

CHAPTER III

METHODOLOGY

The purpose of this study was to describe which aspects of course design and/or instruction are more effective and successful in the online environment than in the face-to-face (F2F) classroom and why and how they impact both students and instructors. The participants are faculty who have been teaching both online and F2F and who have been recognized as exemplary instructors using various criteria from different award programs. The case study research method was chosen as the most appropriate way to answer these research questions. The design and methods used are described in this chapter. The researcher was the sole investigator who is acting as observer and interviewer.

The following research questions were examined:

1. Which aspects of course design and/or instruction are more effective and successful in the online learning environment than in the F2F classroom, and why, according to faculty who have been recognized as exemplary online instructors?
2. How do these aspects impact student learning in online classes, and what evidence shows how students are affected?

Rationale and Assumptions for Qualitative Design

This study used qualitative research techniques. Creating and providing the best possible learning experience for the students or participants is the focus of instructional design and teaching activities. This focus is qualitative in that it looks for indicators of success or improvement through the experiences and stories of the participants (Glesne, 1999; Merriam, 1988).

Qualitative research looks at the participant in natural settings and asks these individuals to participate in the data collection. Qualitative methods allow for the researchers to bring their personal-self into the research along with their researcher-self. Biases, values, and interests are acknowledged and included in the reporting (Creswell, 2003; Glesne, 1999; Merriam, 1988).

Qualitative research looks at the research setting from the viewpoint of deep understanding rather than micro-analysis of limited variables. The interest is in the stories and the experiences of people in the natural setting. This goes beyond what the statistics infer to examine the story behind the numbers. This might include a possible outlier, and the one who had a very different experience than most. Instead of trying to prove or disprove a hypothesis, qualitative research looks for themes, theories, and general patterns to emerge from the data. Qualitative research “is hypothesis-generating” (Merriam, 1988, p. 3) rather than serving to test a hypothesis.

The research questions examined what works better in the online environment according to individuals who live in that world, than the F2F

classroom, why and how, questions that may be more appropriately examined through qualitative methods than quantitative. Quantitative research designs have been attempted many times in the past to determine if online education or instruction is as good as F2F. The most recent meta-analysis of empirical research conducted on this subject was published in the Review of Educational Research (Bernard, Abrami, Wade, Borokhovski, & Lou, 2004). The reports states that, "Even though the literature is large, it is difficult to draw firm conclusions as to what works and does not work in regard to DE [Distance Education]" (p. 404). The meta-analysis statistics suggest that "many applications of distance education outperform their classroom counterparts and that many perform more poorly" (p. 379). Thus Bernard et al. (2000) suggest that, "we might ask whether there are aspects of design, relating to either medium or method, that are optimal in either or both instructional contexts." (p. 414) and "It is the examination of the details of research studies that can tell us the "why" (p. 415). They conclude that, "It may just be that at this point in our evolution, and with so many pressing issues to examine as Internet applications of DE proliferate, continuing to compare DE with the classroom without attempting to answer the attendant concerns of 'why' and 'under what conditions' represents wasted time and effort." (p. 416).

Therefore, qualitative methods are a better means to find answers to the 'why' and 'how' questions. Examining the experiences and stories of participants helps to illuminate what works, in which context, how and why. It reveals the

story behind what quantitative results might show and will be much more conducive to finding answers to the research questions.

Type of Design

Case study design and methods were used in this investigation. The multiple case study followed Yin's (2003) and Merriam's (1988) design and methods. The case study method and design is well-suited to this study because of its ability to answer the research questions appropriately. "The case study is preferred in examining contemporary events but when the relevant behaviors cannot be manipulated" (Yin, 2003, p. 7). Two additional resources can be investigated in case studies; (1) interviews with those involved in the events, and (2) direct observation of the events. The strength of the case study approach is in its ability to examine a "full variety of evidence – documents, artifacts, interview, and observations" (Yin, 2003, p. 8). Additionally, descriptive case study is:

...undertaken when description and explanation (rather than prediction based on cause and effect) are sought, when it is not possible or feasible to manipulate the potential causes of behavior, and when variables are not easily identified or are too embedded in the phenomenon to be extracted for study" (Merriam, 1988, p. 7).

Yin's (2003) definition of a case study is:

...an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident...[It also] copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result relies on multiple courses of evidence, with data needing to converge in a triangulating fashion, and as another result benefits from the prior development of theoretical proposition to guide data collection and analysis (pp. 13-14).

Yin (2003) recommends matching the type of research question to the strategy used to yield the data that responds appropriately to the question. This researcher's questions ask 'which', 'why' and 'how'. Yin's (2003) approach to choosing the appropriate strategy considers three conditions: the type of research question, how much control the investigator has over the events, and whether or not the focus is on contemporary or historical events and to what extent (see also Merriam, 1988). The investigator has no control over the course design or instruction of the cases being examined. One of the criteria for choosing the participants was that they taught online within the past year, so the events are contemporary, and that specific variables or events have not been identified to investigate and cannot be easily separated from the context makes case study design appropriate for this study.

Thus, two strategies were attractive for this study's questions. 'Which' questions that focus on contemporary events where the investigator has little or no control over the behavioral events could be considered exploratory or explanatory in nature and the use of an introductory survey will be the best strategy to use (Yin, 2003). Merriam (1988) concurs stating "A case study can also include data gathered by a survey instrument...[The survey] responses would form part of the database for the case study" (p. 8)

Additionally, the research strategy most conducive to answering the 'why' and 'how' questions is the case study, which also focuses on contemporary events and does not require that the investigator have control over behavioral

events. Both strategies were used in partnership to fully respond to this study's research questions. The participants initially responded to a short survey with open-ended questions that allowed each individual to describe which aspects they believe produce better results online than in the F2F classroom. The survey was also used to gather demographical information to provide background for the data analysis. After the survey data was gathered and analyzed, the investigator conducted the case study research through interviews and examination of artifacts, such as syllabi, content, assignments, assessments, and interactions.

Yin (2003) lists five research design components that are especially important to case studies:

- Research questions
- Any propositions
- Units of analysis
- Linking the data to the propositions; and
- Criteria for interpreting the findings

The research questions, the first component, were discussed earlier in this chapter. Next, any propositions the research has are discussed, followed by a description of the units of analysis and how the data will be linked to the propositions. Finally, the criteria for interpreting the findings will be examined.

The propositions direct attention to what was examined within the study. Webster's New World Dictionary & Thesaurus define proposition as being "a subject or statement to be discussed or debated" (Webster, 2001). Sutton & Staw

(1995) state that a theoretical proposition can be a “[hypothetical] story about why acts, events, structure, and thoughts occur” (p. 378). The propositions for this study are:

- certain aspects of the online learning environment are more effective than the F2F classroom
- these aspects positively impact the participants
- the experience of designing, developing and teaching an online course has changed the way the instructor approaches her/his F2F teaching
- there is an optimal blending of F2F and online instruction from which a design method and model can be developed

The unit of analysis is the aspects of the online environment identified by the ten online instructors chosen for this study based on their meeting the criteria for being recognized as exemplary online instructors. Webster’s New World Dictionary (2001) defines aspect as “any of the possible ways in which an idea, problem, etc. may be regarded; a component part or quality; an element” (Webster, 2001).

Data are linked to the propositions through analysis. Yin (2003) recommends pattern matching as an approach to connecting the data to the propositions. Through data analysis, similar patterns of design and/or instruction can be identified and linked back to the propositions, new propositions based on “relationships discovered among data” (Merriam, 1988, p. 20) can be made, and

theoretical categories and emerging themes can be built. Pattern matching is also a promising approach to interpreting the findings. Merriam (1988) suggested using the constant comparative method, which will be explained in greater detail later.

Researcher's Role

The researcher is the sole investigator in this study. The researcher has eight years experience working in higher education, specifically in designing online courses and working closely with faculty to design, develop and teach their courses online. Additionally the instructor has three years experience teaching online. The researcher feels comfortable working with faculty and should not have difficulty establishing trust and rapport with the participants. Glesne (1999) mentions two roles that a researcher plays in a qualitative study; researcher as researcher and researcher as learner. The researcher as researcher role will include data gathering through interviews, reading, observation, and data analysis. Merriam (1988) points out that “the importance of the researcher in qualitative case study cannot be overemphasized. The researcher is the primary instrument for data collection and analysis. Data are mediated through this human instrument, the researcher, rather than through some inanimate inventory, questionnaire, or machines” (p. 19).

The researcher as learner role includes having a sense of self from the beginning of the study. Acknowledging and considering the researcher's bias and pre-disposition throughout the study assists the investigator in becoming a

“curious student who comes to learn from and with research participants” (Glesne, 1999, p. 41). The researcher must become a good listener to learn from the participants, instead of approaching the interviews as an expert. Being a researcher as learner places the investigator in a position to be constantly open to new thoughts and ways of looking at the data. The researcher will need to reside in the researcher as learner role in order to create and maintain open communication with the participants. Additionally, Glesne (1999) points out that in considering validity issues, it is important not only to recognize the researcher’s expertise in regards to the study, but also their “subjective relationship to the research topic” (p. 17). The researcher is a proponent of web-based and online instruction and thus must be constantly aware of this subjectivity in order to monitor and use it properly. In qualitative research, bias is not controlled in an attempt to keep it out of the study, but as Glesne (1999) states:

When you monitor your subjectivity, you increase your awareness of the ways it might distort, but you also increase your awareness of its virtuous capacity. You learn more about your own values, attitudes, beliefs, interests, and needs. You learn that your subjectivity is the basis for the story that you are able to tell. It is the strength on which you build. It makes you who you are as a person and as a researcher, equipping you with the perspectives and insights that shape all that you do as researcher, from the selection of the topic clear through to the emphasis you make in your writing. Seen as virtuous, subjectivity is something to capitalize on rather than to exorcise (p. 109).

One of the ways a researcher can monitor subjectivity is through the use of a researcher's journal, an activity this researcher will engage in throughout the study.

The researcher's expertise and extensive experience in the online environment will facilitate her ability to gather rich data sources, analyze the data to find common patterns and emerging themes across the cases. The researcher's monitoring and use of her subjectivity will allow her to tell the story in meaningful, verifiable ways (Glesne, 1999).

Participant Selection

Participants were individuals formally recognized as being exemplary online instructors. Because the study is qualitative and seeks to discover what occurs, how and why and what the implications are, the most appropriate sampling strategy was nonprobabilistic and purposive. "Purposive sampling is based on the assumption that one want to discover, understand, gain insight; therefore one needs to select a sample from which one can learn the most" (Merriam, 1988, p. 48). Purposive sampling is criterion-based and the criteria used for the selection of the participants is based on the fact that, in the past two years, they or their courses have been recognized as exemplary through four different award programs; the Quality Matters' Recognized Quality Matters Courses award (Quality Matters, 2005b), Sloan-C's Excellence in Online Teaching & Learning Award (The Sloan Consortium, 2005), United States Distance Learning Association's (USDLA) Distance Learning Award (United

States Distance Learning Association, 2005), and WebCT's Exemplary Course Award (WebCT, 2005); that they teach adults and/or in higher education institutions, and that they have at least one year's experience teaching in the F2F classroom as well as the online classroom.

Participants were recruited through two introductory emails (see Appendix A). The first email briefly explained the study's purpose and asked for a response whether or not they were able to participate. If the response was affirmative, a follow-up email was sent containing a link to a web page with the letter of consent (see Appendix B) on it and a button that linked to the initial survey when clicked. Twenty invitations were sent out with 13 responses; two declinations and 11 acceptances. One participant completed the survey but was not able to continue with the interviews. This resulted in a total of ten participants.

Data Collection Procedures

Yin (2003) and Stake (1995) list at least six sources of evidence; physical artifacts, archival records, interviews, documentation, direct observation, and participant-observation. Glesne (1999) and Creswell (1998) list interviews, observation and document collection, and open-ended surveys as sources of evidence. This study used three of these sources, interviews, observations, and documentation. Additionally, data was collected through an initial survey (see Appendix C) that served to gather demographic information as well as lay the foundation for the interviews. Interviews with individual participants were conducted through email or telephone sessions. Where access was possible and

permission was granted to view students' work, observation of the participant's online courses was conducted, not as participant, but solely as an observer. These courses may have already been completed, so student discussions, assignments and assessments were considered part of the data gathering. Additionally sources of data came from the examination of documentation, learning agreements, activity descriptions and grading rubrics.

Processes for data collection for case studies are more complex than other research strategies. Yin (2003) also recommends following certain "formal procedures to ensure quality control during the data collection process" (p. 106). He described three principles of data collection that help in this process:

1. Multiple sources of evidence
2. Creating a case study database, and
3. Maintaining a chain of evidence.

The reliability of the study is increased through the process of triangulation, where converging lines of inquiry are developed from the multiple sources of evidence. Additionally, construct validity is addressed as multiple measures of the same phenomenon are provided through multiple means (Merriam, 1988; Yin, 2003). Glesne (1999) adds that triangulation is a measure of validity through the "use of multiple data-collection methods, multiple sources, multiple investigators, and/or multiple theoretical perspectives" (p. 32). Triangulation was achieved through the examination of multiple sources, in all cases, interviews; in most cases, artifacts, or course materials, and course

observation. Although all three sources were not available from all of the participants, at least two were used in data collection.

Creating a case study database is the process of organizing the data in a manner that other investigators are able to review it directly. There are generally two separate collections of documentation that go into the database; the raw data (documents, investigator's observation reports, interview transcripts), and the report of the investigator. Both of these types of documentation need to go into the database in a way that it would be easily accessible to another investigator. Although computerized database software that is connected to a server can facilitate this process because of its ability to store and retrieve text, audio, video, scanned documents, websites, and graphic images (Yin, 2003), in this study the researcher used the folder system on the computer to collect and store all of the data in various folders and an Excel database to record events and categorize the data. The database contains the original interview notes, the researcher's notes, and any artifacts submitted by the participants. Subfolders were used to organize the data for easy retrieval.

Maintaining a chain of evidence increases the reliability of the study by providing a way for an external investigator to "trace the steps in either direction, (from conclusion back to initial research questions or from questions to conclusions)" (Yin, 2003, p. 105). The ultimate chain of evidence desired is the ability to cross-reference between the case study report, the database, citations to specific sources in the database, the protocol and the case study questions.

This chain of evidence was maintained throughout the study and included in the research report.

Data Analysis Procedures

Glesne (1999) says that “Data analysis involves organizing what you have seen, heard, and read so that you can make sense of what you have learned. Working with data, you describe, create explanations, pose hypotheses, develop theories, and link your story to other stories” (p. 130). Data collected from the interviews, observations and examination of documentation were stored in a database and organized under categories based on the emergent themes. Since qualitative data analysis does not provide any fixed formulas or cookbook recipes to the researcher, much depends on the investigator’s way of thinking about the data, along with consideration of alternative interpretations and presentation of evidence (Yin, 2003). Data analysis using the constant comparative method (Merriam, 1988) allowed for themes and patterns to emerge from the multiple sources of evidence. These emergent themes and patterns were examined through the lens of the Sloan-C Pillars of Quality framework to reveal similarities and differences. Individual case studies are reported as well as common patterns and themes that emerge from across cases.

Interview notes were read through from start to finish getting a holistic view of the data. Preliminary notes were made in the margins. Based in an initial identification of themes, the interview notes were then cut into individual units of analysis and glued on to 4x6 index cards. Each card was marked with the case

number and then assigned a unique number to each card. The researcher made a second pass at the data using the constant comparative method. The result was the emergence of 30 different categories, some of which were then subsumed under other categories. Each record (individual cards) was typed into an Excel spreadsheet by case number, card number, and category. This provided a third level of analysis of the data which resulted in a further refinement of the categories.

The next step involved using the Sloan-C Pillars of Quality as a framework for the analysis to place the categories under four (of five) pillars; learning effectiveness, access, faculty satisfaction, student satisfaction. The pillars were put into the Excel spreadsheet in relation to the categories placed under each pillar. The database enabled the researcher to again look at all the data from multiple perspectives; by participant, category, and pillar.

Yin (2003) cites four principles that support high quality analysis: (1) attend to all of the evidence, including considering all alternative interpretations and rival hypotheses, thus leaving no loose ends, (2) address all major rival interpretations, (3) focus on the most important issue in the study, and (4) the researcher should use his/her own prior, expert knowledge in the analysis.

Glesne (1999) recommends that the investigator keep a reflective field log to begin the analysis process. The reflective log can capture thoughts, questions and ideas when they occur. It can also capture titles, themes, issues, coding schemes, and bouts of subjectivity that can be used throughout and in the final

reporting of the study. The researcher kept a reflective journal and also wrote monthly reports using Glesne's "Three Ps: Progress, Problems, and Plans" (p. 134) as a way to review the work done, the problems that exist, and plans to overcome or solve them. The monthly reports were shared with committee members to solicit external input.

Validity of the Study

Glesne (1999) summarizes Creswell's eight verification procedures that are often used in qualitative research, following up with the fact that not all of these procedures need to be used in one study, but consideration to as many as apply is necessary to increase the trustworthiness of the study (1999). For this study, six of the eight procedures were attended to: triangulation, peer review and debriefing, clarification of researcher bias, member checking, rich thick description and external audit. Triangulation was accomplished through the use of multiple sources of evidence; the investigator's monthly reports provided a mechanism for peer review and debriefing; the reflective journal kept by the investigator helped clarify researcher bias; the investigator incorporated member checking into the study by sharing interview reports and case study stories with the respective participants; rich, thick description facilitated the descriptive and explanatory nature of this study; and the researcher invited an external subject-matter expert to be on the committee to provide the external audit of the research study.

Summary

A multiple-case study is selected to describe faculty perceptions and beliefs about which aspects of course design and/or instruction are more effective and successful in the online environment than in the F2F classroom and why and how they impact both students and instructors. The study was conducted through an initial survey to establish the foundational data from which to conduct the interviews. Ten recognized exemplary online instructors who also teach F2F were interviewed and their courses examined. Aspects of both course design and instruction were examined through interviews of the instructors, observation of their courses, and examination of course documentation. These data were used to build the individual cases.

The individual cases were analyzed to establish an initial coding scheme, and then cross-case analysis was conducted to discover patterns and theme that are related to the initial propositions. The researcher kept a reflective journal to monitor her subjectivity and to assist in the data analysis process. Monthly research reports were written and shared with committee members. Validity is attended to through triangulation, peer review, monitoring of bias, member checking, thick description and external audit.