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An Examination of Faculty Experiences with Hybrid Formats

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AN EXAMINATION OF FACULTY EXPERIENCES WITH HYBRID FORMATS

by

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ABSTRACT

An abstract of the dissertation of Jo Elsa Meyertons for the Doctor of Education in Educational Leadership: Curriculum and Instruction presented January 19, 2006.

Title: An Examination of Faculty Experiences with Hybrid Formats

This phenomenological study investigated the experiences of a set of faculty who taught classes in hybrid format at a small liberal arts university in Salem, Oregon. For this study, a "hybrid format" course was defined as a course that includes elements of both traditional face-to-face and technology-enhanced (often Internet) course components. The study consisted of a set of heuristic interviews with faculty members identified through an empirical survey I conducted in Fall 2002 as part of my duties as Director of Instructional Design and Development for the university's technical services department.

Higher education leaders have consistently identified technology integration as an important priority for their faculty. Since in many cases faculty have proven reluctant to do so, it is clear that there has been some dissonance between leadership expectations and faculty experiences. An extensive review of relevant literature indicates that little research has been conducted specifically on the faculty experience with educational

technology, although much evidence has been gathered on the student experience and on learning outcomes. The goal of this study was to discover if there were any common elements that faculty experience in working with hybrid formats, and to try to distill these elements into a set of recommendations to higher education leaders for improving faculty experiences with educational technology. The broader goal was to help develop practices that might improve ways faculty use educational technology to enhance teaching and learning.

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CHAPTER I

INTRODUCTION

Higher education leaders have consistently identified the integration of technology into teaching and learning as an important priority for their faculty for a wide variety of reasons (Green, 2001). Since, in many cases, faculty members have seemed reluctant to do so, it is clear that there is some dissonance between leadership expectations and faculty experiences with technology. An extensive review of the relevant literature indicates that little research has been conducted specifically on the faculty experience with hybrid formats, although much evidence has been gathered on student experiences and on changes to technology-enhanced course learning outcomes (Donahoe, 2000; Frazee, 2003; Gilbert, 2001; Mautone & Mayer, 2001).

This study examines higher education faculty experiences with hybrid course formats using a hermeneutic phenomenological inquiry method. A hybrid format includes both traditional face-to-face and online (usually Web-based) components, in varying degrees. The faculty members I interviewed were located at a university in the Pacific Northwest ("Small University"), where I am employed as Director of Instructional Design and Development. The goal of this study was to discover if there are any common elements that faculty experience with hybrid course formats, and to try to distill these elements into a set of recommendations to higher education leaders for improving faculty experiences with educational

technology. A secondary goal was to gather evidence which instructional designers could use to develop practices that will improve the ways that faculty use educational technology to enhance teaching and learning.

Background

In order to fully understand the need for this study, it is helpful to briefly examine the background factors that led to the current state of hybrid formats in higher education. The Internet was originally developed by the Advanced Research Projects Agency as a research and communications system in the 1960s, but did not come into popular use until after the introduction of the graphical interface World Wide Web (Web) browser in 1991 by Tim Berners-Lee (Zakon, 2005). What made the Web so special was its ability to provide a graphical user interface for much of the Internet (which had previously been available only through a text interface) to the rapidly increasing number of individuals who could now afford to own a computer and an Internet connection. Early educational uses primarily consisted of text-based e-mail and text documents, as exemplified by The Gutenberg Project (Gutenburg, 2005), in which entire classic texts could be found online.

Within 5 years the Web had become a powerful influence in education with the potential to foment radical changes in the teaching profession. Some educators quickly came to appreciate that the Web could make accessible enormous amounts of information beyond what was available locally, enable new collaboration and communication opportunities, and create new assessment and evaluation opportunities. These educators especially appreciated the more dynamic, interactive

qualities of the Web, especially the ability to inexpensively create, share and make use of rich multimedia elements, simulations and data manipulation resources (EDUCAUSE, 2004; Zakon, 2005).

By the mid-1990s, a new set of technology-related professions such as Web programmers, Web designers, and digital media developers had exploded onto the world job market. These professionals implemented a new array of educational technology resources (and, in some cases, a whole new way of living) for the rest of us. Today, as a result, ordinary people not only access entire collections of classic texts and works of art online; we also register for classes, access all kinds of database records, run computer mediated simulations, take examinations, store text documents, use a wide variety of computer programs and multimedia objects (such as sound, image and movie files) in Web-based classes, and can communicate almost instantly with virtually anyone, even if they reside halfway around the world. The Web can run software applications that vary in degrees of complexity and usefulness, which unprecedented numbers of simultaneous learners can access. Textbook publishers can develop entire courses and offer them via contracts to higher education institutions either directly or via a learning management system such as BlackBoard or WebCT (BlackBoard Worldwide, 2005; Chickering & Gamson, 1991).

The Web now contains more information than all the most powerful search engines combined in the world can identify and catalog, and almost all of it is out there for anyone to discover, provided they know how. Many educators recognize that it is no longer sufficient for instructors or students to know how to find the appropriate information from a finite set of local,

physical resources, such as texts in the library. In order to be successful in most disciplines, it has become a vital skill to know how to sift through all the available information, both physical and online, in order to obtain the truly relevant, valid information, some of which may now exist in multimedia form (Association of College and Research Libraries, 2005; Daley, 2003). As a result, information literacy has become so important that many universities are beginning to offer courses on this topic, such as the Texas Information Literacy Tutorial (TILT). Small University began offering a new information literacy course in spring 2003, which I teach.

Further, information can now be shared in a variety of new formats that were previously unavailable. For example, ePortfolios (electronic, usually online or Web-based, portfolios) are now becoming commonplace. ePortfolios allow students to collect examples of digitally formatted work that can be shared with not only one instructor, but a variety of instructors and potential employers, or others of note as well. Other technology resources are continually emerging. As a result:

- Students can become more active owners and participants in their own public records; they can envision their own progress more readily and even include reflections on their own progress through the use of the ePortfolio.
- Faculty members and administrators can also make use of e-portfolios to help assess academic programs, which can be useful for program evaluations over time or even for accreditation.
- Web logs, or "blogs," are becoming popular as well. Blogs are ongoing reflective Web pages that writers (or groups of writers) can

share publicly, and which can be linked to other Web resources, including to other blogs.

- "Wikis" are a new Web-based resource that allow for groups of people to simultaneously develop a Web document. As an example of the way in which a wiki might be useful, an instructor might set up a course wiki and ask students to collaboratively develop a handbook or a manual as a learning activity.

New educational technologies such as these are constantly being created and implemented in educational settings.

With such a cornucopia of education resources always becoming available at our fingertips via the Internet, students wonder why one would need to struggle with child-care, parking and commuting, limited hours and classroom space, in order to attend a traditional face-to-face class and learn from whatever local teaching staff was available at the time (Green, 2005a; Virginia Community College, 2001). All that information could be made available online, and accessed whenever the student wanted and at whatever pace the student chose (with some restrictions). Further, students could have access to programs not available to them in their immediate geographical location. Now, for example, a museum science student could work in a city where a museum science program was not offered, and participate in a museum science master's program in a town thousands of miles away. Originally, some administrators imagined that education might be distributed more cheaply through distance education, partially because geographical limitations, classroom seat availability, and miscellaneous overhead costs would no longer limit enrollment, and

partially because they imagined existing faculty could handle larger class enrollments when classroom activities such as exams could be automated (Carr, 2001). The reduced costs have not necessarily materialized, but administrators have come to believe that educational technology resources are now an invaluable means of conducting the work of higher education (Green, 2005b).

Of course, information is not the same thing as instruction, and the change from traditional classes to pure distance learning quickly proved unworkable for many students and instructors. Several high-profile distance learning start-up institutions went out of business soon after they were established (e.g., Western Governor's University, California Virtual University, and Hungry Minds). Educators began to discover that not every subject can be taught well online, and not every student learns best in an online learning environment (Harasim, 1989).

In spite of these early setbacks, distance learning has continued to grow. Some classes actually work very well online, particularly computing and business classes for working adults, who appreciate the flexible schedules and access to programs outside their immediate geographical region. For example, Oregon Health and Science University provides an online nursing program that is accessed by nursing students all over the state of Oregon, and through Portland Community College working adults are able to access computer science courses online that their schedules would not otherwise accommodate. Witness the rapid growth rate of distance learning over the past 5 years, culminating in more than 3 million enrollments in the U.S. in 2001 as measured in a National Center for

Education Statistics survey (Waits & Lewis, 2003). The University of Phoenix continues to enjoy success with its online programs as measured in terms of enrollment rates, retention, graduation and student satisfaction (Gonzales, 2002).

Conflicting reports of success or failure from various instructors eventually gave rise to a collection of "No Significant Difference" and "A Significant Difference" studies. The No Significant Difference studies tried to show that the use of educational technology did no harm to learning, while the A Significant Difference studies tried to show that educational technology actually improved learning. As numerous meta-studies have shown, these Significance studies did not try to distinguish between the types of technology used, the degree to which technology was utilized, types of courses, or any other relevant data, which show how difficult it is to compare learning formats across different formats, disciplines, age groups, and instruction styles (Green, 2000; Keefe, 2003; Ramage, 2002; Russell, 1999).

The Hybrid Format Emerges

Out of all this early chaos, a new kind of classroom experience began to emerge in the late 1990s: the hybrid format environment. Some instructors and students yearned for the convenience that online classroom management resources could provide, and others found that certain aspects of online classes actually proved superior to face-to-face experiences. For example, electronic discussion boards or lists (sometimes referred to as Listservs©) could provide more inclusive, reflective dialog opportunities than could the face-to-face classroom, and could provide an

enduring record of the dialog as well (Ehrmann, 1999). In another example, instructors could make use of electronic feedback mechanisms to query students about the topics of each class right before the class was set to take place, and then make use of that information to adjust the class to address any problems or issues that had occurred (Novak, 2003). But many instructors and students found that these benefits could not replace the value of human/social exchanges in the classroom. The rich layers of meaning inherent in communication via facial expressions, mannerisms and demonstrations of civil discourse are difficult, if not impossible, to reproduce online. So, some instructors began to supplement face-to-face class time with online learning resources that could be accessed both in and out of class time.

As this brief overview of the past decade indicates, educational technology innovations have dynamically created a great deal of change in the way teaching and learning are conducted. The changes have been especially prevalent in learning environments in which the students are adults. This study focuses on the aspects of these changes that deal with hybrid formats.

Research Questions

While educational technologies seem to offer many exciting potential benefits for enhancing traditional teaching and learning classrooms, many important questions remain unanswered. We do not yet know very much about faculty perceptions related to the use of educational technology in hybrid format higher education classes. As an instructional designer, my job is to support faculty as they attempt to use technology resources

effectively. My hope is that by learning more about faculty perceptions I can meet their needs more effectively and assist others in similar roles to do the same. The specific set of research questions for this study includes a main question, How do faculty members experience hybrid formats? followed by a set of secondary questions:

1. Why do faculty choose to make use of a hybrid format course?
2. Do faculty believe that hybrid formats affect the course, and if so, in what ways?
3. Does the hybrid format impact faculty beliefs about the role of faculty and students?
4. How does the hybrid format impact classroom management issues?

Relevant Trends and Problems: Professional Significance

Internet technologies continue to gain importance not only to education and business users, but also to home users. One distance-learning directory (Internet Course Finders, 2005) claims to host over 55,000 distance-learning courses and programs from 131 countries and from a multitude of universities, colleges and companies. A report from September 2001 indicated that about 168 million people, or 60% of American households, use the Web for an average of 10 hours per month (Zakon, 2005).

That number has not only continued to expand in the U.S., but internationally as well. A report from March 2004 indicates that there are now over 80 billion Internet users worldwide, and, of that number, only about 35% of them now are English speaking (Global Reach, 2004). There are now so many Web sites that Internet search engines such as

Google.com can no longer keep up with cataloging them all, adding to the overall complexity of the online realm and thus to the burden of any effort to make use of it efficiently. According to the Online Computer Library Center (OCLC), a librarian trade association, we now have two levels of Web access - the "known" or cataloged Web, and the "deep" or uncataloged Web (OCLC, 2001). This deep Web is the portion of the Web that is inaccessible by search engines at any given point in time, due to the fact that there is a lag time between the content being made available on the Web and the information about that content being gathered by search engines. Also included in the deep Web is information that is housed behind network firewalls which serve as gateways that block external access. Such complexities serve to further obfuscate the realm of online learning for educators.

More than 90% of U.S. colleges and universities offer some level of electronic learning (Gorman & Boggs, 2001). Each year, more than 360,000 students become new online students for a growth rate of 18.2%, which is much faster than the rate of overall growth of the student body in higher education (Allen & Seaman, 2005). University leaders often encourage faculty to take advantage of potentially powerful educational technology resources. In fact, in recent years, higher education campus officials have consistently rated the task of assisting faculty to integrate technology into teaching and learning as the either the most important or nearly the most important information technology task confronting their campuses, and more than 80% utilize some sort of commercial course management tool such as WebCT or BlackBoard to ease that process (Green, 2004; Morgan,

2003). In spite of this widespread acceptance, many instructors have seemed reluctant to adopt them for use in the classroom, and little research has been conducted that would help practitioners determine the best direction in which to move to further the effective use of educational technology (Allen & Seaman, 2005; Schoffner, Jones, & Harmon, 2001).

In an early attempt to gather information about this issue at Small University, I conducted a brief survey in 2002 that queried faculty about their experiences with educational technology, and found that faculty beliefs seemed consistent with those of faculty elsewhere (Meyertons, 2002); that is, leadership at Small University has tried to encourage faculty to integrate technology into the classroom, only to find that faculty members seem rather unwilling to adopt technology resources (at least not as quickly as leadership would like). This dissonance between leadership priorities and faculty experiences needs to be explored, not only to discover more information about faculty experiences with technology, but also to further general knowledge in the field about the practice of instruction.

There appear to be two common schools of thought about the role of technology in higher education instruction. The first school holds that the use of technology is quite intrusive, impersonal, and devalues the traditional learning experiences, while the second school holds that the use of technology adds tremendous power and efficiency to instruction processes (Twigg, 2002). These points are not mutually exclusive, but not much data have actually been gathered about higher education faculty experiences with technology-related instruction techniques to date. As I show in the literature review section of this paper, researchers have usually

focused on learning outcomes rather than on instructor perceptions or attitudes. Notably, these results are measured and reported in courses for which there are often no meaningful or objective standards on which to base a comparison (Ramage, 2002). For example, one study reported improved test scores in two courses that had two different instructors, without regard to factors such as the course participant's technology skill levels, teaching styles, or even course content. This lack of standards upon which educators can compare course formats, particularly hybrid formats, is a continuing problem for those hoping to assess format effectiveness.

Definitions

This section introduces some brief descriptions of terms that are commonly used throughout this proposal. These definitions are more fully explored later in the paper. Note that there are no generally accepted definitions for these terms as of yet.

Hybrid Format

For the purposes of this study, "hybrid format" courses are defined as any course format that makes use of elements from both traditional face-to-face courses and distance courses. A hybrid format course may include elements of both traditional face-to-face learning and technology enhanced (and often online) course components in any combination. For example, an instructor may choose to teach an otherwise traditional face-to-face course and supplement it with an electronic discussion group, Web pages, computer simulations and the like. Alternatively, an instructor might choose to move portions of the course entirely online and to reduce face-to-face meeting time to a fraction of the previous amount. Hybrid formats

secure a niche in education unfilled by either traditional face-to-face courses or purely online courses. They can provide an opportunity for both instructors and students to take advantage of the best elements of both formats (Boerner & Coverdale, 2003).

The term hybrid as a format descriptor actually is referred to by a number of other names as well in education literature, such as "blended" or, as is common in Australia, "flexible format delivery" (Nunan, 1996; Smith, 2001). While the names may differ, there appears to be little difference in the meaning of the terms. For the purposes of this study, these terms are interchangeable, as each refers to a format for teaching and learning that involves moving some portion of the course online while retaining some face-to-face class time.

Face-to-Face

A "face-to-face" course refers to the traditional classroom model where a group of students meet at regular intervals at a specified time in a classroom and are led by an instructor.

Distance Learning

The kinds of distance or online courses I refer to here are those that are conducted purely online via computers and Internet technologies (Waits & Lewis, 2003).

Educational Technology

The term "educational technology" may be as broadly defined as a pencil and paper, but for this proposal, the term refers to computer-mediated educational tools and resources. Included are computers, Intranets or local area networks, and the Internet. Offline educational

technologies, such as new modeling, simulation and data analysis software are also included. Just a few examples include molecular modeling and simulation software, statistical analysis software such as SPSS, and GIS spatial mapping systems. Other current educational technology innovations in use by many universities include ubiquitous wireless network access, mobile devices such as laptops and tablet PCs, handheld devices like Palm Pilots, electronic portfolios, Web-based multimedia resources such as interactive Flash objects, and CD ROM and DVD development for high-end multimedia applications such as large digital videos or audio file collections.

In this chapter, I attempted to set the stage for the research problem by describing the events that led to the emergence of hybrid formats, the current situation in higher education as it relates to hybrid formats, and the research questions I address in this study. I also included a set of working definitions. In the next chapter, I describe the related research literature on hybrid formats in higher education.

CHAPTER II

REVIEW OF THE LITERATURE

A great deal of research exists concerning distance learning, in which students and instructors never meet face-to-face, and traditional face-to-face learning, in which students regularly attend a class or course led by an instructor. The quantity and quality of the existing research for faculty experiences related to hybrid formats is quite limited, perhaps because hybrid formats are a relatively new phenomenon. What follows is an overview of literature specifically related to hybrid formats organized into the following themes: An overview of relevant learning paradigms; a more in-depth explanation of face-to-face, distance, and hybrid formats; a synthesis of the existing empirical literature; research methods used in the literature; and a description of the gaps in the literature.

Relevant Learning Paradigms: How People Learn

What do we know about learning, and how is learning affected in a hybrid format classroom? In this section, I describe some of the major concepts and paradigms on learning, and then show how the Constructivist approach especially supports hybrid formats. To begin the process of understanding hybrid formats, it makes sense to examine some literature that attempts to define learning. What happens when a person learns? There are quite a few different answers to this question. According to Wild and Quinn (1998), "...learning should be seen in terms of cognitive change...cognitive development in learners is perhaps the central aim of

most instruction" (pp. 73-82). But learning is a much more complex process than just a cognitive change. Learning involves a whole range of events which operate interactively in human beings, depending on the motivation, environment, and learning materials. Sing (1999) elaborates on this principle:

> Students are viewed holistically as people with intellect, emotions and social capabilities. Hence, learning is influenced by the learner's cognitive and emotional interpretation of situations as they interact with their environment in their attempts to achieve their learning goals. (¶ 8)

Owen (1999) writes the following about learning:

> On the one hand, it is seen as the end result of a process of transmitting knowledge. When teaching is successful, according to this view, learners will "have" what the teacher transmitted; when it is unsuccessful, they will not. Knowledge then, is unchanging and transitive...The alternative view sees learning as part of an inevitably unfinished, but continuous process that goes on throughout life. Each event, circumstance, or interaction is not discrete. Rather, each is assimilated or appropriated in terms of what has gone before... Thus, what is learned can never be judged solely in terms of what is taught. (p. 1)

Based on these definitions, one might say that learning is a cognitive change or a series of cognitive changes that takes place within unique individuals in varying environments. Learning is also part of a continuous process of assimilating information as it filters into each person's existing accumulation of lifetime knowledge. If we accept the simple derivation of that definition, that learning is the development of new knowledge, skills or attitudes resulting from a person's interaction with a learning environment, then naturally we want to enable the instructor to arrange the environment so as to best facilitate student learning.

Learning occurs in individuals as a continual process of re-imaging the world (Dewey, 1990). In higher education classes of adult learners, it becomes critical that the instructor also recognizes that the environment must foster inclusion and respect for the learners as a community. A "community of truth," as Palmer (1997) calls such groups, is not defined by a model of objective knowledge passed through the filter of an expert/instructor down to amateurs/students, but rather as a model of equals directly in relationship to the subject and to each other. Truth based on these relationships is what Palmer calls "relational knowing."

Dominant Learning Paradigms

Theory helps provide explanations for and guidance through complex sets of information. Theory not only informs and guides practice, but also provides suggestions for new areas of study (Garrison, 2000). Educational technology and hybrid formats are complex topics on which faculty will especially appreciate clarity and order, and the following learning paradigms will help provide a framework within which to examine this topic.

Three dominant learning paradigms have evolved in the past century to help shape our current understanding of learning: Behaviorism, Cognitivism and Constructivism. Table 1 traces the development of these learning paradigms over the past century.

Table 1

20th Century Learning Paradigms

Before 1920: Behaviorism:	Empirical Knowledge Base for Education
1930s: Behaviorism:	Behavioral Objectives and Formative Evaluation
1940s: Behaviorism:	Instructional Media Research and Development
1950s: Behaviorism:	Programmed Instruction and Task Analysis
1960s: Cognitivism:	Instructional Systems Development (e.g., Glaser, Gagne)
1970s: Cognitivism:	ID Models and Maturation (e.g., Gagne)
1980s: Cognitivism:	Microcomputers and Performance Technology
1990s: Constructivism:	Constructivism, hypertext, the Web
The Future:	Learning technologies, imbedded Internet

Source: McNeil (2001).

Behaviorism and Cognitivism

Behaviorism emerged from the work of researchers such as B. F. Skinner, which held that behavior can be changed through operant conditioning. Under the Behaviorism paradigm, the mind was seen as a blank slate or empty vessel, waiting to be filled with knowledge passed directly from the knower to the learner with little room for individual interpretation.

In later years, a new paradigm (Cognitivism) emerged from the work of researchers such as Piaget and Gagne that recognized the importance of understanding how the students' level of cognition relates to their ability to learn different material. Much of the work I do today as an instructional designer is based on Cognitivist models and theories such as Bloom's Taxonomy, Gagne's Events of Instruction, and Dick and Carey's systematic instructional design model. Bloom's model provides a helpful guide for

instructors seeking to plan successful coursework by enabling them to sort learning tasks into clearly defined categories, and then to order these tasks according to levels of cognitive achievement (Krumme, 2000). Gagne's model also seeks to order learning tasks according to levels of cognition, but provides a slightly more expanded view of how these levels of cognition might be applied in instruction (Kruse, 2004).

Constructivism

This section includes an explanation of why the Constructivist approach is especially well suited to describing how learning occurs in hybrid environments. The Constructivist paradigm has dominated much of the dialog about teaching and learning for the past decade, particularly for adult learners. Savery (2002) provides eight instructional principles that can serve as a guide for Constructivist instructional designers and provide some insight:

1. Anchor all learning activities to a larger task or problem.
2. Support the learner in developing ownership for the overall problem or task.
3. Design an authentic task.
4. Design the task and the learning environment to reflect the complexity of the real world environment.
5. Give the learner ownership of the process used to develop a solution.
6. Design the learning environment to support and challenge the learner's thinking.
7. Encourage testing ideas against alternative views and contexts.

8. Provide opportunity for and support reflection on both the content learned and the learning process.

Constructivism supports the epistemology of so many educational theorists (e.g., Dewey, Vygotsky, and Friere) in that knowledge is a student-centered drive to construct meaning, and that learning is constructed by the learner uniquely, in part, as a result of the learner's relationship to his or her environment in an experiential, collaborative, reflective way. Under Constructivism, interpretation is accepted as an inevitable part of the learning process since we all view the world through our own personal filters. These experiential, collaborative, and reflective activities can occur as a result of the way course members interact both online and face-to-face, but we are discovering that technology can enhance the possibilities for personal engagement and collaboration in a way that face-to-face learning cannot.

Jonassen (2003) has done a large amount of work on the use of technology to foster a Constructivist learning environment. Jonassen postulates that Constructivist learning should serve to keep students active, constructive, collaborative, intentional, complex, contextual, conversational, and reflective. Figure 1 shows these qualities of Constructivist learning in relation to one another.

For example, students working together to create a digital video assignment for a class project might be provided with a camera, a few parameters on the content, and a timeframe. The students would actively explore the camera and all related software and equipment with perhaps a small amount of training, then collaborate both face-to-face and online to

create a script. Often students will collaborate on ideas via e-mail, then arrange a time to meet for further activities through e-mail or instant messaging. They would need to decide who will act, who will operate the camera, and who will edit the video. Students would need to discuss the process, think about it and then discuss it some more, before they even begin the photographic process. Then, during the editing phase where users usually see how their efforts actually worked, they would need to repeat the whole discussion until the final product was complete. Finally, the digital video could be distributed to the class online, so that faculty and other students can view and review it when convenient and provide feedback.

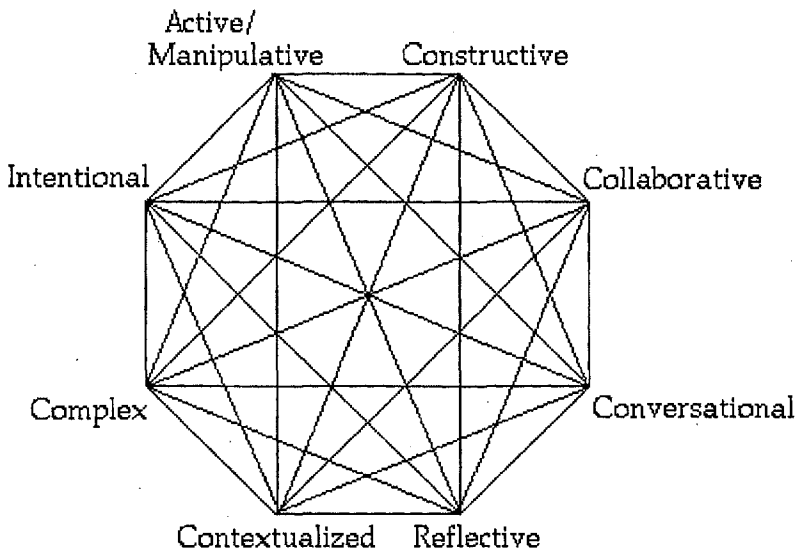

Figure 1. Jonassen's Constructivism model. Source: Jonassen (2003).

The Constructivist qualities may be supported with technology resources, or what he calls "mind tools." The use of the term mind tools is intentional; Jonassen emphasizes that technology resources are practical tools that help resolve teaching and learning goals that might not be easily

met otherwise. Some of these mind tools include knowledge representation and manipulation resources such as databases, spreadsheets, Web pages, collaboration and discussion tools, and simulations or expert systems. Newby, Stepich, Lehman and Russell (2000) prefer a bridge metaphor to describe how technology resources support Constructivism. They say, "...instructional technology is a means of connecting the teacher, the instructional experience, and learners in ways that enhance learning" (p. 10). Whether faculty members believe that the relationship between technology resources and learning (the medium and the message) is very straightforward is questionable.

Adult Learner Theory

The characteristics of Constructivism tie nicely into adult learning theory as well. Since this study focused on faculty in a higher education setting, all the participants in this study were dealing with adult learners only. Since the characteristics of adult learners are different from those of children, the experiences of faculty in this study may differ from those in a K-12 environment.

Caffarella and Barnett (1994) describe some of the key characteristics of adult learning: Adults bring significant experience and prior knowledge to the learning process, prefer to be actively involved in the learning process, to learn from their cohort peers as well as from the instructor, bring different learning styles to the processes of learning and learn best within the context of their lives. Fischer's (1996) description of the constructivist approach to learning illustrates the correlation to adult learning:

1. Understanding learning as active knowledge construction rather than passive knowledge absorption questions the dominance of lectures.
2. Allowing learners to engage in authentic, self-directed learning activities is at odds with micro-managed curricula.
3. Acknowledging that problem-solving in the real world includes problem-framing calls into question the practice of asking students to solve mostly given problems.
4. Recognizing that most interesting problems in the real world do not have right or wrong answers, but instead must be solved by satisfying objectives that are most important for that situation.
5. Acknowledging that the individual human mind is limited and that outside of schools people rely heavily on information and knowledge distributed among groups of people and various artifacts (distributed cognition) questions the value of closed-book exams, and requires a much greater emphasis on collaborative learning and communication skills.

To summarize, adult learners expect to be actively involved participants in their own learning as part of a learning community, and they want learning to be meaningful and relevant to their own lives. Hybrid formats provide an environment in which these learning characteristics can be addressed constructively. In the next sections, I examine which learning components are best suited to online learning and which are best left to face-to-face classrooms.

Hybrid Formats

In this section, I begin by briefly describing some of the characteristics of face-to-face (or shoulder-to-shoulder in many cases) and distance formats in order to more clearly distinguish these formats from hybrid formats, and then I more fully describe hybrid formats.

Face-to-Face Format Characteristics

The following list sums up face-to-face characteristics:

- Synchronous
- Most often one-to-many format
- Often highly social
- A great deal of tacit information is communicated
- Class participation is limited to designated class time.

In a traditional face-to-face classroom, many students come together to learn from one instructor. Depending on the class size and culture, the face-to-face class can be dynamic and highly interactive. The social interactions that take place in such a class can add great personal meaning to class members, who can pick up on all sorts of subtle messages via side comments, gestures and facial expressions (tacit learning) from both the instructor and other students. In addition to lectures, key face-to-face activities might include modeling discourse, including the use of jargon specific to the discipline, tone, modulation, gestures, expressions, respect for alternate viewpoints, dialogue circles. Other face-to-face activities might include labs, leading group activities such as small group discussions and exercises, and field trips (Dziuban, Hartman, & Moskal, 2004; Garnham & Kaleta, 2002; Johnson, Aragon, Shaik, & Palma-Rivas, 2000).

These social interactions have important benefits to learners, but the face-to-face classroom also has limitations. The traditional face-to-face classroom facilitates one-to-many or many-to-many interaction, but requires class members to meet at the same time and place (Harasim, 1989). Students may come together in a classroom in which the teacher does 60-80% of the vocalizing and in which students are most often passive listeners. When classroom discussion takes place, a few students can dominate the discussion and the rest of the students remain largely silent. Students with different kinds of learning needs sometimes do not participate at all, even in small, supportive seminar-style classrooms (Boser, 2004). Classroom time for these and any other activities is finite (usually 1 to 3 hours) and once the students leave, the interactivity between members of the class often stops until the class meets again.

Distance Learning Characteristics

The following list sums up distance characteristics:

- Can be synchronous or asynchronous (most often asynchronous)
- More often a many-to-many format
- Students can access courses that would otherwise be unavailable (e.g., courses offered only at a great distance)
- Students have access to class materials anytime, anywhere, at any pace
- Tacit learning is limited to e-mail, discussion groups and chats
- Faculty must redesign courses to include built-in socialization and engagement opportunities

As with face-to-face formats, there exists a great deal more literature on distance learning formats than on hybrid formats. Like the face-to-face format, the purely distance format has its pros and cons. While distance technologies do indeed allow for the ability for course members to participate without as much regard for time or place as face-to-face classrooms and do allow for a great deal of interactivity with online course resources, the lack of socialization can be a serious problem. As mentioned, adult learners place a high value on the ability to interact with other course members and want to be valued for the knowledge and experiences they can bring to the class (Caffarella & Barnett, 1994). Learners will feel alienated and unsatisfied unless instructors understand that in a purely distance class, such activities must be reconstructed to simulate as closely as possible the level of peer-to-peer interactivity that learners expect in a face-to-face classroom (Boser, 2004). A poorly planned distance course that lacks in these social qualities may be no more meaningful to the student than reading a textbook. While distance learning has been shown to be successful and is rapidly growing, in some classes, such as small, graduate seminars, such interactivity may not be possible to reproduce online [United States Distance Learning Association (USDLA), 2004; Waits & Lewis, 2003].

Hybrid Format Characteristics

Although a great deal of literature exists on both traditional face-to-face and distance format courses, there is very little on hybrid formats, and even less on faculty experiences related to hybrid formats. Hybrid formats might enable instructors to capture the best of both distance and face-to-

face learning techniques. When learners are given access to technology resources in addition to face-to-face class meetings, learners have access to a wide range of resources outside the classroom, can connect asynchronously (any time, any place where there is Internet access) not only with formal class members but experts in the field or in related fields outside the class who also have Internet access, and can share resources with class members. Students have greater potential to be active members in a community of learners rather than passive recipients of lectures from a professor, or overshadowed by more dominant personalities in the classroom. Figure 2 is an example of one hybrid model which illustrates how the learner is more centrally located in relation to other course participants.

Students have the ability to enhance or create their own learning experiences based on a multitude of online resources and to share these learning experiences relatively easily with peers. They can do so at their own pace, so long as they meet classroom-scheduled goals. They can more easily tailor the learning experience to meet their own needs and interests so that it is truly meaningful and memorable to them. Best of all, any asynchronous learning they experience can further enrich and inform face-to-face learning time.

A more fully explained working definition of hybrid format necessarily precedes the task of exploring faculty perceptions. First, it should be noted that since the term hybrid is a widely used and yet has no widely accepted definition, any attempt to review what we know about hybrid formats is somewhat difficult (Monash University, 1999; Nunan,

1996). In fact, the meaning of the term appears to be evolving over time, and encompasses flexible learning and blended learning.

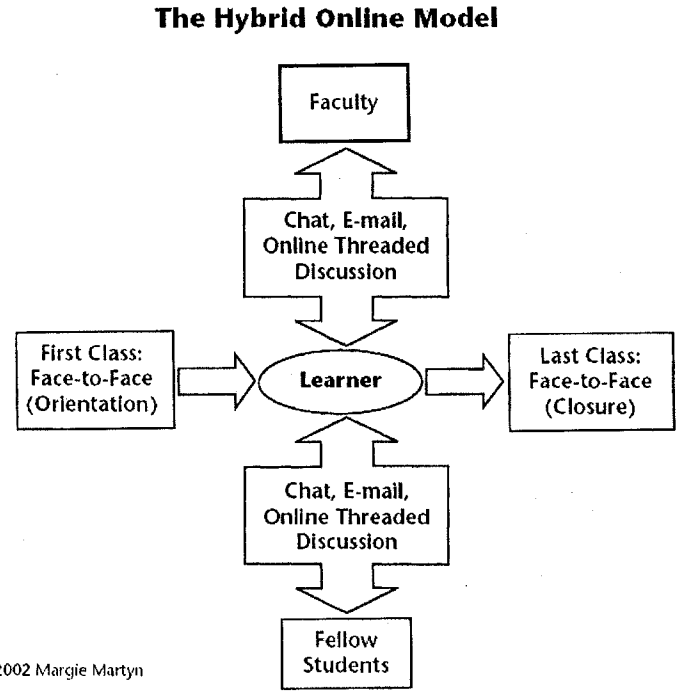

Figure 2. A hybrid format example. Source: Martyn (2003).

In Table 2, Taylor (1995) provides a helpful overview that illustrates both how various distance learning model technologies have progressed, and the decision making process by which many faculty have chosen to use a hybrid format.

While the face-to-face format includes traditional classes and lectures, books and other non-virtual learning materials, hands-on labs and workshops, field trips, and so forth, hybrid format components can include synchronous (occurring at the same time) and asynchronous (occurring at varying times) components.

Table 2

Models of Distance Education: A Conceptual Framework

Models of Distance Education and Associated Delivery Technologies	Characteristics of Delivery Technologies			
	Flexible Access	Flexible Student Progression	Highly Refined Materials	Advanced Interactive Delivery
First Generation - The Correspondence Model				
• Print	Yes	Yes	Yes	No
Second Generation - The Multimedia Model				
• Print	Yes	Yes	Yes	No
• Audiotape	Yes	Yes	Yes	No
• Videotape	Yes	Yes	Yes	No
• Computer-based learning (e.g., CML/CAL)	Yes	Yes	Yes	Yes
• Interactive video (disk and tape)	Yes	Yes	Yes	Yes
• Interactive multimedia (IMM)	Yes	Yes	Yes	Yes
Third Generation - The Telelearning Model				
• Audioteleconferencing	No	No	No	Yes
• Videoconferencing	No	No	No	Yes
• Audiographic Communication (e.g., Smart)	No	No	Yes	Yes
• Broadcast TV/Radio + Audioteleconferencing	No	No	Yes	Yes
Fourth Generation - The Flexible Learning Model				
• Interactive multimedia (IMM)	Yes	Yes	Yes	Yes
• Computer mediated communication (CMC) (e.g., Email, CoSy, etc.)	Yes	Yes	No	Yes

Source: Taylor (1995).

Synchronous online formats:

- Chat, whiteboard
- Web Seminars, Web casts, and digital video conferencing
- Instant Messaging.

Asynchronous formats:

- Online documents and Web pages
- Web-based training modules
- Online assessments, tests and surveys
- Simulations
- Recorded lectures, Web casts, or other events
- Online learning communities and discussion forums.

As exemplified by Macquarie University, there are four major characteristics of hybrid formats: They are usually more flexible in terms of class meeting times, can be held in a variety of places (including online), can provide a more customized curriculum that meets individual learning needs, and can provide flexibility in pace (Rich, 1999). Nikolova and Collis (1998) describe the hybrid format as a means of providing learning that can be adapted to meet "...the individual learner's needs and preferred learning modes. The interaction during the learning process between tutor and learner and among learners themselves is seen as critically important...The active learner assumption is axiomatic" (p. 59). According to Spilka (2002), Durham Technical Community College put together a useful list describing some of the potential benefits for improving teaching and learning through hybrid formats:

Maximize Physical Resources:

- Enrollment Growth: Limited Classroom/Computer Lab Space
- Budget Issues/Equipment.

Improve Student Learning:

- Convenience for both students and instructors.
- Develops/enhances time management, critical thinking skills, problem-solving skills.
- Enhances computer skills, increasing opportunities for academic and professional success.
- Promotes self-directed learning.
- Because of the highly text-based nature of Websites and e-mail, hybrid courses become de facto writing-intensive courses.
- Removes traditional class time constraints.
- Encourages integration of out-of-class activities with in-class activities to allow for more effective use of traditional class time.
- Increases interaction and contact among their students and between the students and themselves.
- Better able to approximate a real world writing environment, including collaboration.
- Students can view and review prerecorded lectures and access course notes and other materials such as course syllabus, assignment schedule, task sheets, grades, and so on.
- Students who rarely take part in classroom discussions are more likely to participate online, where they get time to think before they type and aren't put on the spot.
- Presents materials in a range of formats that can help make sure every student is fully engaged in at least some class activities. Allows for auditory, visual, and tactile learners.

- Research shows that student success rates in hybrid courses are equivalent or slightly superior to face-to-face courses, and that the hybrid courses have lower withdrawal rates than do fully online courses.

Hybrid Format Examples

The following provides more specific examples of how instructors use components in a hybrid course:

1. Face-to-face in-class personal interaction is often enhanced by e-mail, threaded discussions or ©Listserv communication, which allow for one-to-one communication or many-to-many communications anytime, anywhere. These kinds of discussions can also be broken down into smaller forums so that classes can discuss topics in separate groups. Online conversations are captured for later review. Ehrmann (1999) extols the benefits of e-mail or ©Listservs by telling the story of a philosophy teacher at the Rochester Institute of Technology who once remarked, only half-jokingly, that he would never again talk philosophy with an undergraduate.

> "With e-mail, students have time to think about what they've heard, time to think about what they say next." Students who are inarticulate face-to-face sometimes converse clearly and thoughtfully in the slower pace of the electronic seminar. Such courses might thus be more challenging as well as more accessible. (p. 5)

In a hybrid format course, allowing for online discussions in between face-to-face meetings mean that questions can be answered in between classes by both instructors and student peers, face-to-face discussions are richer and more well-thought out (not in the least because more students have had the opportunity to participate), and

instructors are presented with a storable record of student engagement that might be used to gauge how well a class is grasping the topic.

2. Horn (1998) and (Daley, 2003) argue that using technology in these ways can enable us to make the transition from a logocracy (a text-centric society) to a more visually oriented learning society in which chunks of words and word-enriched pictures are used, thus communicating in a style that most people find more accessible. Constructing traditional text documents requires a different thought process than do Web pages or conceptual maps. The electronic screen writing process is different from the paper writing process because the process of hyper-linking chunks of information leads to alternative thinking about the ways in which concepts are organized and related. For example, students can work in small groups to use software to link concepts on a Web model rather than a linear word processing model. Students can create Web pages or concept maps collaboratively with other students, which they can then share with other students in the class.

The Web model still works well for developing social learning opportunities for non-visually oriented learning, however. James and Bogan (1995) allowed their psychology students to create and read each other's hypertext documents and create links between their comments and the target paragraph of other student's Web documents across generations of classes. The instructors found that although the Web was originally designed as a way to share documents, images and other information, it can also help create socialization opportunities that

teach communication skills, foster critical thinking, and teach information literacy.

3. The preferred use by students and younger instructors of Web libraries and other online resources vs. physical libraries reflects a marked change in the way learners access and use information. Donahoe (2000) urges instructors to immerse themselves in this new research paradigm.

> The students...no longer reason based on categorical rules or linear reasoning. Instead, their reasoning is based on "bricolage," [which is simply] the ability to find something [easily that they can use readily]. They are navigators of information, not categorical labelers of information. Thus, as "bricoleurs," broad legal categories are not intuitively important to them nor is the linear reasoning used to deduct the rules. Instead, their analysis method...starts with factual precedent–not the legal rules. (Sec IV, ¶ 2)

Students learn through active and interactive discovery, not through passive reading or lectures. Donahoe urges fellow law instructors to utilize the power of this method of discovery to facilitate case study learning in face-to-face classrooms with the full participation with instructors, rather than lecturing to passive students and leaving them to actively engage only when they are in study groups.

Additionally, online students have access not only to the local library, but also to any library that permits Internet access across the globe, including the Library of Congress. Students can download and work with raw data directly from originating sources, and in a hybrid format class, they may do so in small collaborative groups. For example, economics students can download raw data directly from the

Bureau of Labor Statistics Web site and work together to analyze the data.

4. Online quizzes, collaboration tools and feedback mechanisms provide formative assessment tools that can allow instructors to be more responsive in a face-to-face class. As Chickering and Gamson (1991) point out, an effective teaching practice is to give prompt feedback to students on their efforts. Assessments are created, administered, and analyzed by instructors to help them to apply best practices and create the most effective learning environments (Angelo & Cross, 1993). Quizzes that do not require short answers or essay answers, such as multiple choice or matching questions, can be processed and graded instantly online, and can even be programmed to provide a customized response to the student based on the answers chosen or the number the student got correct, for example. These quick formative assessments can be made available to the instructor and/or the class based on student quiz results, potentially resulting in a faster, more focused face-to-face learning environment (Novak, 2003). Assessment and feedback tools such as one or two non-graded questions per topic are possible at frequent intervals online and can be set up to provide rapid feedback to the instructor. Feedback mechanisms may be more immediate in a face-to-face class, but are difficult to capture for later review, are difficult to analyze holistically, may not be representative of the entire class, and may be limited by other factors, such as intimidation by other students or by language barriers. That is, students for whom English is a secondary language may need more time and

repetition to ensure understanding. Factors such as time and repetition are more easily accommodated online, since the students can work at their own pace and repeat as often as they like.

5. Multimedia tools (e.g., images, digital videos, animations, QuickTime Virtual Reality files, audio files) can often convey richer, more authentic information in a matter of seconds than text can convey in hours or even days. For example, at the University of Pittsburgh future educators and their mentors use digital video cameras and video editing software to document practice teaching, then peer-review those videos together to discover their pedagogical strengths and weaknesses (Jurkovic, 2001). Language and culture instructors at Small University use digital video to express cultural nuances that can't fully be expressed with words. Elizabeth Daley (2003), Dean of the University of Southern California School of Cinema-Television, makes the case that an expanded view of literacy needs to be acknowledged that includes multimedia resources as complimentary to text resources. She claims:

    1. The multimedia language of the screen has become the current vernacular.
    2. The multimedia language of the screen is capable of constructing complex meanings independent of text.
    3. The multimedia language of the screen enables modes of thought, ways of communicating and conducting research, and methods of publication and teaching that are essentially different from those of text.
    4. Lastly, following from the previous three arguments, those who are truly literate in the twenty-first century will be those who learn to both read and write the multimedia language of the screen. (pp. 33-35)

Multimedia resources can now be made available relatively inexpensively to students, who may access the resources as many times as they like, via Internet resources.

Research on Hybrid Formats

One of the more interesting studies (Sing, 1999) involved three junior high school classes from three countries: Malaysia, France, and the United States. Each class was required to work together not only face-to-face, but also collaboratively with the classes from other countries. The students were tasked with creating an educational Web page on water pollution, and communicated purely by e-mail. Each class created a path that Web site users could follow that included some very imaginative role playing. According to the instructors, students enjoyed collaborating with students from other countries, as well as the challenge of competing in an international competition. Problems with the study centered on technical details like access to the Internet, and occasionally, cultural differences that the instructors mediated. The students were challenged by and had fun doing the study.

Problems in other studies were more pronounced. The most common problem expressed across the literature was that of training students to use technology tools. Thompson (1996) conducted a study of first year college students called The Passport to Flexible Learning Project. Students were required to attend a series of electronic classrooms and prove they could perform a series of online tasks. Each student was provided with a passport, sent to an electronic classroom and, as each online task was completed, the passport was stamped in a face-to-face class. If the

passport was filled, the student received a certificate of completion. Their findings of the project showed that freshmen often lack the proficiency to use technology, and the authors noted the usefulness of providing human support in the electronic classrooms. The study makes plain that any attempt to make hybrid formats available to students will need to be accompanied by a mechanism for training the students to use the technology tools required for the course. I would add that if instructors are to plan an online component to a course, they will need at least as much training in the use of the technology tools utilized as do the students, since they will probably be answering student questions about the tool.

Oliver, Omari, and Herrington (1998) conducted a study in which students were asked to work in pairs in an electronic classroom to create Web pages using a printed guide. While the authors found that this activity encouraged cooperation, reflection and articulation among students, they also found that some reworking of the material was in order, that is, learning materials for such settings needed to be designed specifically with collaborative components and suggested roles for group members.

Holzl (1999) noted that some instructors seem to misunderstand the purpose of the Web as a hybrid resource; they do little more than store lecture notes on the Web and continue to teach in the traditional teacher-centered model. While the Web may serve as a useful repository for notes, the Web offers the opportunity for instructors to utilize a wide variety of powerful teaching and learning tools.

In one notable two-year study that concluded recently, Thompson Learning (Thompson NETg, 2002) collaborated with a mix of corporate and

university participants and compared results in courses that divided students into distance, face-to-face, and hybrid format groups. The authors found that hybrid format classes resulted in better learning outcomes than either face-to-face or distance classes in all categories except a database class, in which the distance class outperformed both the face-to-face and hybrid classes. In fact, students in the hybrid class performed tasks with 30% more accuracy and 41% faster than the distance students. The Thompson Learning study makes no mention of either faculty or student perceptions, but is worth noting because it is the only study I could find that compared all three formats in a controlled environment and which made an effort to form fair comparisons across like items.

Research on Faculty Experiences with Hybrid Formats

As a result of the advent of technology-enhanced courses, the role of instructional designers, educational technologists and other instructional technology specialists is now more important than ever. In 2002, the Chronicle of Higher Education added a section to its online jobs listing titled, Instructional Technology/Design, in which there were 48 jobs listed at last check in June 2005 (Chronicle of Higher Education, 2002). People in these roles help faculty make use of technology resources to foster improved collaboration, assessment, information gathering, and information literacy techniques in their courses. I hold one of these positions. In spite of the support provided by these professionals, faculty perceptions of hybrid formats are often clouded by barriers that might include factors such as incentives (or the lack of) to change traditional teaching methods, time pressures, frustration with inadequate support, competing promotion and

tenure obligations (Gilbert, 2001; Wilson, 2003). To make matters worse, choosing the right course components is confusing for faculty. The right choice depends on many variables, including:

- the context in which the course is taught
- the way course components are chosen and how they are used
- variances in the instructor's teaching style and technology skill level
- the subject matter
- the age, learning style and technology skill level of the students
- resources available to the class.

To be fair, it is worth noting that faculty teaching face-to-face courses must make some of these choices as well; issues such as time of day, room temperature, and so on have an effect on the course (Ramage, 2002). However, face-to-face choices typically do not require faculty to suffer through a baffling ordeal each time they try to learn to use a new resource. A small number of recent studies provide some general, quantitative evidence about faculty opinions of hybrid formats (Moskal, 2001; Teles, 2002; Thompson NETg, 2002). These studies confirm that efforts to implement hybrid formats are worthwhile, but they provide little specific information that might help education leaders and instructional designers refine our understanding of how to improve faculty development efforts.

In the studies that exist thus far on hybrid learning formats, only a small fraction include references to faculty attitudes and perceptions. Moskal (2001) conducted a survey study at the University of Central Florida

that gathered faculty opinions about hybrid formats. Faculty members said they felt that they interacted more with students in hybrid formats, which caused both a large increase in workload and an improvement in the quality of faculty-student interactions over those in comparable face-to-face courses. When asked about their perceptions of Web teaching, 80% of their faculty reported a positive experience. They especially appreciated the convenience of access to students, research and new technologies, as well as improved course management. Negative comments related to technical problems and a reduction in student engagement, but the study does not outline specifically which components faculty used in courses, what courses faculty taught or other details that might shed light onto faculty perceptions.

A survey of 32 international online and hybrid format instructors, titled "The Use of Web Instructional Tools by Online Instructors," suggests that the majority of the instructors found online tools useful enough to try using again, but did not go into detail about attitudes and perceptions. The study reported that 84% of the instructors surveyed said they use tools to support their online teaching, 70% expect to use the same tools next time they teach online, 20% will use the same tools and new ones as well, and 10% will use fewer tools (Teles, 2002).

In Fall 2002, Savery (2002) conducted a survey of both faculty and student perceptions of technology integration in the classroom for the University of Akron. While the study did not specifically mention technology use as part of a hybrid environment, the survey questions implied that at least some of the courses were taught in hybrid format. Faculty at Akron

described their comfort level with technology resources along similar lines as those at Small University, and as is often the case in these quantitative surveys, little or no effort was made to gather in-depth information about faculty perceptions. The evidence suggests that faculty members were gradually growing more comfortable with some technologies, but we have no evidence describing why they did not utilize others more efficaciously.

A recent study of faculty at South Dakota State showed an encouraging trend across faculty to make enthusiastic use of technology when offered the opportunity to do so, and indicated that faculty members are growing more comfortable with technology tools. The study stated that faculty identify the top barriers to technology use as time, lack of incentive, and funding, but, again, did not go into detail about these issues (Wilson, 2003).

During 1999-2001, the University of Wisconsin conducted a study of 17 professors who utilized a variety of different kinds of hybrid formats, reducing face-to-face class time by 25% to 50%. Reports from the faculty members involved were positive, citing such benefits as increased flexibility over the way the course was structured, a more convenient time structure for both the instructors and the students, and improved student learning. Drawbacks included the extra time required to redesign the course, and some initial reluctance on the part of the students to adapt to the new format. While these reports are promising, the study did not describe the process by which the faculty members were chosen for inclusion in the study. Were these faculty members early adopters of new technology and therefore inclined to be biased in favor of technology enhancements? Also,

there was no mention of the level or type of support provided to the faculty members, which might have a dramatic impact on the success or failure of a newly designed hybrid course (Aycock, Garnham, & Kaleta, 2002).

Methods in the Literature

Methods used in the studies I found that were related to hybrid formats were mostly quantitative survey methods focused primarily on simple, summative assessments of institution and sometimes, faculty beliefs (i.e., positive or negative). For example, surveys would often ask faculty members if they would rate their experiences teaching with technology as successful, without delving further into details about what faculty members thought. The No Significant Difference (http://www.nosignificantdifference.org/) and A Significant Difference (http://www.nosignificantdifference.org/significantdifference/) Websites are important collections of studies that are commonly referred to throughout literature related to educational technology, and, up until recently, have been widely referred to by university leaders who advocated for the use of educational technology. These collections provide good sources for individual evidential studies about research on distance learning, but any information gathered from these studies about faculty perceptions on hybrid formats can only be implied. Faculty members who teach distance learning format courses may have very different experiences than faculty members who teach hybrid formats. For example, the material a faculty member arranges to use online can have a direct impact on face-to-face class activity, and vice-versa, so the balance between the two class arenas must be carefully planned. In

contrast, the distance learning instructor conducts all instruction in a purely online context (Ramage, 2002).

The older No Significant Difference collection contains more than 355 studies collected by Russell through 1999. As the title indicates, the study results show no difference in learning outcomes from face-to-face vs. distance learning classes. The A Significant Difference site has begun collecting evidence that the use of distance learning technologies can actually enhance learning outcomes. Notably, a distance learning survey recently released by the U.S. Department of Education shows that distance learning doubled across higher education institutions from 1997-2001 (Waits & Lewis, 2003). Institutional responses showed that the goals of improving access and affordability were being met, but, as is usually the case with hybrid format studies, the attitudes and opinions of faculty members were not mentioned in the study (Waits & Lewis, 2003).

In another study (Durrington, Repman, & Valente, 2000), the authors tried to compare faculty utilization of technology resources to faculty social networks, with mixed results. Faculty activities were measured quantitatively for frequency of use of copy services and for checking out technology resources such as laptops. The authors then studied opinions and relationships between faculty members via surveys and interviews. The authors noted that use of these services seemed to bear no relationship to opinion leadership among faculty members, although friendship may have been a factor.

Synthesis

At this point, it may be helpful to the reader to review and summarize what the literature indicates is the state of faculty experiences with hybrid formats. Studies seem to indicate that, if done carefully and with enough advance planning, many courses are improved when educational technology is utilized. The infusion of educational technology into a course causes no harm (or at least no difference) and can improve learning. Harasim (1989) wrote hopefully over a decade ago,

> On-line learning is more than a new delivery mode. It is a new domain which enables us as educators and learners to engage in learning interactions more easily, more often and perhaps more effectively, but also to develop qualitatively new and different forms of educational interactions. (p. 54)

A handful of studies (Church, 2000; Redline & Hoehn, 2001; Teles, 2002) indicate that a small number of educators are beginning to recognize the value of these new interactions, but little has been formally documented on in-depth faculty perceptions on the topic.

Many of the studies (Fischer, 1996; Schoffner et al., 2001; Sing, 1999) point out that the more widely accepted learning theories of today, including constructivist learning theories (learner-centered learning, authentic learning, learner-controlled learning, etc.), can well support hybrid formats, since autonomy is such an important characteristic of adult and distance learners. The Thompson Learning study is one example. As another example, use of the Web enables students to work independently or collaboratively outside face-to-face class time. Students can also access and possibly author their own learning products and authentic learning experiences, which can be used to enrich and enhance face-to-face class

time. For a variety of reasons, not the least of which is the learning curve for technology tools, it is more challenging to exploit the possibilities of educational technology tools.

All these disparate bits of information have yet to be brought together by researchers into any coherent form so that educators can make informed decisions about best practices in hybrid formats. It takes time and practice to determine which hybrid format components are the right choice for any given instructor or class, if any. The advice of an instructional designer might be the difference between success and failure, and this advice must always take into account the faculty perspective. Educators need to be aware of the pitfalls of careless use of technology since poorly planned hybrid formats can create frustration rather than an improved experience for members of a learning community. This review of the literature shows that there is a need for more, in-depth research on how faculty members are actually experiencing hybrid formats so that instructional designers can provide more accurate support.

CHAPTER III

METHOD

The main goal of this study was to discover if there were any common elements that faculty experience when working with hybrid formats, including why they choose to utilize hybrid formats, whether faculty believe hybrids affect the course in any way, whether faculty believe faculty and student roles are impacted, and how hybrid formats impact classroom management issues. Once this information was gathered and analyzed, the next goal was to try to synthesize these elements into a set of recommendations to higher education leaders and practitioners. Such elements will be useful in helping to improve faculty experiences with hybrid courses and educational technology in general. This section describes the method utilized for the research.

The Phenomenological Approach

For this study, I utilized the phenomenological interview method in order to gather data about faculty experiences with educational technology in hybrid formats. Phenomenology is a philosophical movement founded in the 20th Century by a variety of philosophers, chiefly Edmund Husserl. He first wrote about the concepts of *reduction* (also called *bracketing*, or the attempt to identify and distinguish one's own awareness of the phenomenon), *intentionality* (the act of directing one's consciousness toward a phenomenon), and *essences of meaning*. Phenomenologists tend to oppose the acceptance of the unobservable, and to focus purely on the

"objects as they are encountered," that is, they focus on the object or matter being studied (Marcelle, Toadvine, Julian, & Besmer, 2000).

The characteristics of the phenomenological method were well suited to the goals of this research because researchers use the phenomenological inquiry method to understand and make known the essence of common experiences. These essences are made up of meanings independent of those understood via the scientific method. In other words, meanings are rooted in beliefs, perceptions, desires, memories and so on, and as such, are inseparable from the human mind (van Manen, 2002).

Because there was so little existing in-depth research on faculty experiences with hybrid formats, I planned to structure my study so that I could draw information directly from faculty members who were experiencing hybrid formats in as focused a way as possible. While I planned to remain as open as possible to comments that the participants made, I recognized that my role in the university may have had some impact on my perceptions, so the creation of an epoch (the step in which I clearly wrote out my own experiences with hybrid formats, which is described in greater detail later in this chapter) was helpful as a means of distinguishing my awareness of hybrid formats from those of the participants.

Rationale for Method

Early efforts to study faculty experiences with hybrid formats quantitatively provided some helpful information, but not enough. Most of the responses to quantitative studies provided only very general indicators of the faculty experience, and did not provide sufficient detail to help

instructional designers and other faculty development professionals make meaningful changes to their work. For example, in fall of 2002, I created a computer survey for Small University's technical services department that asked a number of questions about faculty attitudes toward educational technology resources, encompassing hybrid formats (Meyertons, 2002). The survey was announced via e-mail to all Liberal Arts, Law, Education and Management faculty. Faculty members were asked to click on a hypertext link to a Web-based survey and answer a series of multiple choice and short answer questions. The key goal of the survey was to help the University's technical services department (particularly me) learn how we might support faculty more effectively, and many of the questions we asked are relevant to this study.

An examination of the first part of the survey demonstrated the lack of the depth that quantitative data alone can provide. In this section faculty were asked to self-rate their skills on a Likert scale of one to five, with one being "novice" and five being "expert," in a series of common educational technology skills. One the goals of this question set was to gather some initial evidence that might have later helped determine how faculty perceive educational technology in general. For example, if they had experienced a high degree of frustration with technology, it was possible that they would be inclined to downgrade its usefulness as a teaching and learning resource. Table 3 shows the summary of results from all 25 respondents.

Table 3

Faculty Self-Assessed Skill Ratings

	Power-Point	FTP	Discussion Board	Data-Bases	Multi-media	E-mail	Web Browsing	Web Page Creation
Mean	2.5	3.2	1.7	2.3	1.9	3.9	3.6	2.1
Median	3.0	3.0	1.0	2.0	1.0	4.0	4.0	1.0
Mode	1.0	4.0	1.0	2.0	1.0	4.0	4.0	1

This kind of summary data could provide surface information about faculty experiences, but nothing more. In the same survey, we asked faculty to comment generally on the level of satisfaction they felt using educational technology. Typical responses included short phrases like, "Reasonably satisfied. Time is a constraint," and "Generally good but limited."

These responses seemed to indicate that, at least among this small set of respondents, there was some satisfaction with and further interest in educational technology but some doubt and frustration remained. This sort of evidence was a starting place from which to understand the faculty experience, but many questions remained about how and why they came to utilize these resources (or not), and how these technologies affected teaching and learning both in and outside of the classroom, particularly in hybrid formats. I was especially interested in learning how support staff might better meet faculty needs as they attempted these changes in the way they approached instruction.

As Mishler (1986) noted, even the most carefully constructed quantitative and qualitative studies are not completely free of human bias, erroneous assumptions, and ad hoc pragmatic procedures. In spite of these potential problems, I hoped that the additional depth and rich quality of the information gathered would make the qualitative approach worthwhile. I expected that faculty would share common experiences that could be gathered together to get at the essence of faculty experiences with hybrid formats. I particularly sought to gain these insights from faculty in a higher education learning context, as much as possible from their point of view rather than from my point of view (Sandifer & Johnson, 2002). I hoped that qualitative analysis might enable me to look more deeply for patterns, or themes, about faculty concepts that were not as readily apparent through quantitative methods (Hatch, 2002, p. 30).

While the information gathered from quantitative studies was useful as a place to begin a general understanding of these phenomena, it was not detailed enough to provide in-depth information about the holistic experience that faculty undergo as they attempt to discover and use educational technology. I felt that this kind of insight might not be possible without open-ended, face-to-face dialogue between faculty and me.

The interview method allowed me the flexibility to interact in a more customized fashion with interviewees, to ask focused, open-ended questions and to "...listen intently for special language and other clues that reveal meaning structures informants use to understand their worlds" (Boyatzis, 1998). The resulting set of core faculty concepts provided useful

insights about best practices that can be incorporated into my work as an instructional designer and shared with others in related fields as well.

For these reasons, I chose the phenomenological research method. In particular, I chose the hermeneutic interview reflection method, which is described by van Manen (2002) as "...a conversational structure: it is oriented to sense-making and interpreting experiential meanings. The interview has a collaborative conversational structure that lends itself especially well to the task of reflecting on phenomenological meanings" (p. 1). It was precisely the hybrid format phenomena that faculty were experiencing. The realm of education research is rich with phenomenological studies on closely related topics (such as information literacy), but to my knowledge none existed on the topic of faculty experiences with hybrid formats specifically.

Other qualitative methods that I considered for this type of interview study included focus groups, case studies, and action research. Each of these methods has potential strengths and weaknesses. Focus groups can be useful ways to create and observe meaning-making conversations by people experiencing a particular phenomenon, but might have proved problematic in this study because of the emotionally charged nature of the topic being studied. I worried that faculty might potentially influence and alter one another's comments.

The case study approach is useful in carefully observing particular instances of phenomena and can be similar in many respects to a phenomenological study. In a case study, a researcher typically acts as an observer of a phenomenon, separate from the phenomenon to be studied.

The case study method does not clearly involve the use of the hermeneutic phenomenological interview style, in which meaning-making is a collaborative activity between the researcher and the persons being interviewed (van Manen, 2002). This step was of particular importance to me as a researcher since I work very closely with both the faculty being interviewed and the phenomenon being studied.

The action research is perhaps the most appealing alternative approach to phenomenology because it favors the work of active practitioners in the field, and involves identifying a problem, constructing some sort of change that would address the problem, and then studying the results of the change (Hatch, 2002, p. 31). However, like the case study method, the action research method does not clearly involve the use of the hermeneutic phenomenological interview style.

Setting

The location for this study was Small University, located in the Pacific Northwest. The university is a small liberal arts college with roughly 1,655 undergraduate students, 680 graduate students and 280 faculty members. Each year, Small University ranks in or near the top tier of small liberal arts colleges nationwide.

As is the case with many small liberal arts colleges, an important feature of the university experience is the teacher-student ratio (11:1), and the university's Faculty Council claims to rank positive student evaluations as the most important distinguishing characteristic for success among faculty seeking tenure. I speculated that the importance of these student evaluations might be one of the factors that impacts faculty efforts to utilize

technology resources. In order to facilitate continual improvement and to remain competitive in teaching and learning, the university's president prioritized support for the development of an instructional design program in 2000, and I was hired in 2001 to become the inaugural Director of Instructional Design and Development through Small University's technical services department.

My primary function is to help enable faculty to use educational technology resources to enhance teaching and learning, which on our campus means in hybrid formats. My job duties include hosting workshops and individual consultations, creating handouts and other support materials, managing our campus course management system (BlackBoard), and managing a variety of other technology resources such as Turnitin (a Web-based plagiarism and peer-review service), social software such as MovableType (a blog, or Web log software application), and SeedWiki (a Web-based collaboration tool). I also direct the campus multimedia lab, which includes hardware and software for creating CD ROMs, DVDs, Web pages, digital art, video and photography, digital audio, Director and Flash objects, and so on. I occasionally write educational technology grants, and oversee a small staff and any number of other educational technology projects. I am the key organizer in the department's annual technology fair (in which we showcase faculty multimedia and technology projects) and in the annual faculty multimedia camp (a week-long summer camp for faculty). I founded and led a student multimedia group, in which a team of staff train students in multimedia skills and pair them with faculty interested in carrying out multimedia learning projects. I also collaborate

with a Librarian to teach an information and technology literacy course to first-year students.

The technical services department is the administrative department that handles all of Small University's technology needs, from telephones and networking to audiovisual/multimedia development. The technical services department even manages the campus vending machines, washing machines and card-key security access to doors, all of which now utilize network resources. Within the technical services department, there is a small group of instructional support specialists (the Instructional Support Group, or ISG) that includes me, which tries to address faculty technology needs as a team. This group primarily tries to ensure that the technical services department is as responsive as possible to faculty technology needs by sharing information and helping one another with solutions to technical problems. For example, we realized we needed access to a Web data collection script that was easy for our faculty to learn to use. Our network support team wrote the script, our Webmaster developed examples, multimedia assistants now create the Web forms for collecting data and I make faculty aware of this powerful tool and show them how to access and reformat the data once it has been collected.

All of these activities describe how I routinely interact with faculty as they attempt to make use of educational technology resources. One of my important tacit duties is to try to provide psychological reassurance in the form of a friendly, understanding presence to faculty who may be frustrated with technology, or who are perhaps novices to the world of

computing. This role puts me in a good position to observe and question the faculty about their hybrid format experiences.

Participants

Because this study was specifically about faculty perceptions related to hybrid formats, the final population of three participants was drawn from a small subset of the roughly 100 faculty who had participated in one of my educational technology workshops, called upon me for educational technology assistance, or worked with me in other similar activities in which I had played a professional role over the past few years at Small University, and therefore were not randomly selected. I made an effort to choose faculty participants who I had worked with who were distributed across gender, cultural and racial groups, from across a variety of disciplines.

The participants were faculty who had worked with me on hybrid formats within the past few years, but who were not what I would describe as advanced users or extremely skilled in educational technology use. Most of the participants I identified had only in recent years begun to make use of the skills they learned, but were not novice users either. My goal was to target faculty who fall into the area between those who never use technology resources in teaching and learning and those who are considered expert users. With these criteria in mind, I narrowed my list of 100 faculty members down to a short list of 10, who teach in Music, Spanish, Math, Computer Science, English, Japanese, Rhetoric and Media Studies, Exercise Science, Psychology and Education. They fell across at least three different racial groups. I ordered my short list based on the criteria listed above, and invited the first six people on the list to participate

by e-mail, planning to continue on down my list until I had three to six committed participants. I received three firm responses who could meet with me within the time I had planned to conduct the interviews. My three final participants included two men (Thomas, an Education professor, and Richard, a Rhetoric and Media Studies professor) and one woman (Harriett, a Math professor), from two different racial groups, and from three different disciplines. A more detailed profile of the participants follows in the Findings section.

Data Collection Strategies

The data collection strategies utilized in this study first included creating an epoch in order to bracket my own experiences with hybrid formats. The next step included conducting a series of videotaped interviews with each of the participants to ask them about their experiences with hybrid formats. The first interview related to participants' past experiences. The second interview related to current experiences. I was able to verify that the data I had collected were correct by sending the participants a copy of the transcripts of their interviews and then addressing their responses via e-mail. Since all of the participants were on travel at that point, this mode of communication proved very helpful. The first two faculty members confirmed that I had recorded the transcripts accurately (no changes needed) while the third had very minor changes, which I made to the transcript.

The Epoch

The epoch was the step in which I wrote out my own experiences with hybrid formats so as to identify and clarify my own experiences. I

asked myself the same questions I planned to ask my participants, and used this process to refine my interview questions. It should be noted here that the phenomenological approach holds that there is no way to completely disassociate myself from the faculty experiences I studied; therefore, my observations of faculty experiences were both distinguished from and folded into the study. The aim of the epoch is to enable the researcher to achieve contact with the phenomenon by "...suspending prejudgments, bracketing assumptions, deconstructing claims, and restoring openness" (van Manen, 2002, ¶ 1). In other words, in the phenomenological tradition, bracketing one's own consciousness on the topic in question is a critical means of separating the observer from the phenomenon, thus enabling the observer to focus more distinctly on the phenomenon. This task was especially important because I work in the environment I wanted to study.

The Phenomenological Interviews

The goal of the first interview was to understand the three faculty members' past experiences with hybrid formats. The goal of the second interview was to gather information about the faculty members' present experiences up to that point. I paid close attention to each faculty participant's understandings of meanings, definitions and interpretations during these two interviews. I made note if a participant repeated particular things, raised his or her voice while leaning forward toward me, or otherwise seemed to express a particularly strong degree of emotional intensity when describing their experiences. Likewise, I attempted to provide all participants ample opportunity to assess and comment on any

data related to them throughout the process. As mentioned, after the two interviews I communicated a third time with all participants to verify and correct the data I had collected (Marshall & Rossman, 1999).

Each interview lasted about 70 minutes. I was able to conduct all of the interviews in the final two weeks of the semester. After the interviews had been conducted, I began the process of transcribing and coding the interview data using a software program called Transana (Fassnacht, 2005), which is described later in this document. The interviews were arranged at a time suitable to the faculty member.

The interviews were videotaped and supplemented with handwritten notes. The cost (other than time) was limited to the cost of the mini-digital videotapes I used, which were about $70 for eight tapes. I was able to use my own camera, tripod and microphone. There were several notable advantages to using videotape to record my data. Some of the advantages included:

1. Video provided me with much greater detail than I could recall or record on paper, including exact wording and nonverbal communications such as gestures, facial expressions, and so on.
2. Video allowed me to review what occurred during the conversation more reflectively and accurately by allowing me to review the tapes as many times as necessary to correct any mistaken assumptions or conclusions (Ratcliff, 2004).
3. Video allowed me to capture the conversation for possible reinterpretation or authenticity by the interviewee (which turned out to be unnecessary).

As a result, I was able to produce highly accurate transcripts.

Interview Questions

Initial questions for participants included background questions such as demographic information as well as work-related questions such as course titles, the number of students in related classes, years of experience teaching, etc. The remaining questions focused on faculty experiences with hybrid formats. Moustakas (1994) provides a general interview guide for phenomenological researchers that include the questions that were suitable for my study:

1. What dimensions, incidents and people intimately connected with the experience stand out for you?
2. How did the experience affect you? What changes do you associate with the experience?
3. What feelings were generated by the experience?
4. What thoughts stood out for you? (Moustakas, 1994, p. 116)

I planned to ask Moustakas' questions in the context of the following themes and topics during the interviews:

1. Faculty perceptions about technology literacy issues. There were at least three major technology literacy subcategories I wanted to explore with faculty members: Computer literacy (skill using computers, keyboards, software, etc.), information literacy (the ability to locate, evaluate and synthesize information) and visual literacy (Roblyer & Edwards, 2000). I provided a short description to faculty during the interviews of these literacy issues so as to be sure faculty understood exactly what I was asking, as follows:

Christopherson (1996) says that visual literacy can be defined as the ability to

> ...interpret, understand, and appreciate the meaning of visual messages; communicate more effectively through applying the basic principles and concepts of visual design; produce visual messages using the computer and other technology; and use visual thinking to conceptualize solutions to problems. (p. 173)

To me, this skill simply involves understanding the different ways in which information can be perceived when presented visually in different ways. Although it may sound simple, this skill has important implications for faculty shifting from the use of text as a medium (which implies a largely linear thought process) to Web based, or multimedia information, which implies a more bricoleur thought process (Daley, 2003).

2. Faculty perceptions about student collaborative learning in hybrid formats. Did faculty members believe that students used educational technology tools to communicate and to gather resources and solve problems together differently in a hybrid format course than in a face-to-face course?
3. What were faculty perceptions about changing pedagogical roles, both for the instructor and the student (e.g., student autonomy and student control over their own learning) in a hybrid format course?
4. What were faculty perceptions about classroom assessment techniques and feedback mechanisms in a hybrid format course?
5. What were faculty perceptions about course management issues in a hybrid format course?

I conducted all the interviews in my office on campus, so that the conversations occurred in the faculty's natural work setting. I had a good working relationship with these faculty members. They understood that my goal was to improve the process of using educational technology for them, so I believed faculty were motivated to work with me and thought that the interviews would eventually be of mutual benefit.

Holding the interviews in my office provided some important benefits, and since we have a small campus, posed no difficulty for participants in terms of access. I had found that faculty members tend to be interrupted in their own offices by telephone calls or visits by students, faculty or staff and even family members quite often. Holding the interviews in my office meant I could minimize these interruptions by muting my telephone and by posting a sign on my office door asking not to be interrupted. Also, I was able to set up the digital video equipment in advance of the interviews. By setting up the digital video equipment in advance I was able to make sure that the camera, lighting and audio technicalities were sorted out prior to the faculty member's arrival, which helped make the technology less intrusive a part of the process and took less of the faculty member's time. All the faculty members needed to do was arrive, sit down, and begin chatting with me.

I set up the digital video camera on a tripod in one corner of my office, sitting next to the camera in a chair, and speaking to a faculty member sitting opposite me in a chair. Aside from the initial equipment checks (such as turning on the camera and making sure it was set to record), I tried to draw as little attention to the camera as possible during

the process. I found that people soon forgot the camera was there and were able to hold a very natural dialog with me.

Data Collection Timeline

What follows is a timeline that illustrates the data collection process:

April 24-30, 2004

- Contacted participants, arrange meeting times, obtain signed consent forms
- Refined questions
- Wrote epoch

May 1-May 30, 2004

- Conducted Interviews

June 1-August 31, 2004

- Captured video data via Transana software
- Analyzed interview data, correlated to handwritten notes

September 1-October 1, 2004

- Contacted participants, confirmed accuracy of transcripts

October 1-September 30, 2005

- Wrote Findings and Conclusion.

Data Analysis Techniques

After writing my epoch, I arranged for and conducted the first two interviews with each participant. Because our school year ended shortly after I received Human Subjects approval and faculty were preparing to leave town, the time between the two interviews was quite short; in one case the interviews were conducted back-to-back. The shortened timeline seemed to pose little problem and may have even been beneficial to the

faculty, since all three said they found it difficult to separate past and present experiences. They said they felt they were describing an ongoing process which was still evolving for them, and they tended to blend past and present experiences. Also, they tended to refer back to previous questions and add to their answers as the interviews progressed, so conversations did not flow in a linear fashion, and in fact tended to meander in a variety of directions. This lack of rigid interview structure was anticipated by me and is typical of the hermeneutic interview approach.

After the interviews, I analyzed, organized and synthesized the data and began the process of extracting the core meanings of these experiences. In order to analyze the interview data, I began by reviewing the videotapes to code them for categories of meanings, experiences, themes, and so forth. Next, I compared the video transcripts to my handwritten notes to check for consistency and to add any additional information. Finally, I constructed a set of composite descriptions, including possible meanings and outcomes (Moustakas, 1994, p. 181).

While not specific to phenomenology, Potter (1996) outlines some suggested means for building in reliability, validity and triangulation methods that are appropriate for inclusion in any qualitative study. These include participant understandings and reader evaluations:

Participant understandings: A common criticism of qualitative studies is that there is no means of checking on the researcher's interpretations. However, a close attention to participants' understandings provides one kind of check.

Reader evaluations: Perhaps the most important and distinctive feature in the validation of this kind of research is the presentation of rich and extended materials in a way that allows readers to evaluate their adequacy. It allows them to assess the particular interpretation that is made as it can be presented in parallel with the original materials. Readers are themselves skilled interactants with a wide range of cultural competencies as viewers of news interviews, members of close relationships, recipients of compliments, and so on. Potter (1996) also describes the importance of coherence, in which the results and methods from a set of studies can be compared and evaluated, and deviance, in which cases that vary significantly from any emergent patterns in the study are examined.

I folded my observations of faculty experiences into the study via the epoch to help triangulate the structured interview method. These considerations required a great deal of time, but I think that the richness and the depth of the final product justified the effort. Although there are no studies that I could find that I can use to gauge coherence or deviance, this study provides a baseline for comparison with future studies over time. I expect this study to be a first step in a long, iterative process.

Transana Video Transcription and Analysis Software

I chose Transana (Fassnacht, 2005) software to transcribe the video interviews. Transana is freely distributed, open-source software especially designed for qualitative studies in the discipline of education. The Transana project is the result of an ongoing effort at the University of Wisconsin-Madison, and is supported by a number of prestigious grants from

organizations such as the National Science Foundation and the Carnegie Mellon Foundation.

The main benefits of the software (aside from the student-friendly price) are that the video and audio tracks can be imported and made visual in windows that juxtapose other windows for transcript creation and analytical keyword creation. The user can apply simple keystroke commands to start and stop the video, which makes transcription creation much easier. Keywords can be created and time code "tags" can be inserted into the audio timeline as notable events in the video occur. Notable events in my interviews could be anything from an especially thoughtful pause or facial expression to something particularly interesting that a faculty member said.

The tags are created as part of the transcript creation process, all with simple keystrokes. That is, as one types, one can stop the video and insert the tags, then resume typing. Again, this process makes for easier transcript creation and notation, and the tags make it easier to locate the notable events in the video so that they can be reviewed and even grouped together at a later time. Figure 3 is a screenshot of the program with a sample video transcript in process.

Capturing video from my digital video camera to my computer was a very easy process for me because I am experienced with digital video software. It should be noted that in order to use Transana (Fassnacht, 2005) to analyze my videos, I had to convert my digital video files into MPEG-1 format. This conversion required me to capture the video from my digital video camera onto my computer in AVI format using an IEEE cable

and ULEAD VideoStudio 7 software. Once the digital video recording was transferred to my computer, I used ULEAD VideoStudio 7 to convert my files to MPEG-1 format. From there, I was able to import my MPEG-1 digital video files into Transana easily. Since video must be captured onto a computer in real time, each video took over an hour to transfer. The process of converting the video from AVI to MPEG-1 format took about one half hour for each video file. This conversion rate will vary on computers that are configured differently. A computer that is equipped with more powerful processors and memory chips will be able to complete this conversion process more quickly.

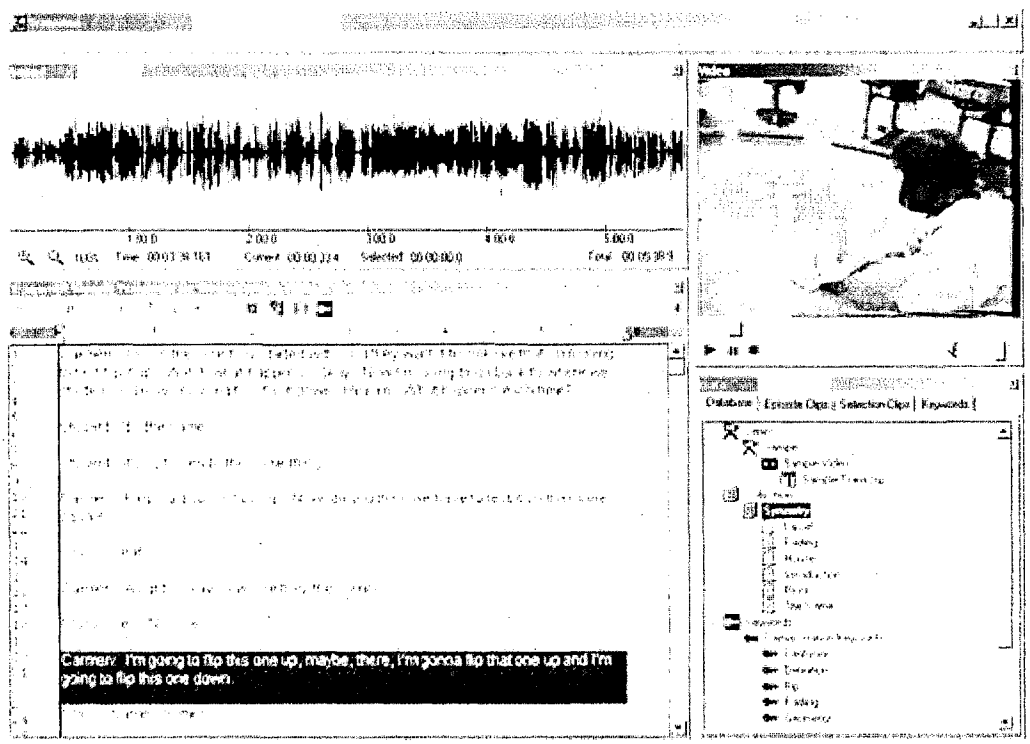

Figure 3. A screenshot of sample Transana windows. Source: Fassnacht (2005).

The Transcription and Analysis Process

I spent several months transcribing the videos. After I had completed the transcripts, I found I had about 50 pages of single-spaced text to review. During the transcription and analysis phase of the research, I reviewed and matched the transcripts to the videos several times to make sure I had captured as perfectly as I could the exact wording and the true meaning that the faculty members expressed (including vocal inflections, humor, voice intensity, and so on). I also went back and reviewed any notes I had made as I tagged video segments whenever I felt I needed further clarification.

As I read, I made careful note of words and themes that faculty seemed to emphasize or which appeared frequently. Although Transana (Fassnacht, 2005) is a wonderful tool for capturing and transcribing interview data, I found its keyword tagging feature cumbersome for such a small number of interviews. If I were interviewing a significant number of people or if my interviews had been a great deal longer, I would have found the Transana tagging feature useful, since once the tagging is done, users can then perform other analysis tasks such as counting and sorting. In this case, I simply printed out the transcripts, reviewed each one carefully, and used colored pens to list and categorize the themes and keywords. Later, I used the digital versions of the transcripts in tandem with the color coded printed transcripts in order to extract and sort the text into categories.

Once I had sorted the themes and keywords I noted into categories, I read through them several more times. This process allowed me to note

particularly prevalent themes and to compare, in close proximity to one another, comments made by faculty. The results of this process are described in the Findings section. Later, I compared these comments to my epoch, and worked to analyze and interpret the findings. This section is described in the Discussion section.

Ethical Considerations

In order to ensure that ethical considerations were met, I:

1. Obtained Human Subjects approval
2. Obtained participant consent for participation, to record and to publish
3. Outlined all possible benefits and drawbacks for participants
4. Did everything possible to ensure privacy and confidentiality for participants, including mask participants names and identifying information
5. Allowed participants to verify data they have provided for accuracy and authenticity
6. Stored the tapes and notes in a secure location in my home office. The tapes were not available to anyone but myself.

Limitations of the Study

The study was limited to the perceptions of three faculty members and me at Small University. As is true of most qualitative research, the depth and length of the research materials forced me to limit the number of participants to a small number. However, the evidence gathered should still provide sufficient evidence to constitute a contribution to the education discipline in terms of understanding faculty experiences with hybrid formats, which cannot be gathered through quantitative methods. Further,

the questions raised by this study provide an excellent starting place to pursue further quantitative studies to help inform policy makers and practitioners (Greenhalgh & Taylor, 1997).

Questions focused on the experiences of this group, and I analyzed and interpreted them. The findings may not prove to be as meaningful to faculty who are working under very different conditions (such as faculty working at a much larger institution, with much larger classes and/or with fewer technology resources), although there may be areas which could be extrapolated across all areas of instructor experiences. However, in other small liberal arts colleges, instructional designers and other technology professionals who assist faculty members in utilizing hybrid formats will likely recognize elements in common with my experiences and thus find these results useful.

I worried that the faculty I had identified might be unable or unwilling to continue the interview process for a variety of reasons, such as lack of time. Indeed, the first two interviews were conducted smoothly, but the final step of confirming the accuracy of the transcribed data some months later was somewhat problematic since all the faculty were away on travel.

I was able to remain in contact with them via e-mail, however, and felt that for this portion of the process, e-mail as a mode of communication was sufficient. I was also concerned that faculty might be unwilling to be forthcoming about their experiences either out of lack of trust of me, out of fear of appearing unknowledgeable, or for some other unknown reason. This fear proved to be unfounded. I felt that faculty were quite frank in

their responses and that the conversations seemed to me to be relaxed and comfortable.

Finally, I worried that faculty might have a hidden agenda of some kind, which might have skewed my results. I had one way to test for this factor, which was to repeat questions to test for consistency. This method yielded consistent results.

A potential disadvantage of using a video camera was the issue of intrusiveness (i.e., I was concerned that some interviewees might alter their statements if they felt nervous or self-conscious in front of a camera). I gained their permission to use the video camera first, and after a few initial glances at the camera, all three of the faculty quickly seemed to forget it was there and focused on answering the questions. I attribute this comfort level in large part to the conversational style of the interview. Occasionally, video equipment can fail, but, barring an occasional uncharged battery, I had never experienced this problem and indeed had no problems with equipment whatever during my interviews (or at any time throughout the research process). Nevertheless, had that happened, I was prepared to quickly borrow another camera (Marshall & Rossman, 1999).

Once all the questions for study were developed, the interviews were scheduled, and my Human Subjects approval was in hand, I was able to conduct my interviews with a minimum of difficulty. I experienced no significant technical problems. The results of my research are described in the next chapter.

CHAPTER IV

FINDINGS

In the Method section, I described my research "schema": the research method and the rationale of the research method, the setting, the participants, and the process I used to conduct my research. In this section, I move on to describe the findings of my research. Specifically, I list the keywords and themes I extracted from the video transcripts, grouped together into major and minor themes, and paired with appropriate excerpts from the transcripts. In order to create a more clear description of these findings, I assigned each faculty member a fictitious name.

Faculty Profiles

What follows here is a brief description of some of the faculty participant characteristics:

1. Harriet – This faculty member has taught math and introductory computer science to grades ranging from grade school through university level, at a wide variety of schools, for more than 25 years. She was employed at Small University as a sabbatical replacement for 2 years and was in her second year when she participated in this study. She taught on an undergraduate level. She was proud of her of her ability to teach these subjects to a wide variety of student levels, including those students who find these subjects intimidating. For example, one of the courses she has taught is called Math Without

Fear. During the interview, Harriet took time out before answering my questions to describe her background in teaching. She was clearly very proud of her work and of her history of successful teaching, and her passion for teaching was evident all throughout our conversations.

2. Richard – This faculty member was a tenure-track junior faculty member in the Rhetoric and Communication Studies department. He has taught undergraduate courses for about 5 years, and has included a significant amount of multimedia coursework into his classes in recent years. During the interviews, Richard spoke eloquently and at length about the challenges he faces as a junior faculty member, and about connecting his interest in humanism to his work as a teacher.
3. Thomas – This Education faculty member has taught at Small University for 10 years, was a tenured, well-respected leader in his department, and was proactive in improving teaching and learning throughout the Pacific Northwest as well as on the Small University campus. He has been especially active in using BlackBoard in recent years in attempting to find better means of connecting his students to one another and to faculty. His students were graduate students, and met face-to-face for several months in a classroom before venturing out into the field as student teachers. At that point, they met online.

Keywords and Themes

The keywords and themes that appeared most notably in the three faculty transcripts included:

1. Fear
2. Time

3. Motivation and expectation of tech use
4. Technology and information literacy
5. Collaboration in a hybrid format course
6. Tolerance for failure; flexibility
7. Change
8. Student and faculty roles
9. Assessment
10. Improvement
11. Differences in hybrid course management issues
12. Attitude toward technology.

Many of these keywords and themes were similar enough to be grouped into three major themes with minor themes (see summary in Table 4). The major themes include attitude toward technology, differences in teaching and learning that occur in a hybrid format course and the pragmatic issues related to implementing a hybrid format course. The minor themes associated with attitude toward technology include the general attitudes of faculty and students, motivation to use technology and the expectation that technology will be used, fear, and a tolerance for failure (which includes a flexible style and the willingness to change). The minor themes associated with the differences in teaching and learning that occur in a hybrid format course include collaboration differences, changes in learning outcomes, changes in student and faculty roles, and assessment issues. The minor themes associated with pragmatic issues related to implementing hybrid format courses include time, course management issues, and information and technology literacy issues.

Table 4

Findings: Major Themes and Minor Themes

Attitude toward technology	• General attitudes – student and faculty • Motivation and expectation of tech use • Fear • Tolerance for failure; flexibility and willingness to change
Differences in teaching and learning that occur in a hybrid format course	• Collaboration differences • Changes in learning outcomes • Changes in Student and Faculty roles • Assessment issues
Pragmatic issues related to implementing hybrid course formats	• Time • Course management issues • Information and technology literacy

The sections that follow include a more in-depth description of each of the three major themes.

Attitude Toward Technology

In this section, I explore the major theme of student and faculty attitudes toward technology as it relates to hybrid formats. I begin by describing some general attitudes expressed by faculty about students and faculty, followed by a more focused description of several minor themes that emerged in the interviews. These themes include:

- Fear
- Motivation and expectation of tech use
- Tolerance for failure (flexibility)
- Change.

Student Attitudes

Faculty were very interested in and concerned about the attitude of the students. Generally, they felt the benefits that might be had made it worth risking a certain amount of discomfort in some of the students. In

part, this was because they found that the hybrid format created a tracking mechanism for student progress that prevented less active students from getting by with minimal effort. As Harriet put it:

> I find that students hate it (laughs) but at the same time their vocabulary and their general understanding of the material gets much deeper. The students who don't like it...I think what they don't like is that it is really pushing them in a way they can't really wiggle out of.

Some expressed concern that moving too much course material online would cause frustration for some students. Remedial math, for instance, required a strong faculty presence so that barriers to learning could be addressed almost immediately.

In contrast to the students who needed more immediate face-to-face assistance, faculty said that students who were stronger performers were excited by the power and flexibility that hybrid formats could provide. Faculty said that when given a choice, students often chose hybrid options because they genuinely liked them. Harriet said:

> I remember one student in particular who was just exceptionally bright, and just so thrilled that he could come in, and he could get started whenever he wanted, and he could do it from home, he could do it from wherever he wanted...he could go and he could make progress and could get things checked off...one of my Web pages was their scores, on a regular basis, so he could look and see how the progress was going and he was so excited!

This belief that students really benefit from (and even enjoy at least some aspects of) hybrid formats was expressed by all three faculty members.

Faculty Attitudes

The faculty I interviewed were overwhelmingly positive about hybrid formats. Generally, they felt that faculty who like technology would be

more inclined to use technology. They felt that those faculty who do not like technology but who intended to use it anyway would be far more inclined to need very reliable technology resources, a good support system, and a clear understanding of the benefits of technology use. Harriet said:

> ...techno geeks like me...will use technology no matter what. But most of the world is not going to use technology unless it's reliable and you can call someone who will help you with it at a moment's notice so you have good support (that's very nice) and if you understand how it's going to help you.

In addition to holding a positive attitude as a consequence of liking the technology, these faculty expressed the need to possess a certain amount of resilience when using technology resources. Richard said:

> I think that liking the technology. Teachers should know that the attitude you bring to the technology is going to shape it. Technology is not an enemy. It's not something you just kind of have to put with since everybody's doing this now. There are some neat things that you can do. Obviously there are some things technology might not help you do, but it can be nice to use it; it can be helpful. In fact, it might help the students to learn better.

The issue of technology reliability and support recurred several times in the interviews. While faculty were very appreciative of the efforts made by support staff, they felt more was needed. They said they were more disturbed by the impact occasional failures of technology resources might have on their students. Harriet said:

> The technology shouldn't be what the students are hassling with. Because a lot of my students are the lower end students, unfortunately what it taught of my students is that technology is unreliable, and it's not usually. That's really too bad because it is a very powerful tool. Actually even with the technical difficulties we were having, my students were mostly very favorable...thinking that yes, it did help them kind of order their thoughts and their learning about the class....

Two of the three faculty members I interviewed expressed enthusiasm for the increased degree of interaction made possible by hybrid formats. This high degree of interaction with course members is one of the most important benefits that I listed in my epoch as well. Harriet said: People have asked me, "How do you know, online, if the student is getting it?" I know *better* online. Being a techno-nerd, I'm real comfortable with the medium...that works real well for me and I get a sense of each student and how they work and I know them from the work. I may not know their face, but I know how my teaching is affecting them."

A comfort level in communicating via technology resources seemed to be an important factor in shaping both faculty and student attitudes toward hybrid formats. Richard said:

> Michel Foucault, toward the end of his life, talked a lot about the technologies of the self.... Technology doesn't have to be seen as this little arcane hardware device that sits, and you use it...I would love to have one of those little Star Trek (taps chest) things that you talk into–I want technology to be that way. I want it to be not apart from...maybe it's the word "technology" that's troubling. People never saw the lever as a piece of technology!

To briefly sum up this section on general attitudes, the faculty I interviewed believed students sometimes resent having to work harder (or differently), but usually learn better in hybrid formats. Also, stronger students tended to feel quite enthusiastic about the benefits and the convenience of using hybrid formats. Faculty believed that other faculty will have a more positive experience in a hybrid format course if they like and feel comfortable with technology resources or are at least willing to be patient as various technology glitches are worked out, are able to find a

good level of support, and can see a clear benefit to using technology resources.

Motivation and Expectation of Tech Use

While all three faculty members noted a wide variety of motivations for using hybrid formats (which I describe below), Richard and Thomas both said they were motivated to use hybrid formats because they introduced an element of uncertainty. Not only were they willing to take risks with their classes, to a certain degree, they actually welcomed these risks. These two faculty said hybrid formats allow students to play a more active role in choosing the content and issues covered in class. While this shift in class format structure created some uncertainty for them, the faculty said they enjoyed this uncertainty. As Richard said:

> Learning spaces are always unstable spaces. I would say this is one very important thing I learned: The classroom is about subversion (laughs) of your knowledge. It's going to do that in a variety of ways. Finding ways to facilitate for you, looking differently at things, using technology or whatever we use to help you look at things in different ways. I think that administrators need to understand that too, as well as students. That classroom is not for you to feel so comfortable, because if you are, then you are not really pushing yourself.

The following bit of conversation between Thomas and me expresses a slightly different perspective on this view of risk taking. Thomas said:

> If they are all bringing their own bits of information in, you've got all sorts of conversation starters going on in a class. They may be bringing in articles that have all kinds of baggage, which could be quite interesting...which is very difficult as a teacher. I won't have read the article in advance, or at all, so they are bringing in knowledge that I don't have.

I replied, "It's risky."

Thomas:

> It is! I like it that way. It's more fun to teach that way, because it's more of a community of learners as opposed to me directing traffic.
>
> It's more interesting to me if, in essence, the class is not scripted. If I go out there every day and say, "ok, X is this...what do you think of it?" and they toss back the same things I hear from year to year to year, I kind of know what's going to happen. It kind of plays out similarly from year to year, but once you start opening up the world of resources and they're getting all new ideas...it's a dynamic knowledge base out there and it does make it more interesting.

Conversely, Harriet said she appreciated hybrid formats because they gave her more control over the class. She said that using hybrid formats allow her improved organization and a reduction in what she called the "hassle factor":

> I like to be as organized as possible in class so that the students can focus on the material, not me trying to remember where we are, or anything like that.... I really like students succeeding. *Duh* (laughs)! I feel like...you know, I consider my teaching over the past decades...I think I'm a much better teacher and part of that is that I've learned more but part of it is I have better tools! I love seeing my students succeed and every time I've used technology I feel like they've been able to do that on a higher level. I think mostly as long as the technology is reliable...as long as I can be organized enough to set it up well for them...but it's all things I think I ultimately have control over.

Besides improved control over the course organization, this faculty member appreciated the ability to allow students who want to move ahead at a faster pace to do so, while simultaneously allowing students who needed more help to be recognized and responded to more quickly.

Other factors motivating faculty included a strong feeling that there is a growing need to be conversant in various kinds of literacies, including visual, information and technology literacy. Richard said:

> ...it's just kind of an expectation that this is coming...that professors are looking at it to integrate it somehow, or at least some...and that they are expected to know a little bit about it.

> If it's only one assignment and they don't really need to know that in order to do the assignment, then why are we doing it? It's not mission-based, necessarily, for class. But I want literacy in that regard...

Richard said he was motivated to use multimedia resources in part because students really seemed to enjoy it (i.e., "It was just fun"). In contrast, Thomas's attitude was strictly pragmatic. He had undergone a shift in expectations in regards to the technology skill level of the students over the past several years. Because he needed for his students to begin the program ready to work and communicate outside of class, he and other faculty members in his program devised a technology skills survey and a Saturday program that students are now expected to complete before class begins.

Another support structure Thomas included was a structured peer support system, in which students who self-identify as skilled in technologies are given paid roles as graduate assistants to support their less-skilled class members. Part of the motivation for Thomas to shift technology skill fundamentals to time outside of class was to enable the whole class to begin the program with a common skill set. Another motivation was to avoid spending valuable face-to-face class time on technology skill fundamentals. A final motivation mentioned in this approach was an increased exposure to technology, since Thomas believed that there was a correlation between fear of technology, lack of exposure to technology and student motivation to use or not use technology.

Fear

The findings of this study indicate that fears resulting from complex, rapidly changing technologies are a key determinant in shaping the attitudes of faculty toward hybrid formats. Even in the small study group of relatively technology-friendly faculty interviewees, fear was frequently mentioned by all three, in a variety of dimensions. The list of the dimensions of fear that faculty described is as follows.

1. Lack of student technology literacy
2. Faculty fears about student fears
3. Faculty fears about loss of control
4. Fears as a function of excitement and motivation
5. Loss of time due to technology related disruptions
6. Fear related to pedagogical disruptions
7. Fear of poor student evaluations.

These seven fear dimensions are described in greater detail as follows:

1. Fears about varying student technology literacy levels. One of the challenges faced by faculty is the fact that students tend to come to class with a wide variety of technology skill sets. It takes a fair amount of time and effort to bring the less experienced students up to speed.
2. Faculty fears about student fears. Faculty worried that their students would experience additional anxiety or pressure over technology.
3. Fear of loss of control. Loss of control remained a concern to differing degrees for all three faculty members, particularly in regards to a technology tool or resource that they worry may not perform reliably.

4. Fear as a function of excitement and motivation. In some cases, faculty members found that a little fear helped make the class a bit more exciting and challenging, which actually helped motivate and challenge the students.
5. Fear related to time. Faculty expressed fear of not having time to learn technology, not having time to learn to integrate technology into the curriculum effectively, not having time to keep up with changing technology, not having time to assess hybrid course learning outcomes effectively, and of having to spend valuable class time training students to use technology.
6. Fear related to pedagogical issues. Faculty worried that the students might find the course material too fragmented, or that the lack of continuity might be too disruptive. They felt that if they had the time, the course could be planned so that the two sides (online and face-to-face) dovetailed well together.
7. Fear of poor student evaluations. On our campus, student evaluations are counted heavily in tenure promotion decisions. As a junior faculty member, Richard especially felt that negative student evaluations could stifle innovative teaching (including those teaching innovations that have nothing to do with technology).

This summary may only cover a fraction of fears faculty experience. Clearly, faculty have a great number of fears associated not only with the use of technology, but anything that may cause change or require additional stress on faculty/student workloads or time constraints.

Tolerance for Failure, Flexibility, Willingness to Change

The flip side of fear could be described as an attitude of tolerance for (or an attitude of flexibility toward) technology-related mishaps, failures, and unexpected outcomes. This characteristic was mentioned several times by all three faculty members, often in conjunction with comments about fear. Richard said:

> ...when you are working with new technologies–whatever they are–and you haven't done it before and you're trying to learn as you go along there are going to be some interesting barriers and frustrations...you've got to learn and roll with it. Yeah, the first thing is be patient and be aware that feeling uncomfortable might be part of the process but you never necessarily learn something without going through a process in which something is going to change...you are going to have to give up some assumptions and so on.

Faculty noted that having a tolerance for failure requires having a more flexible classroom management style, which sometimes includes letting students provide more feedback during the course.

This flexible yet stoic teaching style requires what faculty described as openness to a process of experimentation and a willingness to change, even in an environment where there is tension and fear. Likewise, they found it requires a lot of energy to break old habits and to go with something new. This characteristic is tied to faculty motivation to improve teaching and learning, which is explored in the next section.

Differences in Teaching and Learning

In this section, I move from the major theme of exploration of attitudes about hybrid formats, to an exploration of the major theme of faculty experiences with differences in teaching and learning in hybrid formats. This section provides an account of:

- Discoveries on the general differences in hybrid formats
- Differences in the way course members collaborated
- Changes in student and faculty roles
- Changes in learning outcomes
- Differences in assessment.

One difference faculty repeatedly mentioned was an increased awareness of how all of the students were doing (rather than just those that capture the faculty member's attention). Because the assignments could be tracked online, they were able to see which students were progressing as expected and which were struggling and falling behind, and to respond accordingly. Another difference was that the online component of hybrid courses enabled faculty to post answers online to frequently asked questions, which helped reduce redundant questions during face-to-face class time. This reduction in redundant questions freed up time to allow instructors to focus help where it was most needed. It also helped reduce a certain amount of faculty exhaustion. As Harriet said:

> The first time I used a Web page for a class was in a...class that I was teaching. What I did was set up all the assignments and then I had the instructions and then the assignments all on the Web page and they could pretty well move at their own pace. I would also have, you know, kind of additional things they could try if they were interested...so there were several other things that they could do and what amazed me, because I had taught this class a year before and it was an *exhausting class* because the students were always, you know (goodness!), questions all the time...how do I do this–how do I do this–how do I do this, and I was just going the whole class period.

Faculty noticed a difference in what happened face-to-face after their students had worked online. All three instructors made note of an increase in familiarity with students. As Harriet described it:

> I think my students will talk to me more, because with a wiki page, none of my students can hide from me anymore. The quiet student in the back of the room who never says something and is lost...I *know*. With a wiki page, they've got to be interacting on a regular basis. If they're not, or the quality of their work changes, I know. I can send them an e-mail. I know how my teaching is affecting them.

Thomas also commented on an increase in comfort for some of the students who do not communicate as effectively in a face-to-face environment:

> Having the opportunity to have online discussions changes things. When you're in the classroom just...depending on how you structure the discussion...well I know as a student, I always wanted a little more time to put together the right words, or sometimes I was a step slower than someone else in figuring out what I wanted to say.

However, they all three added that they also preferred the ability to see the students face-to-face as well. Harriet said:

> I have to say, I prefer the mixed-mode. ...When I'm lecturing and I put something up on the board and turn around and look at their faces, I can tell; did they get it, did they not get it, and I can tell whether or not I need to go back. The combination of those things is really my preference....That's a disadvantage with using a computer. It's harder to see the light go on. I can see when they are getting the idea in their work, but I when it's face-to-face, I can see it in their *eyes*.

Collaboration in a Hybrid Format Course

All three faculty found that the ability to share and communicate about group projects, papers and other homework assignments in a hybrid environment was a benefit to students and faculty alike. They also appreciated the convenience of being able to communicate via e-mail and electronic discussion boards.

Faculty also noted the importance of helping to model for students how to use technology resources much in the same way that professionals in the field do. Faculty noticed some other differences when asking

students to collaborate in a hybrid course. Structuring the course assignments had to be done a little differently. For example, Richard found it was better for students to work together in very small groups, since larger groups tended to separate into those who were more technology-savvy and those who were not. To him, this discovery meant that:

> ...in larger groups, the ones that already possess technology skills tend to dominate while the ones who don't are left with only the most menial tasks, and they learn less as a result. This is controlled for by making sure the groups consist of only 2 or 3 people, so all the members in the group have to participate.

Another difference Richard noted was an increased concern about plagiarism.

> I've also seen–from the point of view of professors–concerns that students, as they are collaborating, are not really thinking on their own. There are some things that are good to collaborate on, others that are not. You need sensitivity as to what is the best learning experience in terms of collaboration. Certainly, with plagiarism and so on, are they doing their own work? When students are collaborating, what are they learning?

All three faculty mentioned that early on, students expressed some concerns related to practical issues of sharing materials, although these issues were readily resolved with a little training. As Richard put it:

> Students were very concerned about how they were going to come together to work with technology. Would they all have to gather around one computer? There's only one keyboard, there's only one mouse, what are the other ones doing? Just kind of sitting around watching somebody doing something? But I said, "No, actually you all can work with this content management. You all can work–at least five different people from different locations can work at the same time. They were very concerned about that. That was new.

As time progressed, faculty noted that these kinds of concerns appeared to be diminishing. Richard and Thomas both noted a shift over the last year in the overall comfort level of their students. Richard said:

> Last semester, I had my students do political video ads. They were working on any platform they wanted....The students did not seem as afraid. I did not feel as though they were saying, "Oh, my God!" I made the assignment optional. Most of them chose to do it.

Richard and Thomas both began encouraging students to support and mentor one another, relieving faculty of the task of training students to use technology-enhanced collaboration tools. Thomas said:

> Yeah, right, it's been pretty much all on our laps. Now, we kind of initiate it, but now the support group is within the group. Before we were always the support group, and now hopefully pretty much everybody's got it coming in. They don't need me to support.

All three faculty said they thought some of the change related to increasing student comfort with particular tools, partially due to a rapid increase in the use of certain technologies such as Instant Messaging.

Moving part of the dialog that used to occur face-to-face to an online setting meant students had more options for ways to communicate, and these options may appeal to students who like to communicate in different styles. As Thomas put it:

> For me, I've seen BlackBoard pretty much as a resource for my students. Moving into it as a tool, where I can accomplish some learning objectives that would be done differently than how I would in class. For instance, I have them listen to this audiotape of an educator–a pretty dynamic speaker who really stirs the pot on issues of motivation, so people get pretty fired up after listening to that audiotape.
>
> I give two options. Before it was just one option–the early option has always been to write a one-page stream of consciousness paper after listening to [the audio file assignment]. Then the last couple of years, I've altered that to include a discussion board option. So instead of doing the one-page stream of consciousness, I say, "If you'd rather have some dialog with other people about it (prior to class next week) you can dive into BlackBoard."

When I asked Thomas if he had noticed whether activity in class had changed as a result of the second option, the response was:

> For me it's not all that much different, because I still pick up on themes that they are using, and then I can carry those into class– either from BlackBoard or in their papers, they are bringing up these kinds of issues and these kinds of perspectives.

I responded, "You don't care which stream it is, as long as they respond?"

Thomas replied:

> Right...It's a differing quality. I don't know if it's better or worse, but qualitatively it's different. It's more argumentative, you know, in a debate kind of style. Whereas in a reflection, it's more all-over-the-map. It's very qualitatively different. As far as the content is concerned, for me, looking at it as a learning experience, I see validity in both.

Thomas and Richard noticed a difference in the quality of other student collaborative efforts when those efforts required students to use digital video. Both said using digital video requires students to focus much more deeply on the subject matter. Thomas said that having students use the BlackBoard course management system to peer review one another's student teaching via video clip was very useful:

> ...the objective has been to do a couple things. One is to increase the amount of reflection our students have. So they just become more thoughtful about what's going on...it's not just looking at the video and reflecting on it. What they have to do is capture a two to three minute clip of their teaching and decide that of their 2-1/2 hours teaching, this was an event. This was a momentous situation in the classroom. There's something about it. So as I look at it, I'm thinking about it and preparing to bring it into this atmosphere (BlackBoard). So, this whole thought process is a really reflective process: "What was interesting about my classroom? What was an event that's worthy of talking about?" So, just the act of needing to put it into BlackBoard has really increased the learning process. Then they have to develop questions for their peers. So they are saying...what are some thoughtful questions that will generate some interesting discussion and will give me insight as a teacher, for the next time I'm in the classroom.

Thomas said using this method also created a challenge for students to learn to constructively critique one another's work.

> When it gets into BlackBoard and the more collaborative part of it begins and all of them are at different levels and they also all have different personalities in how they respond to these things. Some of them, it's like "Boy, you did a really good job." It's like 'candy talk', you know? They're not really pushing buttons. Like, "You know, when you said this, it really impacted my teaching in a particular way." They may have issues with that or they may have seen positive benefits to that, but they're being more thoughtful. So it takes them awhile before they begin taking more risks in terms of the content that they provide to each other.

The faculty responses in this section seem to indicate that online communication can improve at least some kinds of collaborative efforts. The factors that influence the success of online collaboration include efforts by faculty to change the structure of the course to promote effective online collaboration, and time to allow students to learn the new collaboration mode. Faculty noted that the benefits of convenience and improved access to other course participants and to online resources must be weighed against drawbacks such as increased concerns about plagiarism.

Changes in Learning Outcomes

For the most part, faculty commented on the improvements in learning outcomes in their hybrid formats, many of which have already been listed above. Very few problems or negative aspects about learning outcomes were mentioned, other than the lack of instructor feedback via student facial expressions and the concerns about cheating. All three faculty said that hybrid formats allowed for more opportunities for customized instruction (flexibility of pace, place and time), options for better course management (organization of materials so that students could focus more on course content), and improvements in the instructor's ability to track and provide feedback to individual students.

Some of the examples faculty listed were about improvements to specific pedagogical problems. Harriet said:

> Each student is required to add two terms to the [wiki] glossary each week. You can either add the words or add to the existing definitions of the words. It can't just be the words, it has to be the words and how they relate to other words in the glossary so they're always building some connectedness to the terms and what they mean.... their vocabulary and their general understanding of the material gets much deeper.... I think that's a much more effective way to get students to learn the vocabulary than anything I've done before. I don't know that I've had a student say "wow, this is really great," but I have noticed that they use the terms better. On the final exams and that sort of thing, my sense is that they are understanding the terms better and they are able to use them that much more effectively. Specifically, this semester I was really impressed with my 130 students (who are my non-major students)...their presentations were excellent. They did really interesting, challenging technical presentations and they were able to have discussions about it and everybody understood the basics. Faculty said hybrid formats allowed for more rich content, practice exercises, and connectedness via the Web. As Thomas said:

> I bring materials to class that they wouldn't necessarily find. There was a big difference [in those who worked with more challenging technology resources and those who didn't]...they went a little deeper in terms of finding meaningful content that would be of use for them.

Thomas also noted that for students, simply the act of putting content online helped to increase the learning process, because communicating with their peers caused them to be more thoughtful. Several times, all three faculty noted that simply engaging with the technology caused an improvement in learning outcomes. Richard commented that:

> I had a student in [a prior institution] once who did a video on sexual harassment. They learned more from doing the video than they ever would from any lecture on sexual harassment. They acted out things and so the performance, combined with being able to see the performance afterwards and recognize, wow, that's what

> somebody looks like...it's a lot easier to recognize. They not only about the technology, they also learn about the content.

Student and Faculty Roles

Faculty were unanimous in their appreciation of the increased options available in hybrid formats for shifting some of the tasks that they felt were once solely theirs to the students. Most of these tasks consisted of finding means of bringing materials and other course content into the class, and in finding ways to engage the students directly with course activities. For example, Richard had students use digital video to create a more authentic learning experience through role playing. As he put it:

> Yeah, my role has changed dramatically. Boy, there's plenty to think about in terms of pedagogy, autonomy, the students and myself. I guess people are talking about tele-presence nowadays, but the more they can see themselves, the more tele-presence there, the more involved they are.

Thomas spoke of creating a sort of class launching pad, from which the students could take over and continue their own learning:

> One thing I'm trying to do–when I started with BlackBoard, it was "Here's the PowerPoint I use, here's the notes I used in case you want to review them" and that sort of thing. I'm trying to design it in a more active way so that students can embark on some journey from that point.

Thomas also set up opportunities for shared activities in which the students could work alongside the faculty in classroom community learning roles:

> You can have one document and have the whole class contributing to that document. I think it's a really neat tool in that–you're talking autonomy and power and independence–in that no longer is it me lecturing, giving you notes. We're doing this together. You might be out on the Internet pulling up some ideas so you can contribute to this set of knowledge that we are developing as a class.

Classroom Assessment Techniques and Feedback Mechanisms

In this minor theme, only Harriet noted a strong interest in assessment. She found that tracking student progress was a great deal easier using online resources. As she described it, what had been a somewhat menial task prior to using technology resources has now become a resource that is easily integrated into the curriculum and therefore served as a supporting role as a formative feedback mechanism:

> I think it's good to have weekly assignments, so I can grade them and then e-mail them a weekly response...there's also a difference in kids [today] vs. the students I was teaching 20 years ago. Even the most technophobic students today are comfortable with technology, really.... So, sending out regular e-mail...while that might sound very distant, is actually very...once a week, I have contact with every one of my students. They know that everything is going all right if basically, the e-mail says good, good, good, good in each area that I was looking for but if anything's wrong, they get immediate...I say do we need to talk about this? On the final exams and that sort of thing, my sense is that they are understanding the terms better and they are able to use them that much more effectively.

The other two faculty members both said they were not using assessment resources, even though they both paid close attention to student progress and the student experience with hybrid formats. When I queried them further, I found they were thinking of summative assessment, or more specifically, quizzes and exams. Neither felt that these forms of assessment were useful. As Richard put it:

> I used to feel that assessment was more of an administrative task. I'd ask my students how they were doing on their tech assignments, and they'd say "fine." But I've come to realize that assessment is important and worthwhile, but it is a time stealer unless it becomes part of the message. That is, including formative assessment can become a model for critical examination of the process. This is powerful stuff.

He later went on to add:

> I want to build the assessment to get the student feedback not only about how they're having difficulty but about how they're working, what they are feeling – that to me is assessment; is effective feedback on how I can provide nurturing feedback to the student.

Thomas noted that his course didn't lend itself well to assessment resources:

> I haven't done much with assessment tools, I guess–things like quizzes online. Most of what I do–teacher education is very different that someone who teaches a content-based course. For me, it's not about the stuff I can put in your head. It's about me helping you as a future teacher develop a philosophy about how you are going to go about it.

He said that much of the assessment in the class consisted of reflective self-examination, or peer review exercises.

Pragmatic Issues

In the previous two sections, I covered themes related to attitudes and the differences in teaching and learning that occur in hybrid formats. In this section I cover the major theme of pragmatic issues faculty experience when attempting to implement a hybrid format course. The three minor themes covered in this section include:

- Time
- Course management
- Information and technology literacy.

Time

By far, the issue all three faculty emphasized most was a lack of time. They all agree there is simply not enough time to do all of the things they would like to do, as well as they would like to do them, and the intensity of the emotion behind these comments struck me as notable. In spite of this emphasis, there were relatively few comments specifically

related to time. Faculty acknowledged that there are always time constraints in a course. Changing any component of a traditional course would require time to learn about the proposed technology resource (even if it is fully supported by the University staff), to determine the potential impact of the technology on student attitudes and learning outcomes, and to train students. Beyond the time issue, faculty listed concerns about the reliability of the technology resource and about keeping up with changes in the technology over time. As Richard said, "...it takes so much time...adding that to a class seems difficult and troublesome." In spite of the concern over the lack of time, faculty seemed to feel that the time investment is necessary and worthwhile. The communications faculty member went on to add:

> The time has to been spent. There's no skimping on that - there has to be time for the learning curve, for the change to occur, for the assessment - there has to be a change in the way we manage that time. It's not about perfection. We just have to do it and not let the fear rule.

Course Management Issues

Perhaps the most prominent initial motivation for all three faculty members for trying hybrid formats was an improvement in options for course management. Hybrid courses were thought by all three faculty to be quite convenient in many respects, both for students and for faculty. Faculty felt quite enthusiastic about the ability to shift certain components of their classes online, for a variety of reasons. Thomas said he particularly appreciated having the option to extend and alter the dynamics of class discussions.

> Having the opportunity to have online discussions changes things.... Online discussion allows a lot of people to have a voice that they wouldn't ordinarily have. That's probably the biggest and most important part of it, I think.

He also appreciated the improved opportunities for students to bring their own content into the class.

> ...my classroom becomes a lot more dynamic. I don't have static resources now, I have dynamic resources. Having dynamic resources means I have to prepare differently for the class, in that students are more active in the process, which is problematic in terms of the kinds of things that they bring but it also makes it interesting. There are definitely times when I'm bringing in static resources because I want to have more control over the content, but there are times where I feel that I can be freer with the content and they can have a bigger role, which wasn't possible before.

Harriet found that moving redundant class components online (such as frequently asked questions about homework assignments) made the class more enjoyable for her, and enabled her to focus on the students' more immediate learning needs. This meant she had time to structure class activities around varying student needs (i.e., more advanced students could be given more challenging assignments while she could focus on providing individual assistance to slower students). She also found it much easier to track student progress and to provide feedback online more quickly and efficiently, which then enabled her to respond more effectively in class.

Technology and Information Literacy

All three faculty expressed interest in and concern about technology and information literacy issues. All three said they had noticed a shift in the degree of technology literacy the students are coming with. For example, Thomas said, "Students are coming with a wider understanding of technology. Everybody surfs the Internet, whereas 5 years ago, that wasn't

the case." Nonetheless, they all felt that students needed to know more than they do about not only how to use appropriate technology resources, but also the implications of technology use. Some literacy issues lie with faculty as well. Richard said:

> I find teachers are fighting an uphill battle here because a majority of the professors I come into contact with are not that literate when it comes to technology; that is, they will say students know more, at the same time as they also say that students have problems.

Richard expressed a sense of urgency in terms of expectations for students to learn more about technology:

> I would like them to learn a lot more than they know! That is, it's not as if their technological knowledge is tremendous, it's just kind of an expectation that this is coming...that professors are looking at it to integrate it somehow, or at least some...at that they are expected to know a little bit about it.

Richard expressed similar feelings about faculty as well. Richard provided a more detailed description about what he meant by technology literacy for students:

> Well, I want them to know, well, in terms of literacy I want them to know quite deeply....I want them know how to put pages together, or at the very least, to find a program that will facilitate their knowing how to put some elements together to put their pages on the Web. I want them to understand server technology so they know how things are served and how is it that particular scripts or links or code works the way it does...my bias is that if they don't understand what's going on then they know that, and if they don't understand it then they won't really understand why this is powerful. Why the colors on a page influence the way that they are reading and why content comes across it does if you don't understand some of the technology behind it.
>
> I do want them to understand that some of the technology underneath really facilitates their knowledge about how are things put together, why they have the power that they have...I want students to understand that.

> What goes along with that is that teachers and students need to be literate–not just visual, information or technology literacy, but also about the pedagogy.

Although clearly important to faculty, these pragmatic issues related to time, course management and literacy issues constituted the smallest number of responses.

Summary

In this chapter, I described the findings from the research, organized into major and minor themes that emerged as I analyzed the data. The major themes described included:

- Faculty attitudes toward technology
- Differences in teaching and learning that occur in a hybrid format course
- Pragmatic issues related to implementing hybrid course formats.

Illustrative comments from faculty were included to provide a more direct and clear sense of the faculty voices. In the next chapter, I describe the analysis of these findings, describe some potential next steps, and lay out a set of recommendations for educational leaders.

CHAPTER V

DISCUSSION, ANALYSIS AND NEXT STEPS

In the previous section, I summarized the responses from faculty. In this section, I provide a more in-depth reflection on the research process and a synthesis of the key discoveries. I discuss the responses from faculty and how the faculty responses differed from the epoch. I include a set of recommendations for higher education leaders, a summary of new questions that arose while conducting the research, and a set of ideas for potential new research efforts. Finally, I reflect on the study overall.

A Summary of Key Discoveries

The primary research question addressed by this study was, How do faculty members experience hybrid formats? This question was followed by the secondary questions:

1. Why do faculty choose to make use of a hybrid format course?
2. Do faculty believe that hybrid formats affect the course, and, if so, in what way?
3. Does the hybrid format impact faculty beliefs about the role of faculty and students?
4. How does the hybrid format impact classroom management issues?

I begin by addressing the key findings for the secondary questions. Faculty responses to Question 1, Why do faculty choose to make use of hybrid format courses?, were a combination of several factors including curiosity about new methods, a desire for convenience, a desire to improve

learning, and a desire to work more efficiently. The findings reveal that attitude played a very important role in faculty willingness to try and use hybrid formats. The faculty I interviewed expressed curiosity about trying new teaching methods, a passion for reaching out to all students, and enough patience and flexibility to overcome initial setbacks. These characteristics may be typical of the kind of instructor who will be more successful with hybrid formats. Faculty never mentioned (and I never asked) anything about incentives to use new innovations, which indicated to me that their passion and enthusiasm for finding ways of improving their teaching was genuine.

Attitude inhibitors prevented faculty from doing as much as they would have liked with hybrid formats as well. The biggest attitude inhibitor was fear, covering everything from fear about distractions and lack of time to fear of poor student evaluations caused by the change in format. Poor student evaluations could potentially lead to a reduced chance at future employment for some of the faculty.

For Question 2, Do faculty believe that hybrid formats affect the course, and, if so, in what way?, faculty expressed a great appreciation both for the improvements in teaching and learning that occurred in their hybrid formats and for the pragmatic aspects of their hybrid formats, particularly the convenience and flexibility of communicating and working any time, pace and place. They felt technology skills were of great value not only as a means of getting things done, but as a means of access to online resources and people and of participating fully in the 21st century.

For Question 3, Does the hybrid format impact faculty beliefs about the role of faculty and students?, the results indicated that there are instances in which faculty welcome a more active role by students in leading the course, which hybrid formats helped them facilitate. Faculty felt that allowing students more control over the course meant that they risked losing some of the control over the course, but it also meant that the faculty member found the course to be more exciting and interesting as a result, particularly over a series of semesters of teaching the same course.

For Question 4, How does the hybrid format impact classroom management issues?, the results indicated that the reverse of Question 3 is true. That is, hybrid formats can allow faculty to play a more active role in tracking the progress and exerting more fine-grained control over the learning outcomes of individual students. In this way, they can be more responsive to both the entire class and to individual students who might need special focus, and thus gain more control over the whole course.

The following list is a summary of positive aspects of hybrid formats as reported by faculty.

1. Faculty can track student progress more closely and more efficiently.
2. Students are more engaged with the material, especially those who might otherwise go unnoticed by the instructor in a face-to-face class.
3. Students have more opportunities for collaboration and discussion.
4. Students have more opportunities to work in the style that suits them best.

5. Faculty feel that not only is learning improved, but that the skills they and their students learn in hybrid format environments are important to know in today's world.
6. Both faculty and students appreciate the flexibility and convenience of hybrid formats, particularly in course management.

However positive they felt about hybrid formats, faculty were clear about the fact that they require time and patience, that there is a risk that technology may not function as expected, and that there may not be a great deal of support or appreciation on the part of either students or education leaders for faculty as they attempt to adapt their courses to hybrid formats. They expressed concern that their efforts to utilize hybrid formats would not be recognized as valuable by either their peers or by faculty in established leadership roles. Other fears that faculty emphasized played a large role in shaping the faculty experience with hybrid formats, including fears about varying student abilities, and, to some degree, about uncertain pedagogical outcomes.

The following list is a summary of the negative aspects of hybrid formats as reported by faculty.

1. Students have a wide variety of information and technology skill levels, which can take time to address and can create anxiety for those with fewer skills.
2. Students may not react predictably to hybrid formats, which can lead to unforeseen difficulties for faculty.

3. Changing a course to include new learning techniques (such as hybrid formats) means corresponding changes in pedagogy, which may lead to fragmented or less desirable learning outcomes.
4. Faculty struggle to find time to learn and then keep up with rapidly changing technology innovations.
5. Faculty, particularly junior and adjunct faculty, have serious concerns about how hybrid formats will be viewed by peers and by academic leaders in terms of future employment.
6. Faculty and students alike worry about technology failure as well a lack of support for technology endeavors.

These findings reveal not only important factors that affect how faculty experience hybrid formats, but also how faculty attitudes about teaching innovations in general are shaped. The quantitative research work I had done previously and the research I had explored during the literature review did not address these issues in any significant way, yet these attitudes may have a profound effect on faculty behavior.

Findings Compared to Literature Review

Findings indicate that faculty attitudes (and faculty experiences with student attitudes) were different from anything I had come across previously in existing literature. Conversely, findings on faculty experiences related to pragmatic issues and also to differences in learning in hybrid formats were quite similar. In the literature review, existing research indicated that faculty seemed to think that hybrid formats were somewhere between somewhat useful and very useful, at least some of the time, if constructed carefully and properly. Problems that faculty listed in the

literature review related to the time it takes to learn and implement new technology resources, a certain amount of anxiety on the part of the students when presented with new resources, and concerns about support and reliability for related technologies. These particular aspects were similar to the findings in my study.

Very little research had been done in the literature that related specifically to faculty attitudes, and what little there was had been generally very positive. Upon completion of this research, I suspect that the small amount of qualitative research on faculty attitudes in my literature review may have been limited to those faculty who, like me, were enthusiastic and comfortable with technology tools. Also, they were perhaps not prone (for whatever reason) to feel threatened by changes brought about by technology.

Recommendations to Higher Education Leaders

Each of the faculty members in this study valued different aspects of the hybrid format for courses, but the concerns they had about existing or potential negative aspects of hybrid courses were consistent. They were willing to take at least some risks in order to try interesting, exciting, and/or beneficial new ways of teaching using hybrid formats, but the results of this study indicate that they have not felt properly supported in these efforts. Several key kinds of support that would benefit faculty include human support, hardware and software suitable for hybrid formats, and training opportunities. The following is a summary of recommendations to education leaders.

- Support campus-wide information and technology literacy for faculty, staff and students.
- Provide more support staff to support both faculty and students.
- Provide better opportunities for faculty to receive training for new technology skills (including support for peer mentorship).
- Provide up-to-date hardware and software with a sustainable replacement budget.
- Take seriously and make greater effort to address junior faculty and adjunct faculty frustrations related to time and fear.
- Provide recognition and incentives for faculty who take steps to improve teaching methods (and who then share the results with peers).
- Work to create a culture of respect and encouragement for innovation in teaching and learning.

Education leaders at Small University should provide more human support in a variety of ways. They should embrace and support efforts to ensure that information and technology literacy are widespread and well-supported throughout the curriculum by requiring all first year students to either enroll in or test out of a basic information and technology literacy course. This would ensure that not only would all students be equipped with the skills they need to compete with their peers, but also would enable faculty to plan their courses with the expectation that students have the necessary skills to use educational technology resources, whether in a hybrid or face-to-face environment.

Much of the difficulty faculty members faced was caused by the lack of this consistent set of basic technology skills among the students. Small University should provide additional support staff in the form of both professional staff (such as instructional designers, educational technologists, and multimedia experts) for more complex tasks and trained student assistants for less complex tasks. This additional staff could support faculty additionally by extending this support to the students as well.

Faculty are concerned about having time not only to learn new technology skills to help them properly implement hybrid formats, but also to continue to keep up with new developments in technologies. Education leaders should provide appropriate opportunities for faculty to receive training. Such training includes time to attend workshops and conferences related to hybrid format course development, time to develop new skills such as learning software programs and developing new course modules that utilize these new skills, and support for peer mentoring opportunities.

Learning how to use technology resources is a waste of time if the hardware and software resources faculty are given are years out of date, particularly if they are significantly less up-to-date than the hardware and software students are using personally. Educational leaders should make sure to provide faculty and students with opportunities to acquire quality university-supported hardware and software that will enable faculty innovations in a reliable and consistent way. Leaders should note that any new hardware and software may also need additional support and sustained funding by the University's technology department.

The faculty in this study, in particular the junior faculty, were frustrated by time and fear issues as they attempted to adopt new teaching and learning innovations, which are necessary for creating hybrid formats. Education leaders at Small University should provide an appropriate amount of course release time to allow faculty to develop and assess new teaching skills and course innovations.

Since faculty express a great deal of concern that the work they do to develop hybrid formats will not be respected or appreciated by peers and leaders, particularly if the development of hybrid formats is seen as part of teaching duties that may affect tenure decisions, education leaders at Small University should provide recognition and incentives for faculty who are willing to take steps to improve their teaching methods and who are then willing to share their results with other faculty. Leaders should ensure that efforts are made to overcome faculty fear issues by creating a culture that both supports faculty efforts to adopt hybrid formats and assures faculty that teaching and learning innovations are valued and appreciated.

Technology may fail, course participants may need to develop new skills, or course participants may need to adjust the way they use technology in order to achieve positive results, but, overall, faculty understand the need for patience and flexibility when trying to implement new innovations. Education leaders should work to assure faculty that they also understand these issues and that their efforts will not be perceived by peers and higher level administrators in a negative way. Education leaders at Small University should encourage and reward faculty peer mentors and a more proactive approach to student engagement in their own learning.

Many faculty fear that their student evaluation ratings will worsen if faculty experiment with new teaching methods in class. This attitude about student evaluations might be changed if faculty were taught methods to structure the class to allow for this kind of change while simultaneously encouraging students to embrace these experiments as members of a learning community, rather than as passive recipients of knowledge.

Faculty Responses Compared to My Epoch

As I mentioned in the Method section, the phenomenological approach to hermeneutic interview research requires that the researcher set down his or her own responses to interview questions prior to conducting the interviews with respondents. This step is done to ensure that there is as clear a distinction as possible between the interviewer's own thoughts and beliefs and those of the respondents. In this effort to bracket my own experiences from that of the faculty I interviewed, I attempted to answer the same set of questions I posed to faculty in advance of the interviews. As I went through the faculty transcripts, I made note of areas in which faculty responses coincided or differed from the responses I listed in my epoch. Later, after the interviews had been conducted, I went through and extracted themes and keywords from the faculty interviews, as described in the Results section. The resulting themes and keywords are listed here subjectively in order of both the frequency with which they appeared in the transcripts and by the degree of emotional intensity expressed by faculty respondents:

- Fear
- Time

- Motivation and expectation of tech use
- Technology and information literacy
- Collaboration in a hybrid format course
- Tolerance for failure; flexibility
- Change
- Student and faculty roles
- Assessment
- Improvement
- Differences in hybrid course management issues
- Attitude toward technology.

I also extracted a list of themes and keywords from my epoch, using the same criteria, as follows:

- Enthusiasm
- Convenience
- Student expectations and experiences differ from faculty experiences
- Frustration with faculty and students who seem to resist using technology
- Curiosity
- Comfort with online learning (due to shyness and the desire for a flexible pace)
- Concern about the damage done by inappropriate technology use
- Excitement.

The Importance of Creating an Epoch

These two lists provide the reader with an indication of the differences between my attitude about hybrid formats and that of the faculty I interviewed. That is, faculty were very concerned about how they might appear to peers, how the use of technology might impact their classes, and how they might find time to learn and adapt their course to technology tools. In contrast, I approached hybrid formats from the perspective of someone who was eager and curious about technology; I was enthusiastic about the new possibilities, extremely motivated by the convenience factor as a student, and not very afraid that I might fail or suffer professional consequences by using these resources.

Faculty answered questions solely from the perspective of instructors. I answered questions from the perspectives of an instructor, an instructional designer, and a student, since these are all roles I have played routinely during my experience as an instructional designer working with hybrid formats. Much of the time, the responses I gave were similar to those of the faculty. However, given that my perspective was rooted in three different roles (none of which are career faculty roles), it is not surprising that my responses differed at least somewhat from those of the faculty I interviewed. If for no other reason, creating the epoch was important as a means of making explicit how different my perspective has been from that of the faculty.

A More Detailed Comparison of Faculty Responses to My Epoch

Faculty and I seem to share the same appreciation for the pragmatic aspects of hybrid formats, and, to varying degrees, for the effect of hybrid

formats on learning outcomes. Like faculty, I identified a strong belief that students really benefit from and enjoy many aspects of hybrid formats. In my epoch, I noted that I had found that the ability to share and communicate about group projects, papers and other homework assignments in a hybrid environment was a huge benefit to me as a student; perhaps the most important benefit. Not only did I find it more convenient, but having quick and immediate access to resources, course materials, course participants, and feedback meant that I learned more readily as well. I also deeply appreciated the opportunity to communicate when and how I felt most comfortable (via e-mail), which had never before been an option in a face-to-face class.

However, both Richard and Thomas seemed unclear how to respond to me on my questions related to assessment and on information and technology literacy. Thomas said he did not really conduct assessments, but rather focused on teaching his students to be aware of their own learning processes. Richard knew a lot about information and technology literacy, but neither he nor Thomas had much to say about how these topics impacted their teaching or learning activities. Harriet was very appreciative of the impact that assessment played in her teaching, perhaps because the subject she taught lends itself well to online assessment techniques, but did not have much to say about information and technology literacy issues. Because these are topics that are very important to me in the work I do as an instructional designer, I had anticipated more responses from faculty. For example, one of the primary goals of an instructional designer is to assist a faculty member in designing a course so

as to improve learning outcomes (particularly on an undergraduate level). Educational technology tools are one set of tools which might facilitate an improvement in learning outcomes. Without carefully planned and implemented learning objectives and formative and/or summative assessments, it is often unclear in any objective way whether or not learning outcomes are improved by changes to a course.

The faculty experiences related to attitudes, particularly fear and change, were quite different from anything I listed in my epoch. My fears were fairly limited, and consisted of things like being asked to do various technology-related tasks for which I was poorly trained or prepared for in my job, or in being asked to complete a challenging programming assignment for a computer science class on a deadline. Unlike faculty, I have never had an experience where I might be criticized professionally for using technology resources, rather than continuing to do my job in a more traditional way. In fact, my employers have always rewarded me for improving and making use of any new technology skills I developed. Responses to my interest and enthusiasm for using technology by my peers were also universally positive.

I also did not have a strong concern about changes caused by hybrid formats. Rather, I welcomed these changes since they provided a great deal of additional convenience for me and also suited my personal learning style. My attitude was always one of great enthusiasm and curiosity for working with technology resources. If anything, I was perplexed as to why others did not seem to feel the same way, and did not seem to appreciate the convenience or the new possibilities to the same degree that I did. I

was sometimes frustrated at the comparatively slow pace with which others seem to move, since hybrid formats allow for greater immediacy of access to information, resources, and learning opportunities.

The process of coming to understand the complexities that affect faculty attitudes proved to be very enlightening to me. The discoveries I made will alter my approach to faculty development in the future. For example, one change I can make in my approach is to try harder to associate whatever hybrid format resource I promote with similar work done by well-respected faculty peers (either within or outside Small University) whenever possible, which may alleviate some of the fear faculty experience about being perceived as too different. Another would be to make a much stronger effort to help faculty understand how much support they are likely to need (and to realistically receive) to implement a hybrid format resource and that they understand how to obtain that support.

Reflection on the Research Process

The process of conducting and analyzing research went smoothly, but there were some issues of note. The phenomenological method I chose included a three-phase process; I intended to interview faculty about past experiences, then interview faculty about present experiences, and finally confirm with faculty that I had gathered data from them correctly. However, on this topic, faculty seemed to find it difficult to separate past experiences from present experiences. For them, dealing with hybrid formats was a continuum of experiences which was still ongoing. Faculty would try to speak to past and present experiences separately, but find themselves referring back and forth between the past and present all

throughout the interviews. This was perhaps due to the fact that the experience in question is still relatively new; that is, the faculty I interviewed have been working with hybrid formats for only a few years. In any future studies done via this method I will not strive to separate past and present experiences unless there is a clear and compelling reason to do so.

Faculty were very willing to meet with me promptly at the end of the academic year to conduct the interviews, but were very slow to get back to me on confirming the accuracy of the transcripts during the summer. Some of this delay was due to travel, and some of it was due to the fact that I wrote the transcripts over summer and sought confirmation of accuracy during the beginning of the school year, which was a very busy time for them. For future studies I will take this annual cycle of faculty activity into account.

I found that Transana (Fassnacht, 2005) software was an excellent tool for transcription, but the keyword marking and grouping process was rather slow and clumsy. I spent a lot of time reviewing the transcripts online through Transana because the time code notations made it easy to click right to the section of the audio and video file from which I had drawn the transcript. When the time came, however, to collect the important snippets that I had coded, I simply printed out the transcripts and used color coded markers to identify the sections of the text. It should be noted that this was a feasible alternative because I only had three interviews. Transana is designed to be a scalable tool, capable of being used for hundreds of hours of video for which this method would be impractical.

Analysis

When I began working as an instructional designer in the late 1990s, I struggled first to learn how to become an effective technologist, then to learn how to become an effective educator, and, finally, to understand how the faculty with whom I was charged with helping experienced technology resources. As time went on, I became specifically interested in hybrid formats, believing them to be the best of both face-to-face and online instruction options. After spending several frustrating years working with faculty on hybrid formats with less than ideal results, I began to suspect that there were issues faculty were dealing with that I was unaware of. Otherwise, why would not they be just as enthusiastic about hybrid formats as I was? After all, hybrid formats do offer many apparent advantages to most faculty and students. After reading lots of relevant literature and conducting many quantitative surveys to a wide variety of faculty members at three different universities, I was still perplexed about why faculty seemed so reluctant to embrace hybrid formats. I suspected I might be asking the wrong questions. This led me to wonder which questions I should be asking, which in turn led me to believe that the open-ended kinds of questions utilized in qualitative research methods would be useful, which thus eventually led me to this study.

The phenomenological method proved very useful as a means of helping me gain insight into the experiences of faculty as they attempted to adopt hybrid formats. The quantitative surveys I had conducted asked very general questions about their experiences with specific technology resources. The responses I received from these surveys were as general as

the questions and, while positive overall, were not specific or detailed enough to provide me with adequate information to help me improve my efforts to help faculty utilize hybrid formats more effectively. By asking heuristic, open-ended questions that allowed the faculty to speak openly with me about their experiences, I was able to discover new insights about the hybrid format phenomenon.

Easily the three findings that stand out most prominently for me as a result of this study are fear, risk and control. During the interviews, I was struck by the variety and intensity of ways faculty described the impact that fear had on the teaching process. The faculty I chose to include in this study spoke poignantly of a wide variety of fears, most related to fears of looking foolish to peers and to chaos or failure in the classroom. It is not certain that these fears are limited to just faculty experiences related to technology or even to hybrid formats, but it is clear that fear has a strong impact on faculty behavior. Results from this study indicate that it would be worthwhile in future studies to explore this issue further to determine how widespread and how intense a role fear of failure and of possible ridicule by peers plays in the professional lives of faculty. Are these fears so debilitating that we are harming more than helping our faculty efforts to improve teaching?

In spite of the strong negative associations with these fears, the faculty in this study were philosophical about the need to overcome fear barriers associated with technology resources. As Richard said, "...technology is not the enemy.... Learning spaces are always unstable places...the classroom is not for you to feel so comfortable, because if you

are, then you are not really pushing yourself." This attitude makes me wonder if it is possible that faculty who are somewhat more inclined to explore technology resources and thus to develop a higher degree of confidence in them are more likely to be confident enough to try other new teaching innovations as well. Again, this topic is a likely candidate for future studies.

Interestingly, fear can add an element of excitement in the form of a certain amount of controlled risk to teaching. As Thomas said, "It's more fun to teach that way, because it's more of a community of learners as opposed to me directing traffic." Both Thomas and Richard seem to think that taking these risks holds the potential for both improvements in learning and improvements in the teaching experience, further supporting the notion that adult learners prefer to be proactive participants in their own learning (Caffarella & Barnett, 1994).

Both fear and risk associated with hybrid formats are tempered by the advances in the ability to control course material delivery and feedback to students. As Harriet described it, as long as the technology is reliable, it reduces what she called the "hassle factor" in providing customized responses to individual students and enables her to have a much higher degree of control over her ability to be appropriately responsive to students. She expressed a very strong interest in knowing that all of her students had achieved early benchmarks in her class. This high level of interest on her part makes me wonder if a very high level of motivation to resolve certain teaching problems might not overcome other barriers to teaching with hybrid formats. That is, under what conditions do faculty

members finally decide that it is worthwhile to take on the challenge of overcoming barriers such as fear and time limitations in order to utilize a powerful new teaching resource?

As a result of conducting this study, I have gained some insights that will change the way I do my work. Chiefly, I will work very hard to be more sensitive to the fears that faculty have expressed in this study. At the very least, I will pay a great deal more attention to the subtleties of peer influence on faculty. For example, when I approach faculty with some new technology resource, I will make much more of an effort to ensure that I present my resource in a context that indicates the resource is well-received by respected faculty leaders. Likewise, I will focus more diligently on issues related to faculty confidence in structured risk-taking and to addressing specific learning problems.

Potential New Research Questions and Next Steps

A number of other new research questions emerged while I was conducting this research. I was very interested in how important faculty attitude seemed to be as a determinant of success, and in particular the dimensions of fear that faculty described. I would like to conduct a quantitative survey of a larger population of faculty asking them about these fears, and about other attitude questions, based on the results of this study. A number of new research topics that emerged that specifically relate to the subject of this study include:

- Faculty attitudes about teaching innovation issues other than hybrid formats
- The characteristics and traits of successful hybrid format users

- Research on whether or not faculty perceptions of education leaders are accurate in regards to inhibiting innovation in teaching and learning
- The effect of support on successful classroom innovations with technology resources
- More research on assessment and on information and technology literacy.

This study focused solely on the faculty experience, but a similar study could be conducted with students and with education leaders as well, which might be very informative. Other more general questions that emerged include:

- What more might we learn about kinds of things that motivate faculty to improve teaching and learning?
- Would faculty be more interested in innovations in the classroom if they felt properly supported by education leaders?
- What incentives could education leaders provide to encourage faculty to try technology-based innovations?
- What are the factors that prevent education leaders from incenting faculty to innovate using technology resources?
- What new ways could education leaders provide support for innovative faculty?

Faculty vary in their willingness to try and adopt new methods of teaching and learning. This study helped me to understand that those who do want to improve teaching and learning must embrace changes that peers, educational leaders and students may not truly be ready to accept or

support. Adopting such change means faculty must face obstacles that are difficult for many administrators, including myself, to see. If educational leaders truly do want faculty to change and to succeed at using technologies which can improve teaching and learning, then they must meet both the tangible and intangible needs of faculty appropriately. My hope is that this study will provide some helpful insights to other instructional designers, faculty developers, and educational leaders who wish to provide such support.

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APPENDIX A

HUMAN SUBJECTS PROPOSAL

Human Subjects Proposal:
An Examination of Faculty Experiences with Hybrid Formats

Jo Meyertons

Prospectus

Higher education leaders have consistently identified the integration of technology into teaching and learning as an important priority for their faculty, for a wide variety of reasons (Green, 2001). Since, in many cases, faculty members have seemed reluctant to do so, it is clear that there is some dissonance between leadership expectations and faculty experiences with technology. An extensive review of the relevant literature indicates that little research has been conducted specifically on the faculty experience with hybrid format courses, although much evidence has been gathered on student experiences and on changes to technology-enhanced course learning outcomes.

This study will examine and describe higher education faculty experiences with hybrid course formats using a phenomenological inquiry method. The phenomenological interview method is described by Max van Manen (2002) as "...a conversational structure: it is oriented to sense-making and interpreting experiential meanings. The interview has a collaborative, conversational structure that lends itself especially well to the task of reflecting on phenomenological meanings" (p. 1).

A hybrid format course includes both traditional face-to-face and online (usually Web-based) components, in varying degrees. The goal of this study is to discover if there are any common elements that faculty experience with hybrid course formats, and to try to distill these elements into a set of recommendations to higher education leaders for improving the faculty experience with educational technology. A secondary goal is to help develop practices that could improve the ways that faculty use educational technology to enhance teaching and learning.

Subject Recruitment

Because this study is specifically about faculty hybrid formats perceptions, the population I will draw from consists of faculty I work with at the university who are using some combination of face-to-face and online instruction, and are therefore not randomly selected. However, I will make every effort ensure that this cohort is evenly distributed across demographic groups. I am hopeful that I can choose faculty whose disciplines, age, gender and race differ enough to provide contrasting insights. In order to help narrow down the potential population, I will draw from a pool of faculty who have responded to a general educational technology survey I conducted in fall 2002 (as part of my responsibilities at the university) about their experiences with educational technology resources. The survey was sent to all faculty members on campus and faculty were given the option of responding anonymously or including their names in case I wanted to approach them for more feedback. My pool of faculty members would include only those who responded with their names. My goal is to identify six of these faculty members with the expectation that as many as half

this number will not complete the entire process due to time conflicts or other unforeseen circumstances. Since my objective is to understand the experiences of faculty who have previously been neutral (neither eager nor opposed) to the idea of utilizing technology, the faculty I choose will have taught at least one semester but no more than 3 years in hybrid format mode.

I will conduct interviews on campus, so that the conversations will occur in the faculty's natural work setting. I have a good working relationship with these faculty members, and I believe they understand that my goal is to improve the process of using educational technology for them, so I believe faculty will be willing to work with me and that the interviews will be of mutual benefit.

Informed Consent

I will obtain written consent from each of the participants, as per the Written Consent letter below:

Written Informed Consent

Dear Participant:

You are invited to participate in a research study to be conducted by Jo Meyertons from Portland State University, Graduate School of Education. The researcher hopes to learn about higher education faculty experiences with hybrid formats. A hybrid format course includes elements of both traditional face-to-face and technology-enhanced (online) course components.

This study being conducted in partial fulfillment of the requirements for a doctoral degree, and is being conducted under the supervision of Professor Emily de la Cruz in the Graduate School of Education. You were selected as a possible participant in this study because you are a faculty member at Willamette University who responded to a survey Jo conducted in fall 2002, and you have begun teaching in hybrid format (i.e., you have added a technology enhanced component to your course to supplement your face-to-face teaching).

If you decide to participate, you will be asked to meet with Jo on three separate occasions for about an hour each time over the course of three months. The meetings will take place in Jo's office, and will be videotaped so that there is an accurate record of your responses. During the first two meetings you will be asked to participate in a conversation about your experiences with hybrid formats. In the first meeting, you will be asked about your past experiences, and in the second you will be asked about your present experiences. During the third and final meeting you will be asked to verify that the transcript data accurately reflects your perceptions, and you will be given the opportunity to change or correct any statements you feel are inaccurate. No discomfort or inconvenience, other than the use of your time, is anticipated.

Any information that is obtained in connection with this study and that can be linked to you or identify you will be kept confidential. The videotapes and all

other notes or records from the interviews will be kept confidential and will be stored in Jo's home for a minimum of 3 years, and no one else will have access to the data. The data may be coded using software such as Transana or ATLASti (qualitative analysis software that is intended for video analysis), but only on a stand-alone computer to which no one except Jo has access.

Your participation is voluntary. You do not have to take part in this study, you may withdraw at any time from the study, and it will not affect your relationship with Jo or with the university.

If you have concerns or problems about your participation in this study or your rights as a research subject, please contact the Human Subjects Research Review Committee, Office of Research and Sponsored Projects, 111 Cramer Hall, Portland State University, (503) 725-4288. If you have questions about the study itself, contact Jo Meyertons at [Jo's address and phone number].

Your signature indicates that you have read and understand the above information and agree to take part in this study. Please understand that you may withdraw your consent at any time without penalty, and that, by signing, you are not waiving any legal claims, rights or remedies. The researcher will provide you with a copy of this form for your own records.

_____ _____

Signature Date

Title of Study: "An Examination of Faculty Experiences with Hybrid Formats"

First Person Scenario

I first began using education technology resources two semesters ago when Jo Meyertons, our campus Director of Instructional Design and Development, presented a short demonstration of BlackBoard (a commercial course management system that our campus adopted). At the presentation, I learned that I could use BlackBoard to allow my students to share and discuss documents outside of class time, so I decided to give it a try.

Last year, the technical services department Jo works for sent all university faculty members a short survey about our experiences with educational technology, to which I responded. Based on my response to the survey, Jo sent me a short description of her dissertation study and asked if I'd be willing to become a participant. We made an appointment to go over the details of the study and to arrange for the three interviews Jo wanted to conduct. I also signed an Informed Consent form at this time.

During the first interview, I went to Jo's office and sat in one of the chairs near where Jo had set up a video camera in one corner of the room. At first I was a little self conscious about the camera, but as the interview proceeded, I quickly forgot it was there. Then Jo asked me a series of questions relating to my past experiences with hybrid formats. We met once more, again in Jo's office with a video camera, and this time Jo asked me about my current experiences with hybrid formats. Finally, Jo met with me a third time and gave me transcripts of the two meetings and asked me to verify that she had captured my experiences accurately. Wherever I found discrepancies, I was asked to make any changes or clarifications I felt were needed. Jo seemed interested in making sure she had accurately captured my perspective, which I appreciated. Each of these meetings took about an hour.

Potential Risks and Benefits

Faculty on the university campus are encouraged to meet with me to discuss educational technology so there should be no stigma associated in meeting with me, or with the subject matter. Other than some possible discomfort at having to talk about experiences with educational technology that might have been somewhat frustrating or difficult, I can foresee no emotional risk to the participants. Should a faculty member divulge information of a sensitive nature that might be traced to him or her, that information will be kept confidential. There will be no direct benefit to participants. There may be some small indirect benefit gained by the process of self-examination, and possibly by contributing to the larger body of knowledge in educational technology that might eventually benefit all faculty members.

Records and Distribution

All records, tapes and notes of interviews with participants will be kept confidential, and will be stored off-campus in my home office for a minimum of 3 years, at which time all tapes will be destroyed. Any software used to analyze the data will be kept on my personal computer and will not be shared. Once the data have been analyzed, it will be stored on a removable storage medium (such as a CD ROM) and stored with other records, tapes and notes in my home office and removed from my computer.

Potential Interview Questions

An important step in the interview process would involve formulating the questions I want to ask. The hermeneutic interview method is, as I have stated, conversational and collaborative by nature, so there is no pre-defined script I will use to guide the interview process. However, I can outline the general questions I would pursue. Questions for participants would focus on faculty experiences with hybrid formats. Moustakas (1994) provides a general interview guide for phenomenological researchers that includes some examples of the style of questions that might be suitable:

1. What dimensions, incidents and people intimately connected with the experience stand out for you?

2. How did the experience affect you? What changes do you associate with the experience?

3. What feelings were generated by the experience?

4. What thoughts stood out for you? (p. 116)

Some of the themes and topics for questions asked during the interviews would be drawn from the following broad areas:

6. Faculty perceptions about technology literacy issues. There are at least three major technology literacy subcategories I want to explore: Computer literacy (skill using computers, keyboards, software, etc.), Information literacy (the ability to locate and evaluate information) and visual literacy (Roblyer & Edwards, 2000).

   Christopherson (1996) says that visual literacy can be defined as the ability to "...interpret, understand, and appreciate the meaning of visual messages; communicate more effectively through applying the basic principles and concepts of visual design; produce visual messages using the computer and other technology; and use visual thinking to conceptualize solutions to problems" (p. 173). Because the Web is so strongly visual, this is one of the more important dimensions of hybrid format courses that may have impacted faculty experiences.

7. Faculty perceptions about student collaborative learning in hybrid format courses. Do students use educational technology tools to gather resources and solve problems together more effectively in a hybrid course than in a face-to-face course?

8. Faculty perceptions about changing pedagogical roles, student autonomy and student control over their own learning in a hybrid format course.

9. Faculty perceptions about classroom assessment techniques and feedback mechanisms in a hybrid format course.

10. Faculty perceptions about course management issues in a hybrid format course.

These questions are necessarily broad in scope and meant to serve only as a starting place for the interviews.

APPENDIX B

INTERVIEW QUESTIONS

Moustakas (1994) provides a general interview guide for phenomenological researchers that includes examples of the style of questions that I utilized:

1. What dimensions, incidents and people intimately connected with the experience stand out for you?

2. How did the experience affect you? What changes do you associate with the experience?

3. What feelings were generated by the experience?

4. What thoughts stood out for you? (p. 116)

The initial themes and topics for questions asked during the interviews were drawn from the following broad areas:

1. Faculty perceptions about technology literacy issues.

2. Faculty perceptions about student collaborative learning in hybrid format courses. Do students use educational technology tools to gather resources and solve problems together more effectively in a hybrid course than in a face-to-face course?

3. Faculty perceptions about changing pedagogical roles, student autonomy and student control over their own learning in a hybrid format course.

4. Faculty perceptions about classroom assessment techniques and feedback mechanisms in a hybrid format course.

5. Faculty perceptions about course management issues in a hybrid format course.