhead camera and visual aids**

**Dimensions:**

1. more often uses verbal or gesture dissemination techniques than visual techniques (actually very few references to using overhead cameras)
2. used for housekeeping chores, such as showing agendas
3. doesn't seem to be spontaneous with overhead camera for showing visual aids.

The frequent camera uses seem to be pre-planned, such as showing agendas, definition of terms, or models.

4. more likely to quote passages in text or ask questions, than use the camera
5. using overhead camera requires advance preparation. Inadequate pre-planning?
6. tries to treat the distance education class similarly to a face-to-face class

Category: Instructor as Non-Verbal Actor

**Property: using hand and arm gestures/body size, animated movements**

**Dimensions:**

1. frequent mention in observation notes
2. technique keeps students' attention
3. problematic in compressed digital fiber optics signal (which was used during one class period because channels were crowded) ("slight jerkiness" noted by observer)
4. leaned forward with intent and animated facial expression during dialogues (teacher-student or student-student)

**Property: eye contact**

**Dimensions:**

1. maintained good eye contact with camera during lectures (seemed practiced)
2. eye contact broken when reading from text
3. when dialoguing with one student, instructor did not maintain eye contact with rest of class

**Category: Instructor as Learner****Property: attentive listening to student-student dialogue****Dimensions:**

1. not always necessary for instructor to be center of attention, but instructor is center of attention most of the time
2. allows one student to answer another's question or debate
3. usually concludes this instructional style with a synthesis of students' comments.
4. more likely to encourage/allow student-initiated dialogue in later class sessions

**Property: includes asking questions of students****Dimensions:**

1. this seems to be the most frequent teaching style
2. always open-ended questions
3. prolongs this component by often asking other students if they agree/disagree with an answer supplied by a student
4. student occasionally asked to write beliefs and share with class.
5. subjective questions require reflective answers

**Property: includes allowing students to contribute to class discussions****Dimensions:**

1. encourages students to respond to other students' opinions
2. breaks students into groups for student-student discussions
3. interactivity lengthened as a class time progressed

**Category: Instructor as Politician****Property: includes allowing students to make some decisions****Dimensions:**

1. usually not significant decisions
2. students allowed to decide between alternatives
3. moves group away from diverse opinions, toward a consensus

**Property: includes a tolerance for diverse student opinions****Dimensions:**

1. allows students to disagree with teacher and each other
2. asks if students agree/disagree and WHY
3. presents diverse paradigms and encourages discussion

**Property: includes debating with students****Dimensions:**

1. debates usually end with humor
2. encourages students to debate on issues, so students can clarify their own positions

**Property: includes trying to persuade students**

**Dimensions:**

1. usually uses humor
2. not too common, occasionally used, but usually he explicitly states “he is trying to persuade”

**Source:**

Foster, B.B. (1993). The effects of interactive teleconferencing as an instructional medium on the learning environment for students (Doctoral dissertation, University of North Carolina at Chapel Hill, 1993). Dissertation Abstracts Online, 1997.

## APPENDIX C

### Part 4

#### Foster Dissertation Axial Coding

##### Category: Instructor as Tension Reducer

###### **CAUSAL CONDITION**

Technical difficulties----->

↑  
**Context of technical difficulties**  
interrupts dialogue  
usually quickly corrected  
length of down time

###### **PHENOMENON**

Reducing tension

↓  
**Action/interactional strategies**

**for reduced tension**

self effacement  
laughing at others' jokes  
teasing students  
group activities using student leaders

↓  
**Consequences**

Tension is lowered for instructor & students

###### **CAUSAL CONDITION**

Nervousness----->

↑  
**Context of nervousness**  
degree of nervousness

###### **PHENOMENON**

Reducing tension

↓  
**Action/interactional strategies**

**for reduced tension**

telling jokes on self (self-effacement)  
telling personal anecdotes

↓  
**Consequences**

Tension is lowered for instructor & students

### CAUSAL CONDITION

Serious learning material/discussion

#### Context of seriousness

perceived degree of student anxiety  
based on student cues (verbal & non-verbal)

### PHENOMENON

Reducing tension

#### Action/interactional strategies for reduced tension

brings closure to discussion after students  
debate to check class understanding

#### Consequences

Tension is lowered for instructor & students

### CAUSAL CONDITION

Calling class to order

#### Context of calling class to order

relaxed presentation  
beginning of class time  
after break time

### PHENOMENON

Reducing tension

#### Action/interactional strategies for reduced tension

teases students  
accepts teasing from students

#### Consequences

Tension is lowered for instructor & students

### RELATIONSHIP BETWEEN CATEGORY (Tension Reducer) AND SUBCATEGORIES:

Under conditions of "technical difficulties," what strategies are used to relieve tension?  
humor, students as leaders

Under conditions of "nervousness," what strategies are used to relieve tension? anecdotes  
and joking

Under conditions of a "difficult/serious tone" in class, what strategies are used to relieve  
tension? asking class, "do you understand?," end the discussion and go on to other  
material

Under conditions of "calling class to order," what strategies are used to relieve tension?  
teasing and bantering with students

Category: Instructor as Barometer

**CAUSAL CONDITION**

Student needs----->

**PHENOMENON**

Monitor and Adjust

**Context of Student needs**

expressed verbally or non-verbally  
interrupted instructor monologue  
to ask questions

**Action/interactional strategies  
for monitoring/adjusting**

interruptions increased as semester  
progressed  
more likely to occur later in semester  
interruptions represent needs  
effective to stimulate further discussion  
decreased the amount of time spent on  
monologue  
willing to stop monologue to answer  
questions

**Consequences**

Better service to students

**RELATIONSHIPS BETWEEN CATEGORY (Barometer) AND  
SUBCATEGORIES:**

Under conditions of "monitoring and adjusting to students' needs," what instructional strategies are used to interpret these needs? Careful listening, maintaining the illusion of eye contact by carefully looking at the camera, answering student questions as they are asked.



Category: Instructor as Information Disseminator

**CAUSAL CONDITION**

Choice of teaching styles (monologue)

↑  
**Context of monologue**  
often instructor's "stories"

**PHENOMENON**

Information dissemination

↓  
**Action/interactional strategies  
for info dissemination**

monologues decrease as semester progresses

monologues interrupted by teacher at  
beginning of class

monologues frequently interrupted by  
students

monologues not too effective if lengthy

↓  
**Consequences**

Instructor is able to present important  
information

**CAUSAL CONDITION**

Choice of teaching styles  
(reading from text)

↑  
**Context of reading from text**  
necessary to stress other viewpoints  
used as a basis for class discussion

**PHENOMENON**

Information dissemination

↓  
**Action/interactional strategies  
for information dissemination**  
prevents eye contact with students  
usually short passages  
has class follow along

↓  
**Consequences**

Instructor presents important information  
Student learning occurs

**CAUSAL CONDITION**

Choice of teaching styles  
(telling personal examples)

↑  
**Context of giving examples**  
gives credibility to instructor

**PHENOMENON**

Information dissemination

↓  
**Action/interactional strategies  
for info dissemination**  
often uses metaphors (most often early in  
course)  
frequently combined with humor

↓  
**Consequences**

Maintains students' interest

## **RELATIONSHIPS BETWEEN CATEGORY (Info. Disseminator) AND SUBCATEGORIES:**

Under conditions of “monologues,” what strategies are used to disseminate information? use them less frequently as course progresses; allow for interruptions by students, as well as interrupting one’s self; limit monologues to a maximum of seven minutes.

Under conditions of “reading from the text,” what strategies are used to disseminate information? read short passages (rather than lengthy); have class follow along in the textbook.

Under conditions of a “giving real-life examples,” what strategies are used to disseminate information? use examples from one’s own work, as well as from former students; use metaphors; include humor.

Category: Instructor as Non-verbal Actor

**CAUSAL CONDITION**

To keep students' attention----->

**PHENOMENON**

Non-verbal communication

↑  
**Context of keeping attention**

attention dwindles during monologues

**Action/interactional strategies  
for non-verbal communication**

problematic in some distance education  
transmission

looked "students in the eyes" via camera

animated actions

during dialogue, instructor couldn't maintain  
eye contact with other students

during text readings, limited non verbal  
communication

↓  
**Consequences**

Unable to keep students' attention

\*Since eye contact with students was not possible during text readings, the instructor controlled eye contacts by directing students to "follow along in the book." Hence, the instructor was still controlling eye contact.

**RELATIONSHIPS BETWEEN CATEGORY (Non-verbal Actor) AND  
SUBCATEGORIES:**

Under conditions of "keeping students' attention," what strategies are used to communicate non-verbally? maintain eye contact, even though students are at a distance; instructor frequently used animated actions; directed students to look at texts or information presented on camera.

Category: Instructor as Learner

**CAUSAL CONDITION**

Posing open-ended questions



**Context of questioning**

many students respond to one question  
promotes higher order thinking skills

**PHENOMENON**

Listening to students



**Action/interactional strategies  
for learning via listening**

occupies majority of class time  
teacher as a facilitator, rather than lecturer  
\*body language of instructor indicates he's  
listening  
\*\*directly contrasts monologue



**Consequences**

Class discussion is stimulated

\* "Body language" is related to non-verbal communication

\*\* "Contrasts monologue" is related to information dissemination.

**CAUSAL CONDITION**

Encourages inter-student discussions



**Context of encouraging discussions**

promotes more questions from students

**PHENOMENON**

Absorbs others' viewpoints



**Action/interactional strategies  
for absorbing other's viewpoints**

breaks students into small groups.  
provides in-class time for these discussions  
synthesizes viewpoints for other students



**Consequences**

Broadens students' awareness

## **RELATIONSHIPS BETWEEN CATEGORY (Learner) AND SUBCATEGORIES**

Under conditions of “posing open-ended questions,” what strategies are used to listen/learn from students? intent concentration on what students are saying (non-verbal communication); encourages students to respond, as well as present their own opinions; forgoes monologue time to ask questions; consumes much of the class time.

Under conditions of “encouraging student/student discussions,” what strategies are used to absorb others’ viewpoints? giving up instructor time on camera to allow students to talk; reiterating what students have said, so entire class understands.

Category: Instructor as Politician

**CAUSAL CONDITION**

Class issues needing resolution----->

**PHENOMENON**

Relinquishing authority

**Context of issues needing resolution**

usually involve differences of opinion among students

**Action/interactional strategies  
for relinquishing authority**

instructor determines the alternatives  
moves group toward a consensus  
usually in less important matters

**Consequences**

Instructor appears as "first among equals"

**CAUSAL CONDITION**

allows diverse opinions----->

**PHENOMENON**

Tolerates diversity

**Context of diverse opinions**

creates debates among students

**Action/interactional strategies  
for tolerating diversity**

\*still attempts to move group toward a  
consensus  
requires justification of beliefs  
encourages discussions  
debates with students  
\*\*creates levity with humor

**Consequences**

Increases level of student interaction

\* Similar to "Instructor as learner"

\*\* Corresponds to "Instructor as tension reducer"

## **RELATIONSHIPS BETWEEN CATEGORY (Politician) AND SUBCATEGORIES:**

Under conditions of “class issues needing resolution,” what strategies are used to relinquish authority? instructor remains silent during student discussion; offers choices to students.

Under conditions of “diverse student opinions,” what strategies are used to tolerate diversity? Instructor allows students to present their own ideas, yet instructor tries to move the group to a consensus (“persuade” the class).



## APPENDIX C

### Part 5

#### Foster Dissertation Selective Coding

##### Selective Coding

##### **Step #1 Explicating the Story Line**

**A General Description Overview.** The main story seems to be about how the teacher and students interacted in a distance education setting. I focused on teaching strategies used by the instructor to facilitate learning in a distance education class. Various teaching styles were observed in the case study, including monologues, reading from the text, class discussions and small group activities. The instructor effectively used humor within most of the teaching styles. As the semester progressed, the instructor adjusted his teaching style and used less monologue and reading from text and spent more class time on open discussions. Eventually, the most frequent type of teaching style was open class discussions in which the instructor asked open-ended questions and the students responded and debated.

**Conceptualizing the Story Line.** The core category, Instructor as Barometer, was chosen from the list of categories developed during selective coding. Instructor as Barometer (monitoring and adjusting) is the central phenomenon in this case study.

##### **Step #2 Relating Other Categories to the Core Category**

A (conditions) leads to B (phenomenon), which leads to C (context), which leads to D (action/interaction, including strategies), which then leads to E (consequences) (Strauss & Corbin, 1990, p. 124-125).

Categories from which to choose:

- tension reducing (conditions)
- monitor and adjust (phenomenon)
- information dissemination (context)
- non-verbal actions (actions/interactional strategies)
- politicizing (actions/interactional strategies)
- learning from students (consequences)

##### **Step #3 Hypothetical Statement to Validate the Relationship**

Under tense conditions ("conditions") of distance education, complicated by lack of face-to-face interaction, the instructor monitors student progress and adjusts his actions ("phenomenon") and attitudes during information dissemination ("context") in the classroom. The instructor uses many verbal and non-verbal techniques ("action/interactional strategies") to manage tension, including humor, asking questions, intense listening, allowing student-made decisions, and maintaining eye contact. These actions lead to instructor awareness of student needs, which leads to learning from students ("consequences"). This information is then used to adjust his teaching style, and the cycle begins again.

##### **Step #4 Refining the Abstract Story Line**

Teaching at a distance creates unique tensions which may not be present when

teaching face-to-face. During interactions, in which the teacher and learner are physically separated, the instructor monitors students and adjusts his instructional attitudes and activities. The instructor's ability to monitor and adjust to student needs impedes or encourages information dissemination. At the beginning of the course, these instructional techniques tended toward instructor-focused techniques. The instructor lectured, read from the text and presented examples from personal experiences. As the class progressed, the instructional techniques increased in student-focus. The instructor allowed and encouraged students to carry and guide class discussions. The instructor typically summarized students' comments, focusing on similarities of opinions. Interspersed throughout the entire course was frequent humorous bantering and joking, which lightened tense conditions. This gradual adjustment to student needs was evidence that the instructor was learning the needs of his class.

Categories from which to choose:

- tension reducing (conditions)
- monitor and adjust (phenomenon)
- information dissemination (context)
- non-verbal actions (actions/interactional strategies)
- politicizing (actions/interactional strategies)
- learning from students (consequences)

#### **Step #5 Development of Hypotheses, Relating Categories at the Dimensional Level**

"Under these conditions (listing them) this happens; whereas under these conditions, this is what occurs" (Strauss & Corbin, 1990, p. 127).

Under conditions of information dissemination at the broadcast site, the instructor maintains more control over those students' classroom conduct; whereas under conditions of information dissemination to the receiving site, the instructor maintains less control over those students' classroom conduct.

Under conditions of information dissemination at the broadcast site, the instructor is more able to monitor student conduct and adjust to student needs; whereas under conditions of information dissemination to the remote site, the instructor is less able to monitor student conduct and adjust to student needs.

Under these tense conditions in a distance education classroom, such as transmission difficulties, difficult materials and instructor nervousness, the instructor employs tension reducing strategies, such as humor, group activities and understanding checks.

Under conditions where the instructor perceives group dissension, he tries to bring the students to a consensus; whereas under periods of relative agreement among students, the instructor asks thought-provoking questions to get students to analyze their own beliefs.

Under conditions early in the semester a distance education class, the instructor uses teacher-centered strategies, such as monologues and reading from the text frequently; whereas, under conditions later in the semester, the instructor monitors student progress and adjusts to student-centered strategies, such as open-ended questions and class discussions.

Under these tense conditions: technical difficulties, nervousness, and serious or difficult materials, the instructor closely monitors and adjusts to class members' needs; whereas under routine conditions, the instructor may use traditional information

dissemination techniques, such as monologue or reading from text, which involves very little monitoring of student needs.

Under conditions of the instructor disseminating information, the instructor balances this with learning from students; whereas under conditions where the students are discussing and dialoguing, the instructor usually sums up the students' opinions for the class.

Under conditions of instructor teaching, instructor learning occurs; and under conditions of instructor listening/learning, instructor teaching occurs. They are interrelated conditions.

Under conditions of information dissemination, the instructor is less likely to be actively learning; whereas under conditions of learning, the instructor is less likely to be actively disseminating information.

Under conditions of information dissemination, the instructor is not learning from verbal cues; whereas under conditions of information dissemination the instructor is reading body language.

Under conditions of contiguous teaching, the instructor maintains direct eye contact with students; whereas under non-contiguous teaching, the instructor consciously looks into the camera, to create an illusion of eye contact with students.

Under conditions of information dissemination, the instructor uses these strategies to keep the attention of students: looks into the camera to create an illusion of eye contact; uses animated non-verbal actions, directs students to look at their text during a text reading; whereas under conditions of "instructor as learner," the instructor looks only at the monitor showing the class, breaking eye contact with the students, and leans forward slightly, showing interest to speaking students.

Under the condition of diverse student opinions, the instructor negotiates for political positions; whereas under this tense condition: students arguing for schedule changes, the instructor dictatorially determines the position.

Under the conditions: instructor as barometer, instructor as politician, instructor as learner, and instructor as tension reducer, the instructor is more likely to listen, rather than present to class members; whereas under the conditions, instructor as information disseminator and non-verbal actor, the instructor is more likely to present, rather than listen to class members.

Source of information for Appendix C:

Foster, B.B. (1993). The effects of interactive teleconferencing as an instructional medium on the learning environment for students (Doctoral dissertation, University of North Carolina at Chapel Hill, 1993). Dissertation Abstracts Online, 1997.

## APPENDIX D

### Part 1

#### Gilchrist Dissertation Open Coding

##### Concepts and Phenomena

Concepts-labels placed on discrete happenings, events and other phenomena

Category- classification of concepts (must compare concepts and group similar ones together)

Properties-attributes or characteristics of categories

Dimensions-properties on a continuum

##### Attitudinal concepts:

	Adopters	Non-adopters
Advantages:		
Outreach services	10	13
Improved teaching skills	2	2
Challenging experience	3	1
Increased marketing	1	2
Financial Incentive	1	0
Disadvantages:		
Lack of interaction	3	7
Technical problems	4	4
Lack of technical support	2	1
Increased preparation time	2	1
Lack of resource access	0	2
Cut faculty/reduce programs	0	2

##### **Concepts**

Distance inhibits discourse

Technical problems inhibited interaction (a relationship!) (noted three times)

Technical problems inhibited learning (noted four times)

Learning is the same at a distance and face-to-face

Technical problems include not wandering. Camera can't find instructor (confinement) (noted twice)

faculty intimidated at first

difficult to get students to interact with each other

lack of chalk board

technical breakdowns (sound or video loss)

less material covered because breakdowns (noted twice)

depersonalized

difficult to read body language and facial expressions (noted twice)

eye contact difficult

no private conversations

lack of technician at some sites

lack of connection with off-site students (noted three times)  
switches classes to improve this  
requires extra prep time (noted twice)  
complications in administering exams and handouts  
inhibits spontaneity (noted twice)  
distance education may be a result of cost-cutting measures  
Non-adopters: better for lecture than interaction about complex issues (noted five times)  
Adopters: interaction was essential--not straight lecturing (noted three times)  
engagement and dialogue, somewhat impeded by the technology  
concerned about the role of education: Should traditional education be viewed as inconvenient?  
concern for quality of information exchange (it takes place, but is it of a high quality?)  
adopters used technology to enhance teaching  
preparation, flexibility and humor were needed  
teachers who felt uncomfortable with technology, felt a loss of control  
lack of training on equipment (lack of observation of another class) (noted six times)  
adequate training on equipment (noted twice)

Source:

Gilchrist, C. (1997). Faculty attitudes and perceptions toward utilizing interactive television: A case study (Doctoral dissertation, University of Minnesota, 1997). Dissertation Abstracts Online, 1997.

## APPENDIX D

### Part 2

#### Gilchrist Dissertation Open Coding

##### Categories Encompassing Concepts/Phenomena

\*Instructor as pragmatist. Attributes and properties of instructor attitudes toward pragmatic concerns teaching at a distance.

includes beliefs that distance education is implemented to cut costs

includes willingness to teach to increase enrollment

includes opportunities to compete for market share of students

\*Instructor as service marketer. Attributes and properties of instructor attitudes toward serving student needs.

includes desire to serve students in remote locations

includes concerns if higher education should be “marketing” at all?

\*Instructor as team player. Attributes and properties of instructor helping and being helped.

includes teaching at a distance to “help out” the department chair

includes desire to have technicians present at sending and receiving sites

includes feelings of loss of control due to lack of expertise about technical equipment

\*Instructor as developing professional. Attributes and properties of instructor attitudes toward self-improvement.

includes gradual lessening of intimidation due to camera

includes desire for adequate training on equipment

includes concerns over lack of adequate training on equipment

includes desire to observe a distance education class before teaching one

includes desire for pre-course preparation time

includes concern for lack of pre-course preparation time

includes desire for compensation for efforts

\*Instructor as non-verbal communicator. Attributes and properties of instructor attitudes toward communicating at a distance.

includes difficulty reading students’ body language

includes difficulty making eye contact with students

includes difficulty seeing students’ facial expressions

includes rethinking visual aids usage (can’t use traditional chalkboard)

includes physical confinement to moving in front of camera

\*Instructor as information disseminator. Attributes and properties of instructor attitudes toward teaching methods used in a distance education setting.

\*\*includes beliefs by Non-adopters that distance education is better for lecture, than complex issues

\*\*includes beliefs by adopters that distance education is better for discussion, than lecture

\*\*opposites

includes biggest concern over lack of face-to-face interaction

includes beliefs that straight lecturing is ineffective

- includes beliefs that discourse is necessary to success
- includes concerns that discourse is inhibited by distance
- includes concern that quality of information exchange is impeded by distance
- includes concerns that less information is covered in course due to technology-related down time
- includes feelings of depersonalized atmosphere
- includes belief that instructors should broadcast from both sites to counter depersonalization
- includes complications in administering exams and handouts
- includes feelings that spontaneity is inhibited

The phrase, beginning with an “\*” represents the **category**.  
Each subtopic, beginning with “includes” represents the **conceptual label**.

Source:

Gilchrist, C. (1997). Faculty attitudes and perceptions toward utilizing interactive television: A case study (Doctoral dissertation, University of Minnesota, 1997). Dissertation Abstracts Online, 1997.

## APPENDIX D

### Part 3

#### Gilchrist Dissertation Open Coding

##### Properties within Categories

##### Category: Instructor as Pragmatist

###### **Property: Distance Education is an economic issue**

###### **Dimensions:**

1. non-users & low users more likely to mention economic issues
2. not always seen as cost effective, especially in low enrollment classes at receiving site
3. believed a way decrease costs, cut faculty and reduce programs (non-user)

##### Category: Instructor as Service Marketer

###### **Property: Distance Education is a competitive advantage/marketing tool**

###### **Dimensions:**

1. ability to provide outreach service was believed to be the major advantage of distance education
2. a way to increase enrollment
3. a way for students to sample the university
4. students can get educ. experiences at a quality university
5. increased opportunities to promote university
6. mentioned by users and non-users

###### **Property: University engaged in "marketing" education?**

###### **Dimensions:**

1. These concerns addressed mostly by non-users and low-users
2. attitude of non-adopters, more than adopters
3. criticism of fascination with technology vs. fascination with people

##### Category: Instructor as a Team Player

###### **Property: Sharing distance education teaching assignments**

###### **Dimensions:**

1. More frequently mentioned by low and non-users

###### **Property: Desire for technical support staff**

###### **Dimensions:**

1. both at sending and receiving sites (same as Foster dissertation)
2. technical problems during class increases feelings of loss of control because instructors lack expertise about technical equipment

##### Category: Instructor as a Developing Professional

###### **Property: distance education facilitates professional growth**

###### **Dimensions:**

1. 5 adopters, 3 non-adopters noted this
2. attitudes toward distance education improve as experiences increase
3. includes gradual lessening of intimidation due to camera

###### **Property: Adequate training**



**Dimensions:**

1. more likely to occur for adopters; less likely to occur for non-adopters
2. training varied from a brief demonstration to observing an existing class; and from casual to formal orientation
3. Instructors prefer/desire sufficient training
4. opportunities to experiment w/equipment (trialability) increased the success of distance education teaching
5. observation of another ITV class rarely occurred, but was seen as helpful

**Properties: Pre-course preparation time****Dimensions:**

1. preparation time seen as key to success
2. instructors more likely to be prepared, knowing they will be teaching at a distance
3. increased planning decreases (suppresses) spontaneity (such as impromptu handouts)
4. non-adopters concerned over lack of release time for preparing to teach distance education

**Properties: Compensation****Dimensions:**

1. issues of financial incentives rarely mentioned

Category: Instructor as Non-Verbal Communicator**Properties: Reading students' body language****Dimensions:**

1. difficult to make eye contact
2. difficult to see facial expressions

**Properties: Technical limitations****Dimensions:**

1. traditional chalkboards not useful
2. physical confinement to area in front of camera

Category: Instructor as Information Disseminator**Property: Face-to-Face interaction \*\*Inverse relationship between technical problems and interaction with students****Dimensions:**

1. seen as major disadvantage of distance education
2. can be maximized by broadcasting from all sites
3. important to create verbal exchanges to overcome the lack of face-to-face interaction (belief of adopters)
4. lecturing is the technique that minimizes the absence of face-to-face interaction, which some professors find an unsuitable teaching style; hence, they don't like teaching at a distance (belief of non-adopters)
5. belief that without interaction, class could be taped and watched at home (not as good as distance education with interaction)
6. includes feelings of depersonalized atmosphere (users and non-users)

**Property: Teaching limitations****Dimensions:**

1. less information is covered in course due to technology-related down time

2. includes complications in administering exams and handouts
3. frustration at not being able to instruct without technological interferences
4. reduces the quality of learning

**Property: Humor**

**Dimensions:**

1. Students amused by technological bloopers
2. a key to success in distance education

**Source:**

Gilchrist, C. (1997). Faculty attitudes and perceptions toward utilizing interactive television: A case study (Doctoral dissertation, University of Minnesota, 1997). Dissertation Abstracts Online, 1997.

## APPENDIX D

### Part 4

#### Gilchrist Dissertation Axial Coding

##### Category: Instructor as Pragmatist

###### **CAUSAL CONDITION**

Economic retrenching----->

###### **Context of economic retrenching**

cost saving to hire one faculty  
to teach 2 sections  
faculty: costs extra to prepare  
for distance education,  
no compensation

###### **PHENOMENON**

Feelings of loss of control

###### **Action/interactional strategies of loss of control**

lack of experience with technology  
inability to interact face-to-face  
most frequent with non-users  
decreases with experience  
quality of learning is questioned

###### **Consequences**

feelings of frustration/fear  
discouraged attitudes  
gap between administration and faculty widens

## CAUSAL CONDITION

declining enrollments  
focused



### Context of declining enrollments

fewer students willing to come to campus  
classes must travel to students

## PHENOMENON

Dep'ts become competitively-



### Action/interactional strategies of competitive focus

Targets remotely-located students  
Education offered at a quality university  
Students can "sample" university  
Not necessarily concerned with costs



### Consequences

enrollment increases  
better education for students?

## RELATIONSHIPS BETWEEN CATEGORY (Pragmatist) AND SUBCATEGORIES:

Under conditions of "economic retrenching," what feelings do instructors have about a "loss of control" in a distant education classroom? Questioning the quality of learning; frustration that decreases with distance education experience; learning becomes secondary to reducing expenses.

Under conditions of "declining enrollment," what feelings do instructors have about the "competitive focus" of departments? Good that departments are trying to reach remotely-located students, provide them quality educations, and allowing all students to sample a quality university.

Category: Instructor as a Service Marketer

**CAUSAL CONDITION**

change in philosophy of higher education----->

**PHENOMENON**

"Marketing" of higher education

**Context of philosophical changes**

fascination with technology vs. fascination with people  
promoting university seen as competing with promoting learning  
disagreement between users and non-users

**Action/interactional strategies of marketing**

Outreach in terms of classes  
Vying for students  
Advocating THIS university is somehow better  
than another

**Consequences**

faculty must consider their own philosophy  
and may/may not be same as university's

**RELATIONSHIP BETWEEN CATEGORY (Service Marketer) AND  
SUBCATEGORIES:**

Under conditions of "philosophical changes," what feelings do instructors have about "marketing" higher education? Ambivalent feelings, pros and cons. Most likely criticized by low or non-users. Feelings that a "fascination w/technology" has replace the "fascination with people." Feelings that promoting the university competes w/promoting learning. Disagreement between users and non-users.

Category: Instructor as A Team Player

**CAUSAL CONDITION**

unfamiliarity with equipment----->  
sites

**PHENOMENON**

Desire to have technician at all

**Context of unfamiliarity**

down time in teaching due to equipment failures  
concern that students at receiving site spent time  
trying to fix equipment  
feelings of loss of control

**Action/interactional strategies of on-site tech.**

True for users and non users

Also mentioned in Foster dissertation

**Consequences**

frustrated faculty

desire for more assistance

**RELATIONSHIP BETWEEN CATEGORY (Team Player) AND SUBCATEGORIES:**

Under conditions of "instructor's unfamiliarity with equipment," what feelings do instructors have about having "on-site technicians?" Desire to have one at each site; helps overcome feelings of loss of control; reduces concern that students at receiving site waste time trying to fix equipment (time that should be devoted to learning). This is a feeling of both users and non-users.

Category: Instructor as A Developing Professional

**CAUSAL CONDITION**

technological advancements----->

**PHENOMENON**

Learning how to adapt teaching style



**Context of technological advancements**

many departments just beginning to offer classes  
still optional for most instructors  
anxiety more apparent in low users or non users



**Action/interactional strategies of adapting**

Anxiety decreases with experience  
Observing a class provides ideas  
Users prefer to limit lecture format, instead  
using interactivity style  
Low or non-users believe lecture is best



**Consequences**

increased training required to combat faculty  
resistance

**CAUSAL CONDITION**

amount of training----->

**PHENOMENON**

Comfort level of professor



**Context of training**

vary from brief run-through to formal orientation  
may include observation of existing class (rare, but desirable)  
increased training increases success of distance education



**Action/interactional strategies of comfort  
w/distance education**

Increased with increased training  
Faculty desired to observe others  
Instructors prefer/desire training



**Consequences**

better-prepared instructor  
learning is facilitated

### CAUSAL CONDITION

traditional teaching methods inappropriate----->

### PHENOMENON

Need to rework class format

#### Context of new teaching methods

less lecture; more interaction  
requires extensive pre-planning  
spontaneity decreased

#### Action/interactional strategies of reformatting class

Extensive pre-planning fosters success  
Lack of release time

#### Consequences

frustrated faculty  
other duties may be neglected

### CAUSAL CONDITION

extra workload----->

### PHENOMENON

Monetary compensation

#### Context of extra workload

assumptions that new assignments mean  
extra income

#### Action/interactional strategies of compensation

Rarely mentioned by faculty  
Didn't seem too important to these faculty  
Mentioned only once in data

#### Consequences

faculty may take compensation time instead



## **RELATIONSHIP BETWEEN CATEGORY (Developing Professional) AND SUBCATEGORIES:**

Under conditions of “technological advancements,” what feelings do instructors have about “adapting their teaching styles?” Anxiety, that decreases with experience; experienced users prefer minimal lecture and interactive format; inexperienced instructors believe lecture is best due to difficulty interacting.

Under conditions of “amount of training,” what is the comfort level of the instructor? Increased training results in increased comfort; instructor’s level of training vary from brief run-throughs, to formalized training. Preference among all groups of users (high to low) is to observe a distance education class before teaching one.

Under conditions where “traditional teaching methods are inappropriate,” what feelings do instructors have about “reformatting courses?” Extensive pre-planning fosters successful distance teaching; concerns over lack of release time to reformat.

Under conditions of “extra faculty workload,” what feelings do instructors have about “compensation?” Monetary compensation not mentioned as frequently as “time” compensation. Mentioned only once in data.

Category: Instructor as A Non-Verbal Communicator

**CAUSAL CONDITION**

non-contiguous communication-----

**PHENOMENON**

Lack of face-to-face interaction

**Context of non-contiguous communication**

difficult to see facial expression

“ to read body language

“ to make eye contact

impossible to have private conversations

lack of connection with off-site students

should be minimized by visitation to sites

technical interruptions

**Action/interactional strategies of lack face-to-face contact**

seen as biggest problem by all faculty

impersonal

requires humor and interaction to offset it

**Consequences**

inhibits learning

diminishes rapport

**CAUSAL CONDITION**

technical limitations-----

**PHENOMENON**

Physical confinement

**Context of tech. limits**

stationary camera

overhead projectors instead

of chalkboards

**Action/interactional strategies of physical confinement**

distracts professor

**Consequences**

inhibits teaching

requires reformatting teaching style

## **RELATIONSHIP BETWEEN CATEGORY (Non-Verbal Communicator) AND SUBCATEGORIES:**

Under conditions of “non-contiguous communication,” what feelings do instructors have about “lack of face-to-face interaction.” Seen as biggest problem of distance education. Impersonal. Inhibits learning (most likely to be an attitude of low users). Requires humor and interaction to offset it.

Under conditions of “technical limitations,” what feelings do instructors have about “physical confinement?” Don’t like; is distracting; requires instructor to be aware at all times, thus inhibits teaching.

Category: Instructor as Information Disseminator

**CAUSAL CONDITION**

limited class time----->

**PHENOMENON**

Choice of information to be presented

**Context of limited class time**

decrease because of technical difficulties  
decrease because of technician unavailable  
some class time used for interaction,  
hence, less for new material

**Action/interactional strategies of chosen info.**

usually discussion-based  
must be pre-planned with minimum spontaneity

**Consequences**

last minute teaching aids impractical  
better-prepared teachers

**CAUSAL CONDITION**

technical difficulties----->

**PHENOMENON**

Interaction with students

**Context of technical difficulties**

increase in technical difficulties  
decrease interaction time  
may be out of instructor's/students' ability to fix  
time consuming

**Action/interactional strategies of interaction**

critical for success  
maximized by broadcasting from all sites  
humorous  
depersonalized atmosphere

**Consequences**

in-class discussions inhibited  
broadcast site students contribute most to  
discussions

## **RELATIONSHIP BETWEEN CATEGORY (Information Disseminator) AND SUBCATEGORIES**

Under conditions of "limited class time," what feelings do instructors have about "the choice of information to be presented?" They feel students are not getting all the necessary material, b/c valuable class time is spent working with the technology. This is especially true when technicians are not at the receiving site. Also, instructors feels teaching distance education requires careful pre-planning. A disadvantage: Spontaneous teaching does not work well. An advantage: Instructors feel it is critical to be well-prepared (more so than in a traditional classroom). No "shooting from the hip."

Under conditions of "technical difficulties," what feelings do instructors have about "interacting with students?" An increase in technical difficulties decreases time spent interacting with students and a depersonalized atmosphere; can be offset by: alternating the broadcast among the sites, and, using humor to lighten the tension.

## Appendix D

### Part 5

#### Gilchrist Dissertation Selective Coding

##### Selective Coding

#### **Step #1 Explicating the Story Line**

**A General Description Overview.** The main story seems to be a comparison of instructor attitudes and feelings toward teaching at a distance. There are two variables used to describe instructors: level of adoption and degree of use. Although there is some polar disagreement among users and non-users and high adopters and low adopters, two common beliefs emerged, regardless of the experience of the faculty member. The primary advantage of distance education was its ability to provide education to students in remote locations. The primary disadvantage of distance education was a lack of face-to-face communication.

**Conceptualizing the Story Line.** The core category, Instructor as Information Disseminator, was chosen from the list of categories developed during selective coding. Information dissemination is the central phenomenon in this case study.

#### **Step #2 Relating Other Categories to the Core Category**

A (conditions) leads to B (phenomenon), which leads to C (context), which leads to D (action/interaction, including strategies), which then leads to E (consequences) (Strauss & Corbin, 1990, p. 124-125).

Categories from which to choose:

- service marketing (conditions)
- pragmatism (phenomenon)
- team playing (context)
- professional development (consequences)
- non-verbal communication (actions/interactional strategies)
- information dissemination (actions/interactional strategies)

#### **Step #3 Hypothetical Statement to Validate the Relationship**

Instructors are initially pragmatic ("phenomenon") in their opinions of distance education, and feel that universities may be losing sight of the true meaning of education in their scramble to recruit a previously untapped target market (marketing services) ("conditions"). Instructors feel compelled to teach at a distance for reasons such as helping out the department (boosting enrollment or doing a favor for the department chair (supporting the team) ("context"). As instructors teach at a distance (information dissemination) ("action/interactional strategies"), they began to "read" students (non-verbal communication) ("action/interactional strategies"). Distance education becomes a two-way learning process, whereby students master course objectives while instructors develop professionally ("consequences").

#### **Step #4 Refining the Abstract Story Line**

The concept of distance education is beneficial to higher education enrollments, but instructors may feel learning is being compromised. Instructors often are resistant to teaching

at a distance, but concede because it reaches students in remote locations, which in turn boosts enrollment in their department. Teaching at a distance requires extensive planning and is time consuming. As instructors gain experience in distance education information dissemination, they are able to assimilate verbal and non-verbal responses from students, which improve the information dissemination process. Serendipitously, instructors develop professionally as a result of the initially-stressful process of teaching at a distance.

Categories from which to choose:

- service marketing (conditions)
- pragmatism (phenomenon)
- team playing (context)
- professional development (consequences)
- non-verbal communication (actions/interactional strategies)
- information dissemination (actions/interactional strategies)

#### **Step #5 Development of Hypotheses, Relating Categories at the Dimensional Level**

“Under these conditions (listing them) this happens; whereas under these conditions, this is what occurs” (Strauss & Corbin, 1990, p. 127).

When a university first undertakes a service marketing approach to offering education, such as offering distance education classes to remotely-located students at multiple sites, and requiring departments/instructors to teach for the first time at a distance, instructors are apprehensive and often have negative feelings toward the workload and the quality of the learning that takes place; whereas after a period of time passes and instructors have taught previous courses at a distance, then instructors are more likely to have positive feelings toward distance teaching, including viewing distance education as a way to promote the university, offering students an educational experience at a quality university, and feeling they (the instructors) have developed professionally.

When a university engages in service marketing via distance education, faculty are initially skeptical and apprehensive; whereas after faculty become accustomed to teaching at a distance, they too, began to view themselves as service marketers.

Under conditions of low levels of training before teaching at a distance, instructors feel apprehensive about using the technical equipment; whereas under conditions of high levels of training and observations, instructors feel more comfortable using the equipment.

Under conditions where instructors have little or no experience teaching at a distance, they tend to be more critical of distance education; whereas under conditions where instructors have moderate to extensive experience, they tend to view distance education as more beneficial to students and the university.

Under conditions of distance education teaching in which a technician is present at all sites, the instructor feels more in control of class experiences; whereas under conditions in which technicians are not present at all sites, the instructor has feelings of loss of control due to lack of expertise about technical equipment.

Under conditions where the instructor lacks the technical expertise to solely operate the equipment and must rely on technicians, s/he must relinquish absolute control of the classroom and experiences frustration; whereas under face-to face teaching conditions, the instructor maintains complete control of the classroom and feels more comfortable with this control.

Under conditions in which the instructor experiences technical problems, s/he perceives a decrease in the quality of learning and student/teacher interactions; whereas under

conditions in which the instructor experiences few or no technical problems, s/he perceives the quality of learning to be similar to that experienced in traditional, face-to-face classrooms.

Under conditions of traditional face-to-face interaction, instructors spend less time and efforts preparing instructional materials; whereas under conditions of non-contiguous learning, instructors spend more time and effort preparing instructional materials.

Under conditions of traditional face-to-face interaction, instructors are more spontaneous in preparing instructional materials; whereas under conditions of teaching at a distance, instructors pre-plan extensively, and are less likely to use spontaneous instructional materials.

Under conditions of distance education, instructors rely heavily on verbal exchanges with students, and less heavily on reading students' body language, such as eye contact, facial expressions and body posture; whereas under face-to-face conditions, instructors closely monitor students' body language.

Under conditions of desiring to teach at a distance, instructors may believe advantages to include outreach services, improved university public relations, and professional growth; whereas under conditions of being required to teach at a distance, instructors may believe disadvantages to include an over-emphasis on technology, lack of release time, physical confinement and a depersonalized atmosphere, which lacks the necessary teacher/student interactions.

Under conditions where an instructor is a high user of distance education techniques, s/he has more positive feeling of teaching at a distance; whereas under conditions where an instructor is a low user of distance education techniques, s/he is more likely to have negative feelings toward teaching at a distance.

Under conditions where instructors broadcast from different sites during the semester, verbal exchanges are increased, which enhances learning; whereas under conditions in which instructors broadcast only from one site during the semester, verbal exchanges are decreased, which inhibits learning.

Under conditions in which distance education instructors view distance education positively, they view the extensive pre-planning as a way to develop professionally and increase the chances of success of the course; whereas under conditions in which distance education instructors view distance education negatively, they view the extensive pre-planning as uncompensated time and as preventing spontaneity in the classroom.

Source of information for Appendix D:

Gilchrist, C. (1997). Faculty attitudes and perceptions toward utilizing interactive television: A case study (Doctoral dissertation, University of Minnesota, 1997). Dissertation Abstracts Online, 1997.



## APPENDIX E

### Part 1

#### Blundell Dissertation Open Coding

##### Concepts and Phenomena

Concepts-labels placed on discrete happenings, events and other phenomena

Category- classification of concepts (must compare concepts and group similar ones together)

Properties-attributes or characteristics of categories

Dimensions-properties on a continuum

Agreed to teach at a distance because he wanted to be hired

Participated in two, thorough training sessions on equipment and interactive techniques

Learned fundamentals of controlling camera

Learned ideas for preparing visual materials

Practiced with staff from remote sites (in non-work environment)

Difficulty adjusting existing visual aids to the power point format

No computer in instructor's office, hence, reliance on support staff

"It really took a lot of time to prepare for the class" (more than just making overheads)

Second training session was a full day trip to remote site and off-campus library (it was a campus requirement to broadcast from remote sites in order to establish rapport with all students)

Taught from one remote site once, and taught from another remote site twice

Felt appreciated by students when he visited

Felt his trip improved rapport with remote site students

Felt physically separated from students in the broadcast room: at least 15' away from front row; back row students "chatted, put up their feet; and almost ignore him--watching the TV in back of the room"

Felt physically strained to look at monitor & write simultaneously.

Awkward and inconveniently located. Difficult to write on white board. Difficult to look at class.

Warm room temperature due to lights.

Challenged by transmission delay (three to five seconds).

Challenged by preparing overheads, rather than using the chalkboard with which he was comfortable.

Frustrated by lack of eye contact (feedback from students). This included the students in the room with instructor, because they were "pushed back"

read body language...."glassy eyes and dead mackerel stare vs. nodding heads in understanding"

Felt a loss of control with off-site class. Unaware there was noise in that class. (students had muted instructor's sound and were making jokes) Instructor was unaware until anonymous letter was sent midway through semester.

Felt the off-site students complaints were sometimes unjustified and may have been a result

of their age (non-traditional students, ages 30-35).

Felt conflict between student groups at two sites, younger vs. older students due to different learning styles.

Scheduled breaks which were agreeable for all students.

Allowed students to make some decisions regarding exam format, too.

Utilized interactive techniques: Discussion format; formal student presentations

Had technicians at all sites.

Felt loss of control when technician was on lunch hour and system went down three times.

Knew the standard operating procedure if equipment went down.

Didn't feel the technical support was as good as it should have been.

Expected the technician should be in the sites during class.

Felt last minute changes were possible but difficult.

Lacked spontaneity.

Required thorough pre-planning.

Used teamwork to solve the noise controversy: "Self-monitoring"

Reviewed rules for classroom conduct at remote site (where only one site could hear this; the site which had been noisy)

Adjusted to the teaching and technology demands based on student input (for example: He quit using pre-prepared overhead, and began to use write directly on the elmo). Felt that the time it took the instructor to write approximated the time it took students to copy the information, so they were more in sync.

Received advice from colleagues.

Learned to communicate verbally or decipher signals, whereas before he'd read the students' facial expressions (twice).

Became more conscious of the effect of his movements through the students' cues.

Relaxed as he became more accustomed to teaching at a distance and more intune with students.

Provided students with email address and toll free phone number to call with questions.

Arrived at class early for questions.

Believes a campus without walls is the future

Believed he received lower instructor ratings because of distance

Source:

Blundell, E.P. (1997). A case study: Perceptions of the induction process into college distance learning teaching (Doctoral dissertation, University of Nebraska, 1997). Dissertation Abstracts Online, 1997.

## APPENDIX E

### Part 2

#### Blundell Dissertation Open Coding

##### Categories Encompassing Concepts/Phenomena

###### \*Instructor as Politician

- includes making concessions to agree to teach at a distance in order to get hired
- includes scheduling breaks with agreement from all students
- includes allowing students to make some decisions regarding exam format
- includes providing students with email and toll free number
- includes arriving early at class for questions

###### \*Instructor as Non-Verbal Interpreter

- includes “reading” body language (boredom, puzzlement)
- includes interpreting student cues (signals) rather than reading students facial expressions
- includes becoming more conscious of the effects of his movements on students

###### \*Instructor as Learner. Attributes and properties of an instructor willing to learn from others in a distance education setting:

- includes learning how to use the camera
- includes learning standard operating procedure if equipment went down
- includes learning to adapt to 3-5 second transmission delay
- includes accepting advice from veteran distance education teachers
- includes participating in thorough training sessions
- includes learning to adapt existing visual aids to distance education equipment
- includes realization that preparation is time-consuming

###### \*Instructor as Powerless Commander-In-Chief

- includes physical strain of looking at monitor and writing simultaneously
- includes feelings of physical separation from all students (both on-site and at remote sites)
- includes feelings of loss of control over both on-site and off-site students
- includes detection of conflict between groups of students (occurring for some time)
- includes feelings of frustration because absence of computer in his office
- includes frustration because of lack of eye contact with all students
- includes beliefs that some remote-site students complained too much
- includes feelings of loss of control during system failures ( technician was on his lunch hour)
- includes frustration with technician who took lunch hours at inappropriate times
- includes frustration with technician when technician was rude to students
- includes feelings that technical support staff wasn't too good
- includes feelings that last minute changes (spontaneity) were difficult
- includes a belief that distance education caused him to receive lower instructor ratings

**\*Instructor as Creative Teacher**

- includes using interactive formats: Discussions and student presentations
- includes broadcasting occasionally from receiving sites
- includes using teamwork to solve student/student conflicts
- includes reviewing rules for classroom conduct when problems arise

**\*Instructor as Barometer**

- includes feelings that students appreciated his visits to remote sites
- includes feelings that his trip to remote sites improved rapport with students
- includes adjusting to teaching and technology demands (based on verbal student input) as class progressed through the semester
- includes relaxing as became accustomed to teaching and more intune with students
- includes a belief that a campus without walls is the future

The phrase, beginning with an “\*” represents the **category**.

Each subtopic, beginning with “includes” represents the **conceptual label**.

Source:

Blundell, E.P. (1997). A case study: Perceptions of the induction process into college distance learning teaching (Doctoral dissertation, University of Nebraska, 1997). Dissertation Abstracts Online, 1997.

## APPENDIX E

### Part 3

#### Blundell Dissertation Open Coding

##### Dimensional Profile of Properties within Categories

##### Category: Instructor as Politician

###### **Property: dealing with students as decision makers**

###### **Dimensions:**

1. instructor allows students to make insignificant decisions
2. some student decisions are not good decisions
3. instructor may not be able to control all decisions made by students

###### **Property: offering services**

###### **Dimensions:**

1. providing students with email & toll free number
2. arriving early at class for questions
3. making concessions in order to get hired

##### Instructor as Non-Verbal Interpreter

###### **Property: awareness of cues**

###### **Dimensions:**

1. gradually becoming more aware as semester progressed
2. reading body language
3. lessening of reliance on facial expressions (couldn't see them)
4. slowing movements for camera transmission

##### Category: Instructor as Learner

###### **Property: learning from training personnel**

###### **Dimensions:**

1. as training sessions increase content, learning is improved
2. sufficient opportunities to practice on equipment believed important

###### **Property: learning from peers**

###### **Dimensions:**

1. willingness to accept advice from peers
2. peer input (veteran distance education teachers) believed to be helpful

###### **Property: learning to adapt to equipment limitations**

###### **Dimensions:**

1. transmission delays required conscious thinking (how students might perceive)
2. adapting existing visuals to "fit" equipments
3. thorough understanding of standard operating procedure if equipment fails
4. preparation for distance education teaching is more time-consuming than traditional face-to-face

Category: Instructor as Powerless Commander-In-Chief

**Property: powerlessness over students**

**Dimensions:**

1. stronger feelings of frustration over remote groups, but still felt frustrated with on-site group of students
2. feelings of physical separation from all students
3. feelings of loss of control over all students
4. decrease in eye contact in a distance education setting
5. discovers conflict among student groups (after the fact, via an anonymous letter)

**Property: powerless over support staff**

**Dimensions:**

1. most frustrating when technician is on unscheduled lunch break
2. frustration when technician was rude to students
3. beliefs that on-site support staff not too good

**Property: powerlessness over presentation of material**

**Dimensions:**

1. reliance on others to produce visuals because he lacked computer in his office
2. physically straining to look at monitor and write simultaneously
3. spontaneous instruction is limited in distance education as compared to face-to-face
4. belief that circumstances beyond his control adversely affected his instructor ratings at semester's end

Category: Instructor as Creative Teacher

**Property: techniques to improve classroom atmosphere**

**Dimensions:**

1. broadcasting twice from one remote site; once from another remote site; remainder from home site
2. resolving student/student conflicts via teamwork ("self-monitoring")
3. reviewing rules for classroom conduct

Category: Instructor as Barometer

**Property: adjusting teaching style**

**Dimensions:**

1. monitored students' needs as class progressed
2. teaching style evolved based on technology demands as class progressed
3. relaxing at distance teaching as semester progressed

**Property: visiting remote sites**

**Dimensions:**

1. faculty/student rapport improved after visits
2. faculty feelings about teaching improved after visits

**Property: monitoring and adjusting**

**Dimensions:**

1. gradually monitoring student attitudes and actions, and adjusting his teaching
2. gradually monitoring equipment capabilities and adjusting his teaching

Source:

Blundell, E.P. (1997). A case study: Perceptions of the induction process into college distance learning teaching (Doctoral dissertation, University of Nebraska, 1997). Dissertation Abstracts Online, 1997.

## APPENDIX E

### Part 4

#### Blundell Dissertation Axial Coding

##### Category: Instructor as Politician

###### **CAUSAL CONDITION**

Employment opportunity----->

↑  
**Context of employment opportunities**  
requirement outlined in job description  
show direction university is moving

###### **PHENOMENON**

Political concessions

↓  
**Action/interactional strategies of political concessions**

had never taught distance education before  
agreed in order to get job

↓  
**Consequences**

teachers may/not believe philosophy, but agree,  
for employment  
teaching for the wrong reasons

###### **CAUSAL CONDITION**

Class issues that need resolution----->

↑  
**Context of issues needing resolution**  
relatively unimportant  
affects students personally

###### **PHENOMENON**

Relinquishing authority

↓  
**Action/interactional strategies of relinquishing authority**

willingness to compromise  
high-touch instruction, rather than high-tech

↓  
**Consequences**

has better rapport with students



## CAUSAL CONDITION

student-made decisions----->

## PHENOMENON

Problems for instructor

### Context of student-made decisions

may not be in the best interest of class  
may conflict with instructor's preference  
more likely to occur at remote sites  
instructor may be unaware

### Action/interactional strategies of

#### Problems for instructor

interferes with information dissemination  
frustrates instructor

### Consequences

instructor overrules class decision  
diminishes rapport

## RELATIONSHIP BETWEEN CATEGORY (Politician) AND SUBCATEGORIES:

Under conditions of "employment opportunities," what feelings do instructors have about "political concessions" made teaching at a distance? feelings of dishonesty; needing/wanting to be a part of the team.

Under conditions of "class issues needing resolution," what feelings do instructors have about "relinquishing authority" to distance education students? making concessions in some areas gains ground in others; desire to empower students.

Under conditions of "student-made decisions," what feelings do instructors have about "problems that arise" based on these decisions in the distance education classroom? some student-made decisions are not in the best interest of the group; cannot always allow a democracy in the classroom.

Category: Instructor as Non-Verbal Interpreter

**CAUSAL CONDITION**

inability to "read" facial expressions

**PHENOMENON**

Awareness of cues

**Context of unclear facial expressions**

includes all students

on-site students are farther back than usual

numerous mention of this problem--indicates

previous heavy reliance on expressions

which diminishes during semester

**Action/interactional strategies of awareness of cues**

includes body language

awareness increases during semester

makes changes in his presentation based on cues

**Consequences**

teaching style adapts to student needs

as semester progresses

**RELATIONSHIP BETWEEN CATEGORY (Non-verbal Interpreter) AND SUBCATEGORIES:**

Under conditions of difficulty "reading facial expressions," what actions do instructors undertake to determine students' needs? must read body language, become better at reading cues as semester progresses.

Category: Instructor as Learner

**CAUSAL CONDITION**

Extensive training sessions



**Context of training sessions**

thorough

considered beneficial by instructor

opportunities to practice with other faculty

peer coaching well-accepted

instruction in standard operating procedure during transmission problems

**PHENOMENON**

Clear understanding of "how to"



**Action/interactional strategies of clear understanding of "how to"**

required much prep time

helped instructor relax



**Consequences**

better-prepared instructor

**RELATIONSHIP BETWEEN CATEGORY (Learner) AND SUBCATEGORIES:**

Under conditions of "extensive training sessions," what feelings do instructors have about "understanding" the distance education technology? appreciation, increased preparedness, more relaxed.

Category: Instructor as Powerless Commander in Chief

**CAUSAL CONDITION**

proximity of students' behaviors



**Context of far proximity**

face-to-face students at least 15' away  
facial expressions obscured  
limited control over remote site students  
distance increases student/student conflicts

**PHENOMENON**

Loss of control over students'



**Action/interactional strategies of loss of control over students**

instructor frustration increases  
unaware of students' actions



**Consequences**

effective teaching is inhibited

**CAUSAL CONDITION**

technological failures



**Context of technological failures**

requires reliance on technician  
on-site technician unsatisfactory  
absent on-site technician increases frustration  
prevents instructor from teaching  
requires compliance with standard operating procedure

**PHENOMENON**

Teaching interrupted



**Action/interactional strategies of interrupted teaching**

frustrating  
causes student dissatisfaction



**Consequences**

lowers faculty evaluations

**CAUSAL CONDITION**

new visuals to fit equipment

**PHENOMENON**

Creation of all new visuals

↑  
**Context of new visual to fit equipment**

started out with ready-mades, and  
 later just wrote on overhead

↓  
**Action/interactional strategies of  
 creating new visuals**

reliance on support staff  
 no personal computer available  
 time consuming

↓  
**Consequences**

instructor's time is seen as wasted on  
 secretarial duties

**RELATIONSHIP BETWEEN CATEGORY (Powerless Commander-In-Chief) AND  
 SUBCATEGORIES:**

Under conditions of "physical distance from students," what feelings do instructors have about a "loss of control over student behaviors?" increases behavioral problems in the classroom; can't "see" students to determine the root of the problem; sometimes unaware of the loss of control.

Under conditions of "technological failures" in a distance education setting, what feelings do instructors have about "interrupted teaching time?" limits the amount of material that can be covered during the semester; requires reliance on others (sometimes unreliable); frustration with uncontrollable events.

Under conditions of developing "new visuals" for distance education, what feelings do instructors have about the time required to "create" teaching aids? Frustrated with lack of personal computer in office; must rely on staff to make teaching aids; time consuming, which detracts from other duties.

Category: Instructor as Creative Teacher

**CAUSAL CONDITION**

feelings of isolation

**Context of isolation**

true for both remote and on-site students  
created more problems at remote site  
than broadcast site

**PHENOMENON**

Activities to involve all students

**Action/interactional strategies of involvement activities**

puts extra burden on teacher  
teacher feels these improve situation  
done on a group level, rather than individual  
level

**Consequences**

builds faculty/student rapport

**RELATIONSHIP BETWEEN CATEGORY (Creative teacher) AND SUBCATEGORIES:**

Under conditions of “feelings of isolation,” what feelings do instructors have about “involving all students in the class activities?” takes extra effort on the instructors part, but is worth the efforts; helpful to divide class into groups.

Category: Instructor as Barometer

**CAUSAL CONDITION**

familiarity with equipment----->

**PHENOMENON**

Evolving teaching style

**Context of familiarity**

comes only with experience, later in semester  
equipment requirements influence teaching  
experience provides opportunities to adapt  
and experiment with techniques

**Action/interactional strategies of  
evolving teaching style**

more relaxed  
more in-tuned with students' needs

**Consequences**

builds faculty/student rapport

**CAUSAL CONDITION**

familiarity with students----->

**PHENOMENON**

Adjusting to student needs

**Context of familiarity with students**

comes only with experience, later in semester  
student behaviors influence teaching

**Action/interactional strategies of  
adjusting to student needs**

broadcasts from other sites  
instructor felt better after met remote site  
students  
gradual adjustment  
adjustments based on students' cues

**Consequences**

instructor is more aware of student needs

**RELATIONSHIP BETWEEN CATEGORY (Barometer) AND SUBCATEGORIES:**

Under conditions of "familiarity with equipment," what feelings do instructors have about the "evolution in their teaching style" in a distance education setting? more relaxed as semester progresses; more aware of students' needs.

Under conditions of "familiarity with students," what feelings do instructors have about "adjusting to students' needs" in a distance education setting? more comfortable when they met the remote site students; is achievable by visiting the remote site.

## Appendix E

### Part 5

#### Blundell Dissertation Selective Coding

##### Selective Coding

##### **Step #1 Explicating the Story Line**

**A General Description Overview.** The main story seems to be about the attitudes and activities of a fairly inexperienced college accounting professor, teaching at a distance for the first time. The instructor attitudes are fairly objective in the narrative, discussing both the pros and cons of distance education. He agreed to teach at a distance because it was required in the job description, not because he necessarily desired the experience. He had positive experiences in distance education equipment training sessions, was peer coached, and participated in actual transmission sessions. He experienced the most difficulty as loss of control over students at all sites. Visitations reduced some of the frustration, but in general, the instructor felt the loss of control affected instructor evaluations completed by students at the semesters' end.

**Conceptualizing the Story Line.** The core category, Instructor as Powerless Commander-in-Chief, was chosen from the list of categories developed during selective coding. Powerlessness (Loss of Control) is the central phenomenon in this case study.

##### **Step #2 Relating Other Categories to the Core Category**

A (conditions) leads to B (phenomenon), which leads to C (context), which leads to D (action/interaction, including strategies), which then leads to E (consequences) (Strauss & Corbin, 1990, p. 124-125).

Categories from which to choose:

- political (conditions)
- feelings of powerlessness (phenomenon)
- non-verbal interpreter (context)
- creative teaching (actions/interactional strategies)
- teacher as learner (actions/interactional strategies)
- barometer (consequences)

##### **Step #3 Hypothetical Statement to Validate the Relationship**

Political conditions ("conditions") in a distance education setting lead to instructor feelings of powerlessness ("phenomenon"), which lead to a heightened awareness of non-verbal student cues ("context"). This causes the instructor to monitor students' actions and creatively adjust ("consequences") his teaching style to best fit their needs. Ultimately, the teacher learns from mistakes and successes ("action/interactional strategies") teaching at a distance.

##### **Step #4 Refining the Abstract Story Line**

Instructors may be required to teach a course via distance education, even though they may have misgivings about distance education. Teaching at a distance may yield an instructor less control over activities that affect student learning. Distance education instructors may experience feelings of frustration because they cannot physically monitor



events at multiple locations. Technology failures result in lost class time, and the instructor has very little, if any control over technology. Students and technical support staff may fail to meet expectations of the distance educator, causing frustration. The instructor may feel s/he has limited power, as compared to the control s/he traditionally experiences in a face-to-face classroom. Instructors must depend on others (technicians and students) to self-monitor. Students who experience frustrations in a distance education class can be monitored for verbal and non-verbal cues signaling problems that need to be addressed by the instructor. Distance education teachers must apply conflict resolution procedures, adjust their teaching techniques and take measures to ensure satisfaction among all groups involved. Ultimately, the teacher may have to relinquish some classroom authority, empower some or all students, and accept the loss of control that may occur in a distance education class.

Categories from which to choose:

- political (conditions)
- feelings of powerlessness (phenomenon)
- non-verbal interpreter (context)
- creative teaching (actions/interactional strategies)
- teacher as learner (actions/interactional strategies)
- barometer (consequences)

#### **Step #5 Development of Hypotheses, Relating Categories at the Dimensional Level**

“Under these conditions (listing them) this happens; whereas under these conditions, this is what occurs” (Strauss & Corbin, 1990, p. 127).

Under conditions where the instructor loses or relinquishes authority over the class, he may develop sensitivity in interpreting student cues about their feelings and needs; whereas under conditions where the instructor maintains control over the classroom, he may not have developed that sensitivity, because he can read facial expressions and verbally interact more easily.

Under distance education conditions where the instructor experiences a loss of control over students, technology and staff s/he feels frustrated at the powerlessness; whereas when teaching face to face in a classroom, teachers relinquish less authority to others and feel more in control of the classroom atmosphere.

Under conditions of physical separation between teacher and students, the instructor feels a greater loss of control over students' classroom conduct; whereas under conditions of face-to-face interactions between teacher and students, the instructor feels a greater sense of control over students' classroom conduct.

Under conditions of teaching at a distance, instructors devote more time to preparing materials for presentation to students; whereas under conditions of teaching face-to-face, instructors spend less time preparing instructional materials.

Under conditions of physical separation of teacher and students, the teacher relied heavily on students to self-monitor their behaviors; whereas under conditions of face-to-face interactions between teacher and students, the instructor usually acted as class monitor.

Under conditions in which instructors receive limited or no training on distance education technology, instructors have greater feelings of loss of control and doubt; whereas under conditions in which instructors receive adequate training and peer coaching on distance education technology, they have more positive feelings toward teaching at a

distance.

Under conditions of physical separation between teacher and students, the instructor relies on reading body language via the camera; whereas under conditions of face-to-face interactions between teacher and students, the instructor relies on reading facial expressions and body language.

Source of information for Appendix E:

Blundell, E. P. (1997). A case study: Perceptions of the induction process into college distance learning teaching (Doctoral dissertation, University of Nebraska, 1997). Dissertation Abstracts Online, 1997.

## APPENDIX F

### Part 1

#### Liu Dissertation Open Coding

##### Concepts and Phenomena

Concepts-labels placed on discrete happenings, events and other phenomena

Category- classification of concepts (must compare concepts and group similar ones together)

Properties-attributes or characteristics of categories

Dimensions-properties on a continuum

Feeling of “breaking new ground” (pioneering)

No concern for compensation

Seen as a research activity

Hope to make advanced education available to remote students

Immense frustration and exhaustion with red tape before course being approved

Extensive pre planning to create the course

Provided students some leeway in deciding assignments to submit (he allowed for substitutions)

Enriching students’ chemistry skills seen as primary motive for teaching

Learning via Internet not seen as primary motive for teaching

Utilized university experts to create listserv

After technical needs were met, he asked for biosketches of participants (attempt to fill in the void left by lack of face-to-face communication)

Monitored and adjusted to students’ equipment provisions (aborted plan for electronic roster)

Initially received positive feedback

Subsequent disappointment with students’ late or non-existent submissions (only 8 of original 21 completed the course)

Urged students to “talk more” and “keep up with the syllabus”

Awareness of students’ busy schedules

Provided students with generous encouragement

Provided students with prompt feedback

Provided students with instructions

At completion of course, instructor had “mixed feelings”

- glad it had worked

- relieved it was over

- bothered by lack of student participation in online discussions

Instructor concern over lack of face-to-face interaction

- inability to chat

- inability to use eyes to detect good and bad feelings

- inability to tailor remarks to individuals

Pleased with student suggestions at end of class  
Positive feelings overall  
Flexible on assignment requirements  
Invited student creativity on their assignments

Source:

Liu, D. (1996). Teaching chemistry on the Internet (Doctoral dissertation, University of Nebraska, 1996.) Dissertation Abstracts Online, 1997.

## APPENDIX F

### Part 2

#### Liu Dissertation Open Coding

##### Categories Encompassing Concepts/Phenomena

- \*Instructor as Service Marketer
  - includes desire to reach remote students
- \*Instructor as Pioneer
  - includes feelings of “breaking new ground”
  - includes feelings that the course is a “research activity”
- \*Instructor as Team Player
  - includes relying on support personnel (technical experts)
- \*Instructor as Politician
  - includes allowing students to choose assignments (substitute)
  - includes inviting student creativity on assignments
  - includes feelings of relief when it’s over
- \*Instructor as Devoted Teacher
  - includes extensive preplanning
  - includes no concern for compensation
  - includes belief that student learning of subject is crucial-more so than mastering
- Internet
  - includes requesting biosketches of students (trying to “**personalize the impersonality**”)
- \*Instructor as Barometer
  - includes monitoring and adjusting to students’ equipment provisions
- \*Instructor as Non-Visual Communicator
  - includes inability to read facial expressions
  - includes sole reliance on verbal communication
- \*Instructor as Information Disseminator
  - includes giving instructions
  - includes providing prompt feedback
  - includes inability to privately tailor remarks to individuals
- \*Instructor as Powerless Commander-in-Chief
  - includes frustration by lack of face to face interaction
  - includes frustration over inability to “chat”
- \*Instructor as Frustrated Middleman (lack of control over outcomes)
  - includes immense frustration with red tape
  - includes disappointment because late assignment or nonsubmissions
  - includes disappointment with high attrition of students
  - includes awareness of students’ busy schedules
  - includes frustration at lack of student participation

The phrase, beginning with an “\*” represents the **category**.  
Each subtopic, beginning with “includes” represents the **conceptual label**.

Source:

Liu, D. (1996). Teaching chemistry on the Internet (Doctoral dissertation, University of Nebraska, 1996.) Dissertation Abstracts Online, 1997.

## APPENDIX F

### Part 3

#### Liu Dissertation Open Coding

##### Dimensional Profile of Properties within Categories

###### Category: Instructor as Service Marketer

###### **Property: Desire to reach remotely-located students**

###### **Dimensions:**

1. ability to provide outreach service was believed to be the major advantage

###### Category: Instructor as Pioneer

###### **Property: Enthusiasm for “breaking new ground”**

###### **Dimensions:**

1. sharing this feeling with students
2. awareness that this type of class was a “first”

###### **Property: Viewed course as “research”**

###### **Dimensions:**

1. more interested in research, than in compensation (did not request money)

###### **Property: Faced difficulties in journey**

###### **Dimensions**

1. much difficulty “selling” the idea to administration
2. high attrition rate of students
3. lack of response from students

###### Category: Instructor as Team Player

###### **Property: Reliance on support personnel**

###### **Dimensions:**

1. Not necessary to personally be a technical expert

###### Category: Instructor as Politician

###### **Property: Allowing students to make some decisions**

###### **Dimensions:**

1. flexibility in assignments
2. flexibility in time schedule

###### **Property: Fighting the red tape**

###### **Dimensions:**

1. relief when course was over
2. arduous battle with administration over course offering

###### Category: Instructor as Devoted Teacher

###### **Property: Overall willingness to put forth extra effort in the name of education**

###### **Dimensions:**

1. money was not the motivating factor
2. extensive preplanning, compared to face-to-face classes

3. attempts to "personalize the impersonality"
4. belief that learning chemistry was more important than learning the

Internet

Category: Instructor as Barometer

**Property: Monitoring and adjusting**

**Dimensions:**

1. adjusting initial plans because of students' equipment limitations
2. allowing students to tailor assignments to fit their needs

Category: Instructor as Non-Visual Communicator

**Property: Sole reliance on verbal communication**

**Dimensions:**

1. concern over inability to read facial expressions
2. regularly encourages students to "chat"

Category: Instructor as Frustrated Middleman

**Property: Lack of control over means and ends**

**Dimensions:**

1. frustration with administrative red tape
2. high expectations at beginning of class; much lower at end of class
3. disappointment in student performance (usually only 4 students participated in discussion)
4. disappointment over high attrition rate (only 8 of 21 students completed the course)

Source:

Liu, D. (1996). Teaching chemistry on the Internet (Doctoral dissertation, University of Nebraska, 1996.) Dissertation Abstracts Online, 1997.



## APPENDIX F

### Part 4

#### Liu Dissertation Axial Coding

#### Category: Instructor as Service Marketer

##### **CAUSAL CONDITION**

Belief that a need existed----->

##### **PHENOMENON**

Undertake "research"

##### **Context of unmet student needs**

located too far from university to attend  
students held full time jobs  
filled a niche, not currently filled

##### **Action/interaction strategies**

##### **for undertaking research**

extensive pre-planning  
developed proposal  
desire to provide outreach service

##### **Consequences**

argued with administration  
developed first ever chemistry course via  
Internet

#### **RELATIONSHIPS BETWEEN CATEGORY (Service marketer) AND SUBCATEGORIES:**

Under conditions of "believing a need existed," what feelings do instructors have about teaching at a distance similar to "undertaking research?" similar steps involved (writing a proposal, meeting with administration, thorough pre-planning); developing the course for the sake of knowledge (rather than compensation).

Category: Instructor as Pioneer

**CAUSAL CONDITION**

No other course like this----->

↑  
**Context of first of its kind**  
virtual chemistry class

**PHENOMENON**

Breaking new ground

↓  
**Action/interaction strategies  
for breaking new ground**  
extensive pre-planning  
solicit help from experts  
allowed for interpretations

↓  
**Consequences**  
flexible course structure  
changes made after course began

**RELATIONSHIPS BETWEEN CATEGORY (Pioneer) AND SUBCATEGORIES:**

Under conditions of “a first of its kind’ attitude,” what feelings do instructors have about “breaking new ground?” must be flexible; willing to ask for help; time-consuming to pre-plan.

Category: Instructor as Team Player

**CAUSAL CONDITION**

instructor lacked technical expertise----->

**PHENOMENON**

Reliance on support personnel

↑  
**Context of inexpertise**  
help was available

↓  
**Action/interaction strategies  
for reliance on support personn.**  
initially requested listserv help  
eventually discarded idea (although he had help,  
students did not)

↓  
**Consequences**  
time saving for instructor  
instructor could spend more time interacting  
with students  
realized not everyone had necessary equipment  
adjusted class to meet students' abilities

**RELATIONSHIP BETWEEN CATEGORY (Team Player) AND  
SUBCATEGORIES:**

Under conditions of a "lack of technical expertise," what feelings do instructors have about "relying on support personnel?" appreciate time freed for teaching duties; realization that not everyone has this support personnel, willing to adjust curriculum to students' expertise.

Category: Instructor as Politician

**CAUSAL CONDITIONS**

scarce resources



**Context of scarce resources**

student time which could be devoted to class  
support from the university administration  
instructor time which could be devoted to class

**PHENOMENON**

Continuous uphill battle



**Action/interaction strategies  
for uphill battle**

numerous meetings with administration  
convincing them of the need  
encourage students to "try harder"



**Consequences**

opportunity to develop class  
no evidence that students changed

**RELATIONSHIP BETWEEN CATEGORY (Politician) AND SUBCATEGORIES:**

Under conditions of "scarce resources," what feelings do instructors have about the "continuous uphill battle?" wastes instructor's time, feelings that others aren't trying hard enough.

Category: Instructor as Devoted Teacher

**CAUSAL CONDITIONS**

concern for student learning-----

**PHENOMENON**

-->Extensive preparation

**Context of concern**

↑  
desire to reach remote students was  
seen as the most important outcome

↓  
**Action/interaction strategies  
for extensive preparation**  
personalizing the impersonal

**Consequences**

↓  
flexibility in course  
an (unsuccessful) attempt to meet students on  
a more personal level

**RELATIONSHIP BETWEEN CATEGORY (Devoted Teacher) AND  
SUBCATEGORY:**

Under conditions of “concern for student learning,” what feelings do instructors have about the “extensive preparation” required in a distance education course? it could be a way to get to know the students better, being flexible is important.

Category: Instructor as Barometer

**CAUSAL CONDITIONS**

inability to “read” student needs



**Context of inability to “read”**

distance teaching eliminated face-to-face interactions

used other means to focus on student needs

**PHENOMENON**

Monitor and adjust



**Action/interaction strategies  
for monitoring/adjusting**

changing requirements to fit students’ abilities

changing requirements to fit students’ equipment



**Consequences**

importance of creativity was place on students

frustration over technical problems

**RELATIONSHIP BETWEEN CATEGORY (Barometer) AND SUBCATEGORY:**

Under conditions of “inability to read students,” what feelings do instructors have about “monitoring and adjusting” their teaching style as the class progresses? necessary, places some responsibility on students, frustrating.

Category: Instructor as Non-Visual Communicator

**CAUSAL CONDITIONS**

Instructor can't see students

**PHENOMENON**

-----> Absence of non-verbal interpretation

**Context of students at remote site**

Each student in different place throughout U.S.  
Frustrates the instructor

**Action/interaction strategies for compensating because lacking visual cues**  
encouraging students to "chat"

**Consequences**

Lack of cohesion among group

**RELATIONSHIP BETWEEN CATEGORY (Non Visual Communicator) AND SUBCATEGORY:**

Under conditions of "inability to see students," what feelings do instructors have about the "absence of non-verbal interpretation?" important for students to chat, detracts from group cohesion.

Category: Instructor as Frustrated Middleman

**CAUSAL CONDITION**

Reliance on others for success----->



**Context of reliance on others**  
admin. makes decisions to offer class  
students make decision to work

**PHENOMENON**

Encountering problems over  
which instructor has limited (or  
no) control



**Action/interaction strategies  
for encountering problems**

attends numerous meetings  
writes proposal  
argues significantly with administration  
encourages students  
allows students to tailor the assignments to own  
work



**Consequences**  
frustration!

**RELATIONSHIP BETWEEN CATEGORY (Frustrated Middleman) AND  
SUBCATEGORY:**

Under conditions of “reliance on others,” what feelings do instructors have about  
“encountering problems over which they have no control?” frustration, time consuming,  
must relinquish some authority to students.



## APPENDIX F

### Part 5

#### Liu Dissertation Selective Coding

##### Selective Coding

##### **Step #1 Explicating the Story Line**

**A General Descriptive Overview.** The main story seems to be about the instructor's feelings and attitudes regarding the planning and implementation of the on-line chemistry class. The focus is how the instructor interacts with students (primarily) and administrators (secondarily). The instructor's frustration with others' performances is a theme throughout the story. However, the instructor strongly believes in the need for a class of this type, and is willing to face obstacles and tailor the class to meet the needs of remotely-located students.

**Conceptualizing the Story Line.** The core category, Instructor as Pioneer, was chosen from the list of categories developed during selective coding. Exploring a new concept in pedagogy is the central phenomenon in this case study.

##### **Step #2 Relating Other Categories to the Core Category**

A (conditions) leads to B (phenomenon), which leads to C (context), which leads to D (action/interaction, including strategies), which then leads to E (consequences) (Strauss & Corbin, 1990, p. 124-125).

Categories from which to choose:

- service marketing (conditions)
- pioneering (phenomenon)
- devotion to teaching (context)
- team player; politician; barometer; verbal communication (actions/interactional strategies)
- frustrated acceptance (consequences)

##### **Step #3 Hypothetical Statement to Validate the Relationship**

Under conditions of providing convenience to students (service marketing), complicated by administrative resistance and a lack of face-to-face interaction with students, the instructor proposes, develops and explores techniques of instruction (pioneering) which most effectively meet the students' needs (devotion to teaching). The instructor must employ negotiation strategies, rely on others, adapt to students' limitations, and continuously interact with students to make the class successful. In the end, the instructor concedes a frustrated acceptance of the course outcomes.

##### **Step #4 Refining the Abstract Story Line**

The instructor strongly believes in the need for a skills enhancement chemistry course offered to teachers unable to attend an on-site class. After battling administrators to offer the class, the instructor finds that students, initially eager, began to dwindle in numbers despite the instructor's best efforts to keep students involved. The instructor regularly mentions his frustrations over his lack of influence. The instructor experiences relief when the class ends, but feels it was a successful research project.

Categories from which to choose:

- service marketing (conditions)
- pioneering (phenomenon)
- devotion to teaching (context)
- team player; politician; barometer; verbal communication (actions/interactional strategies)
- frustrated acceptance (consequences)

**Step #5 Development of Hypotheses, Relating Categories at the Dimensional Level**

“Under these conditions (listing them) this happens; whereas under these conditions, this is what occurs” (Strauss & Corbin, 1990, p. 127).

Under conditions where an instructor feels strongly about the need to reach students in remote locations, he is willing to treat the development of the course as a research project; whereas under conditions where an instructor is reluctant to teach at a distance, he is more likely to request compensation.

Under conditions where an instructor feels he is losing interest of remotely-located students, he employs interactive strategies to encourage participation.

Under conditions in which the instructor is a devoted teacher, s/he over-plans the course, setting high expectations for enrolling students; whereas under conditions of the instructor as a barometer, s/he decreases the original requirements based on students' reactions and abilities.

Under conditions of instructor as pioneer, before actually teaching the course, s/he experiences excitement and feelings of “breaking new ground”; whereas under conditions of instructor as frustrated middleman, well into the semester, s/he experiences a disappointment over lack of course and students' outcomes.

Under conditions of teaching at a distance, the instructor relies solely on verbal exchanges; whereas under conditions of teaching face-to-face, the instructor relies on verbal and visual exchanges.

Under conditions of a physical separation between teacher and students, the instructor experiences difficulties motivating students to complete course assignments; whereas under conditions of face-to-face contact between teacher and students, the instructor experiences fewer difficulties motivating students to complete course assignments.

Under conditions of a physical separation between teacher and students, the instructor feels teaching at a distance inhibits a personal level of interaction with students; whereas teaching face-to-face in a traditional classroom encourages personal interactions between teacher and students.

Source of information for Appendix F:

Liu, D. (1996). Teaching chemistry on the Internet (Doctoral dissertation, University of Nebraska, 1996). Dissertation Abstracts Online, 1997.

## VITA

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