FACE-TO-FACE AND ONLINE TEACHING STYLES:

A CASE STUDY OF NINE FACULTY AT THE UNIVERSITY OF HAWAI'I.

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ABSTRACT

Rapidly increasing numbers of higher education faculty are faced with teaching courses online. To identify effective online teaching approaches, we must urgently seek a deeper comprehension of faculty teaching styles, practices and habits. Many faculty believe the same teaching styles and approaches used in their traditional classes also work online, yet some recent studies reveal that teaching a re-creation of the face-to-face classroom may not be as effective in online courses.

Forward-looking academics argue that online education requires a new teaching paradigm. A new approach to pedagogy means faculty may have to adjust their face-to-face teaching styles in an online environment. A case study of nine faculty was conducted at the University of Hawai'i. Face-to-face and online teaching styles were separately examined; comparisons between online and face-to-face teaching experiences were made; and teaching styles, practices and habits faculty perceive as successful in the online environment were identified.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Chapter One: Introduction

Statement of the Problem

Widespread use of the Internet has opened up a world of new teaching opportunities in the field of distance education – namely that of online education. Prolific student and teacher use of the Internet has burst open the floodgates and an explosion of online education has hit colleges across America. As a rapidly increasing number of higher education faculty are faced with teaching courses online, we must urgently seek a deeper comprehension of faculty teaching styles, practices and habits in order to understand effective approaches for online teaching.

Diaz and Cartnal (1999) found that many faculty are under the impression the same teaching styles and approaches used in their traditional classes also work online. However research by academics such as Palloff and Pratt (2001) reveal that, "an online re-creation of the face-to-face classroom may be dismally unsuccessful" (p. 12).

Forward-looking academics make the argument that online education requires a new paradigm for teaching. Thanks to the arrival and growth of the Internet, both faculty and students have a wealth of information at their fingertips. Kearsley (2000) states: "there is too much information for our old methods of instruction to work any longer" (p. 11). A new approach to pedagogy could mean faculty have to adjust their face-to-face teaching styles, practices and habits in an online environment. Perhaps one possibility for improving the teaching-learning interaction in online environments is to consider the stylistic qualities found in successful online teachers.

The goal of the present study was to understand the teaching styles and practices of higher education faculty members who teach online and face-to-face courses, and to identify faculty perceptions of successful teaching practices in the online environment, in order to help future online instructors in their teaching approaches and interactions with students.

A case study of nine faculty was conducted at the University of Hawai'i. Face-to-face and online teaching styles were separately examined to understand whether or not these nine faculty use different teaching styles in each environment; their experiences were drawn upon to make comparisons between online and face-to-face teaching; and their opinions were gathered to determine what teaching styles, practices and habits they perceive as successful in the online environment.

Three research questions drove this study: 1) What differences, if any, occur in teaching styles, practices and habits of face-to-face and online instructors? 2) How do experiences teaching an online course compare with experiences teaching a face-to-face course? 3) Which teaching styles, practices and habits do faculty perceive as effective in the online environment?

There were two hypotheses in this study: 1) that higher education faculty use a facilitative teaching style in their online teaching; and 2) that faculty modify their teaching styles when they move from face-to-face teaching into online teaching. To test these hypotheses, the teaching styles, habits, and practices of nine instructors who had more than two years experience in both face-to-face and online teaching were examined in depth.

Importance of this Problem

Faculty members possess needs, motives, beliefs, and attitudes about how to learn and how to teach. Grasha (1983, 1990, 1994a, 1994b) summarizes these as 'Teaching Styles'. It is important to understand the connection between Internet-based technology use and its effect on teaching styles, particularly when we consider the increasing significance computer network-based teaching plays in the higher education domain. What does it mean for the role of instructors? Academics agree that the role of an instructor in online instruction is likely to be somewhat different than in face-to-face instruction (Bates, 2000b; Clark, 1993; IDE, 1998; Kearsley, 2000; Saba 2001; Simonson, Smaldino, Albright, and Zvacek, 2003). Grasha (1994b) stated that, "any instructional process (e.g., teaching online) that influences how instructors teach either encourages and reinforces their preferred teaching styles, or creates pressures on the instructors to adjust their teaching styles" (p. 144).

Dr. Robert Marine (2000) noted that in campus-based instruction, the lecture is still the primary teaching method for college faculty (Introduction section ¶3). Faculty members often use interactive lectures, small group activities, in the belief that these are only ways their particular subject can be taught. Anderson and Middleton (2002) believe that others do not want to change their teaching styles and have not yet adapted their lectures to the advances provided by technology such as PowerPoint presentations.

Little is known about what adjustment faculty make to their teaching styles when they move their course online or they become online instructors. White and Weight (2000) conclude that effective online teaching requires the instructor to not only have

knowledge of the content area, but to also have facilitative skills to effectively communicate with their students online.

Preliminary research by others has shown that facilitative teaching styles, more so than other teaching styles, are better suited to learners in an online environment (Diaz & Cartnal, 1999; Grasha, 2000; Matheos & Archer, 2004; Palloff & Pratt, 2001; Quinsee & Hurst, 2005).

In one study by Matheos and Archer (2004), faculty who were beginners at teaching courses online would look at the content and expected outcome before all else, which would overshadow their delivery approach or teaching style. As they gained more experience in the online medium, they began to use more facilitative techniques like collaborative approaches, group work and student sharing, which are shown to result in higher teacher effectiveness and more positive student learning outcomes. In other words, over time they developed a more facilitative teaching style in the online environment.

The number of students calling for online education is mounting by the day, which equates to a rising demand for faculty to teach in the online environment. Not only must faculty learn to teach using this medium, faculty must be 'good teachers' to attract and retain students, who are offered an array of choices on the Internet, both nationally and internationally. The competition for survival and success among colleges is as strong as ever. It is possible and even probable that what constitutes 'good teaching' in an online environment, may be different from what is being done in face-to-face teaching.

Currently, the majority of online students come from a different segment of the population than from traditional campus-based students. For example, online students are

often adult learners, many are working full time and have family commitments, compared to traditional campus-based students, who have just left high school, are aged 18–25, and are reasonably unencumbered. As Sherry (1996, Distance Learning section, ¶1) wrote, "The education goals, needs and motivation of these two populations tend to be different. In future, traditional campus-based students are increasingly likely to choose to enroll in online classes." Thus it is important for instructors to understand the specific needs an online learner may have and which teaching style will best convey the learning experience desired by these learners.

Online education represents major changes in the way education is designed and delivered, therefore it poses extensive challenges for administrators, managers, and most of all faculty who are the ones faced with implementing it in their courses.

Overview of Research Methodology

The research design selected for this study was a qualitative case study. Morgan (1984) gave an admirable overview of qualitative methods used for research in distance education and Minnis (1985) described how qualitative methodologies such as ethnography, case study and grounded theory can be applied to expand the research base in this field. Burge (1992) argued for qualitative research and a combination of qualitative and quantitative research methods.

Holmberg (1986) identified methodology as a major limitation of distance education research. Early research imitated the scientifically experimental approach, which was originally designed for the laboratory where the environment could be carefully controlled. Later, because of the realization that it was almost impossible to

obtain laboratory conditions in studying distance education, this approach was modified. The modified experimental method became known as quasi-experimental methods and dominated much of the distance education research. Yet even quasi-experimental methods confine researchers in the distance education field. Saba (2000) observed that some academics are breaking away from these narrow confines of experimentation. Some researchers in the 1990s used student self-report surveys, (Fulford & Zhang, 1993), others, conversation and discourse analysis, (Chen & Willits, 1999), and still others, a fusion of these methods. Saba (2001) stated the following:

> These types of methods indicate a clear break from the traditional scientific method and experimental studies for understanding important factors. Furthermore these studies are focused on a smaller group of subjects, but take a deeper look at the subjects' verbal and written behaviors. This is in sharp contrast to the methods employed by quasi-experimental researchers who sought to eliminate individual differences between the control and experimental groups in order to measure and demonstrate the effect of the treatment. (Introduction section, ¶4).

He believes this is an important step in refining research methods in distance education, and in capturing a wider and richer range of data.

Case studies offer many advantages, including the ability to produce more detailed information than what is available through a statistical analysis. The case study approach was chosen for this study because of its descriptive powers and potential explanatory insights. A relatively flexible method of scientific research, it was well suited

for the exploratory emphasis (rather than prescriptive or predictive) of this research. The case study method enabled both concentration on gathering in-depth information, and the flexibility to pursue unanticipated findings as they arose. The purpose of this research, which was to understand the experiences of a small group of nine faculty members in-depth, was able to be met using a case study approach.

Theoretical Implications of this Study

This study used the Shannon-Weaver transmission model of communication as a lens through which to view the distance education process. A general model of communication was produced by Claude Shannon in 1947, and subsequently interpreted and explained by Warren Weaver (Weaver & Shannon, 1948, pp. 379–423). Now it is simply known as The Shannon-Weaver model. The model assumes that six factors are necessary for communication to occur: a sender, an encoder, a message, a channel, a decoder and a receiver. To briefly explain the process, a sender encodes their message into signals, sends it along a channel to the receiver who uses a decoder to unscramble the signals, then receives the message. A response from the receiver to the sender is called 'feedback'. Quite often, the message captured by the receiver is not identical to what the sender transmitted. Somehow the message 'changes' as it travels from sender to receiver. According to Shannon (1949), any disturbance that interferes with or distorts the clear transmission of a message is called noise (pp. 379-243). Noise is also considered part of the communication process, and although it is often thought of as occurring in the channel, in Shannon's (1949) paper, he added he would "extend the theory to include a number of new factors including . . . noise in the structure of the original message and the nature of the final destination of the information" (p. 379). According to Griffin (1997),

"Noise is the enemy of information. For Shannon and Weaver, noise is more than an irritating sound or static on the line. It is anything added to the signal that was not intended by the source" (Noise vs. Information section, ¶1).

To illustrate this process in a face-to-face environment, imagine an instructor in a lecture hall using a microphone to speak to the students. The instructor encodes the teaching content into spoken words. While all students are quiet, a 'silent' channel allows the sound of his or her voice to flow unhindered to the students ears. The ears act as the decoders for the spoken words and thus the students receive the information. But what happens if some students whisper to each other, giggle together or pass papers around? What happens if the instructor's microphone is screechy? What happens if the instructor is encoding the information in a way that is unintelligible to the student? Noise happens. These are all examples of noise that interfere with the clarity of what the instructor is saying and reduce the effectiveness of the communication.

Similarly in an online course, noise may interfere with the process and reduce effective communication. This time we can imagine our instructor who does not speak in a lecture hall, but instead uses the computer (including hardware and software) to encode the teaching content into written words, pictures, sounds or a combination of these. The message is sent over the channel (the Internet) using cable, wire or satellite until it reaches the student's computer. The student's computer decodes the signals and displays the code as words, pictures, sounds or a combination of all these types of code, and voila! The student has received their message. In a perfect world, all went well in that communication process. But in the real world most communication is subject to some degree of noise. What happens if the sender and receiver's software is incompatible?

What happens if the instructor has sent large graphic files, and the student is using a slow dial-up connection speed? What happens if there is a poor match between the way in which our faculty member chose to encode the message and the way in which the student receives the decoded information? Noise happens. These are all examples of noise that interfere with the clarity of the message and reduce effective communication.

In this study, it is suggested that teaching styles can be viewed as noise that occurs with the sender and the encoder, and that learning styles can be viewed as noise that occurs with the receiver and the decoder. If there is a high *mismatch* between teaching styles and learning styles, there is a high noise level and a low level of effective communication. By contrast, if there is a high *match* between teaching styles and learning styles, there is a low noise level and a higher level of effective communication. Little emphasis is placed on learning styles, because the focus of this study is on faculty teaching styles, and in particular what *faculty perceive* to be effective teaching styles.

Definition of Key Terms

Teaching Style: A teaching style represents a pattern of needs, beliefs, and behaviors that faculty display during the course of their teaching. Style is multidimensional and affects how faculty present information, interact with students, manage classroom tasks, supervise coursework, socialize students to their field, and mentor students. Adapted from Grasha's definition (Grasha, 1994b, p. 143).

Face-to-face education: A course or learning event where the instructor and the students are present at the same time in the same place, e.g., a classroom, or at community sites. To deliver the course content in person, the instructor may use any teaching methods and aids, including multiple media such as blackboard, PowerPoint presentations, videotapes and the Internet. Adapted from the Minnesota Virtual University Glossary.

Online education: Encompasses the terms online teaching, online learning, online courses. Online education involves the use of computer networks for learning and teaching. It is a course or learning event in which instruction is delivered and received via the Internet. Online education includes synchronous instruction (i.e., takes place at a scheduled time when both instructor and students are present online at the same time, even though they may be geographically separated) and asynchronous instruction (i.e., students choose when to engage in class activities. Interaction does not take place at a scheduled time, however the instructor may set deadlines). Adapted from the Minnesota Virtual University Glossary.

Distance Education: A planned learning event during which the instructor and learner are separated by place and time or both. The planning and preparation of the learning materials, student support services and the final recognition of course completion is influenced by the educational organization. An interaction which is temporarily

> controlled by provision of two-way media to facilitate dialogue and interaction between the students and the instructor. (Adapted from Bernard, Lou & Abrami, 2002, Data sources and inclusion/exclusion criteria section, ¶2). The term distance education is taken to encompass other terms used in the literature such as distance teaching, distance learning, correspondence education, correspondence study, independent study.

Overview of Important Points and Trends in Literature

The first section of the literature review explains how the Shannon-Weaver model is applied in this study. The second section summarizes the debates surrounding the definition of distance education, and then traces the history and evolution of the distance education field. The entire third section has been devoted to the use of the Internet in higher education because it has had such a phenomenal impact on the distance education field. The fourth section goes on to look at how widespread use of the Internet is bringing about changes to the role of faculty members in higher education, and reveals why, in light of potential changes to their role, understanding teaching styles is of great importance. The fifth and final section covers the literature about teaching styles, including Grasha's conceptual model of teaching styles.

Numerous definitions of distance education have been proposed over time, and the debate is far from being settled. However, most definitions include at a minimum, "the separation of teacher and learner, the influence of an educational organization, the

use of media to unite teacher and learner, the opportunity for two-way communication, and the practice of individualized instruction" (Simonson et al., 2003, p. 52).

Investigation into the history of distance education revealed ongoing diversity and change in its practice, with key advances promoted by technological developments. Significant events during the evolution of distance education over the past 120–150 years can be grouped into five development periods: Pre-Correspondence, Correspondence, One-way Communication, Two-way Communication, and Distance Education-to-Distributed Learning. The most prolific and rapid change has been during the fifth development period listed above, owing to widespread use of electronic communications, and most of all, the Internet.

Why does Internet-based distance education have such a strong impact on higher education? For one thing, over the next 20 years, the population of typical college-age students is expected to increase much faster than campuses can find space to accommodate them. Collectively, college students are also getting older. More than 40% of today's college students are 'nontraditional', over 25 years of age, and these students are the most likely to have Internet access either at home or at the workplace.

Levine (2000) suggested that, "the Internet is repainting the backdrop of university education in North America, resulting in three types of institutions: brick, click, and click and brick" (Section two, ¶1). The brick institutions are traditional universities that deliver only face-to-face instruction; the click universities are virtual universities that provide only electronic instruction, and click and brick institutions offer programs that combine traditional and e-learning modes. Levine (2000) thought the

majority of universities fall within the third category. The expected configuration is developing in Canada as almost all Canadian conventional universities have become involved in some form of alternative delivery of courses while retaining a large offering of face-to-face instruction.

Curriculum and instruction face changes. Instructors of online courses must also spend time and personal resources, which are not always available in order to create Internet-based courses. Aspects of online education are changing the role of instructors, who may even have to accept a new paradigm of teaching: that of a facilitator or manager of learning rather than that of dispenser of information.

Kriger (2001) and Young (2002) predicted the role of the instructor would be unbundled in the online environment. Unbundling means that different people do different parts of the work of a traditional instructor. Content specialists decide what material needs to go online. An instructional designer designs the presentation of material, and a technical specialist actually creates the online course. Instructors interface with students who take the online course. Reigeluth and Avers (1997) agreed and predicted that since the instructor would not spend time writing lectures and creating course materials, more time could be spent interacting with online students to challenge them individually. Faculty may need to focus even more stringently on what teaching techniques will meet the needs of their students.

Anthony Grasha is an academic who spent more than twenty years looking at ways in which faculty could best enhance student learning experiences. Grasha (1994b) conducted research, wrote articles and presented at conferences on student learning

styles. He accounted for students' behavior in class and how their particular learning style could be catered to by faculty to ensure optimal learning outcomes (Grasha 1983; Grasha 1990; Grasha & Riechmann 1975).

But at length, Grasha (1994b) reached an important conclusion. "Learning styles, unfortunately, were only one-half of the teacher-student interaction. The personal qualities of college teachers and their effects on the learning styles of students and upon what transpired in the classroom were missing" (p. 142). These qualities are known as Teaching Styles. Although a number of terms for describing them were suggested in the literature, Grasha formed a conceptual model of teaching style. He wanted to describe the stylistic characteristics of university faculty and to suggest when and how to use those styles. Ultimately, Grasha was instrumental in identifying five teaching styles that portrayed typical approaches and strategies used by college faculty. He claimed that these styles converge into four different clusters that make up the stylistic practices of professors. He called these clusters Expert/Formal Authority, Personal Model, Facilitator, and Delegator. Grasha (1994b) explained that although faculty members most likely have a dominant style, "they could fall into each of the clusters during various activities of their teaching" (p. 143). For example, when faculty lecture, "the expert and formal authority side of them is much more easily seen than the modeling, facilitative, or delegative parts of their styles" (p. 143).

However, almost all the work Grasha did was based around classroom teaching in a face-to-face environment during the 1990s. Grasha and colleagues (Grasha and Yarbinger, 2000) began to recognize the importance of the Internet in higher education

and to address teaching styles in the online environment in a preliminary study in 2000. Grasha was not able to pursue this area further as he passed away in 2003.

Findings tentatively suggest that facilitative teaching styles seem to be more suitable in online courses than other teaching styles (Diaz & Cartnal, 1999; Grasha, 2000, Matheos & Archer, 2004). Yet taking up the position of a moderator or facilitator in online classes can considerably change a faculty member's role and workload. It obligates the instructor to focus upon social dynamics of class interactions. It also demands the faculty member pay attention to the individual needs and progress of each student in order to enable their learning. Kearsley (2000) described facilitation as "providing information that will help students complete their assignments, suggesting ideas or strategies for them to pursue in their coursework, and getting students to reflect on their responses and work" (p. 86).

Three research questions drove this study: 1) What differences, if any, occur in teaching styles, practices and habits of face-to-face and online instructors? 2) How do experiences teaching an online course compare with experiences teaching a face-to-face course? 3) Which teaching styles, practices and habits do faculty perceive as effective in the online environment?

Based on research published in the literature, two hypotheses were formed and used for this study: 1) that higher education faculty use a facilitative teaching style in their online teaching; and 2) that faculty modify their teaching styles when they move from face-to-face teaching into online teaching. To test these hypotheses, the teaching

styles, habits, and practices of nine instructors who had more than two years experience in both face-to-face and online teaching were examined in depth.

Why is this Study Needed?

Kember and Gow (1994) believed that some teaching styles promote more effective student learning than do other teaching styles. The question that Kember and Gow (1994) were interested in answering was "which styles of teaching most effectively develop student higher order thinking skills in online learning environments?" (p. 58). They found that although it is unclear whether traditional teaching styles can translate into online domains, instructors using facilitative, guidance-based interactive teaching styles more effectively create critical thinking opportunities for the majority of students (Kember & Gow, 1994). Friday (1990) also reported that students achieve greater learning satisfaction with facilitative styles of teaching as compared to traditional authoritative instruction (p. 67).

The literature on the connections of technology to teaching (and learning) styles is not well developed. Very little is known about the influence of online technology. It may modify or reinforce particular teaching and learning styles, and there is some reason to believe that it does. The work of a few pioneers (Diaz & Cartnal, 1999; Grasha, 2000, Kember & Gow, 1994) suggested that facilitative teaching styles suit online learners better than other teaching styles. One of only three University of Cincinnati professors to hold the Distinguished Teaching title, Grasha dedicated much of his career to finding and implementing ways to improve the teaching process. In his article of 2000, he called for further exploration of the way online technology affects how and what people learn and

its relationship to teaching styles. The research about use of online technology and the implications for adopting effective teaching styles is limited. More investigation has been called for to better understand effective online teaching practices which will ultimately lead to improved student learning opportunities.

Chapter Two: Literature Review

This literature review is presented in five sections. The first section describes the Shannon-Weaver communication model and explains how it is used in this study to interpret the process of online education. The second section summarizes the discussions surrounding the definition of distance education, and traces the history of the distance education field, including the introduction of online teaching and learning. The third section concentrates on what impact the Internet is having on higher education in the U.S. and around the world. The fourth section reviews the literature about the changing role of faculty in higher education, and finally, the fifth section emphasizes the importance of faculty teaching styles for the online environment now and in the future.

Communication Models

This section: 1) explains the advantages and disadvantages of models; 2) focuses on understanding the Shannon-Weaver model; 3) examines the strengths of the Shannon-Weaver model; 4) examines the limitations of the Shannon-Weaver model; 5) applies the Shannon-Weaver model to understanding the process of distance education.

Advantages and disadvantages of models.

Models are advantageous for providing general perspectives from which to interpret raw data (Mortensen, 1972). As well as providing new ways to grasp theoretical ideas, they simplify a complex process to an understandable concept. Models of communication are clear diagrams that help us to comprehend a process, and often they confirm a relationship between the participants (Kaplan, 1964). However, the pitfall of models is that they can oversimplify and can miss important comparisons. Kaplan

(1964) expressed, "That a model is simpler than the subject matter being inquired into is as much a virtue as a fault, and is, in any case inevitable" (p. 280).

Despite differing views of what comprises communication, there are four things that almost all communication models agree on: Berge and Collins (1995) stated that, "for communication to take place, at a bare minimum, there must be a sender, a receiver, a conduit, and a message" (Educational Systems section, ¶1).

Shannon-Weaver model.

A general model of communication was produced by Claude Shannon in 1947, and subsequently interpreted and explained by Warren Weaver (Weaver & Shannon, 1948). Now it is simply known as The Shannon-Weaver model. The Shannon-Weaver model is illustrative of what are usually termed transmission models of communication. The mathematician Shannon, who was researching for Bell Labs in 1947, was influenced by the field of information theory. His approach was technology-oriented, and the model was originally conceived to explain a technical process. Many other academics came to see it as more than an exclusively technical one and they adopted the Shannon-Weaver model to apply more broadly to human communication (Darnell, 1972; Griffin, 1997; Lievrouw & Livingstone, 2002; Schramm & Porter, 1982). Based on prior formulas begun by Harold Lasswell (Shannon, 1947), this groundbreaking model greatly influenced many others that followed particularly American researchers such as Wilbur Schramm (1954). In these models, communication is reduced to simply transmitting information, without regard for what the content of the communication means. The crux

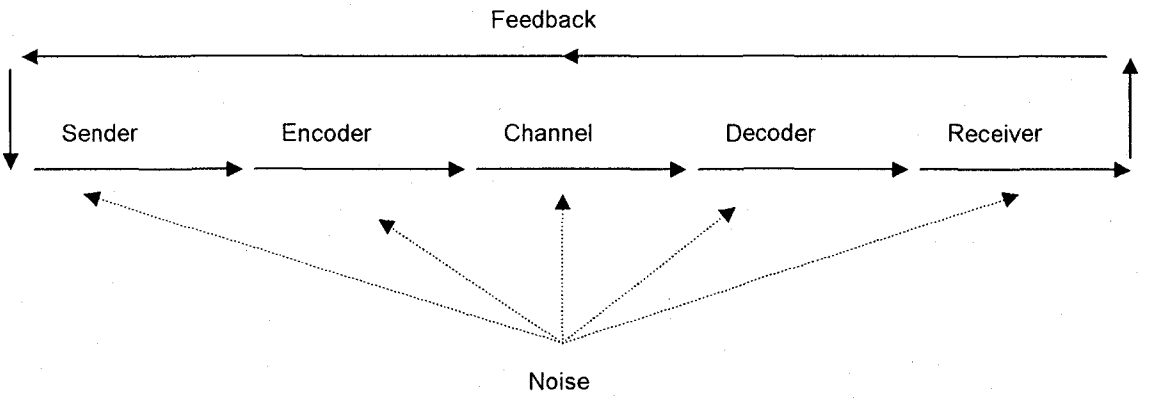
of the communication process is the concept of Source-Message/Channel-Receiver, and is sometimes known as the S-M-C-R model.

Strengths of the Shannon-Weaver model.

Over and above the minimum four elements that all communication models agree upon, the Shannon-Weaver Model (1948) presents two additional factors: an encoder and a decoder. This model assumes that all six factors are necessary for communication to occur: a source, an encoder, a message, a channel, a decoder and a receiver. The incorporation of the encoding and decoding processes is beneficial because it alludes to the chance of a mismatch between the operation of the encoding and decoding devices, which can cause semantic noise to occur. To briefly explain the model as shown in Figure 1, a sender encodes their message into signals, sends the signals along a channel to the decoder. The decoder unscrambles the signals and the receiver gets the message. The response from the receiver to the sender is called 'feedback'. Quite often, the message captured by the receiver is not identical to what the sender transmitted. Somehow the message 'changes' as it travels from sender to receiver.

According to Shannon (1949), any disturbance that interferes with or distorts the clear transmission of a message is called noise (pp. 379-423). Noise is also considered part of the communication process. Although it is often thought of as occurring in the channel, in Shannon's (1949) paper, he added he would "extend the theory to include a number of new factors . . . noise in the structure of the original message and the nature of the final destination of the information" (p. 379). Figure 1 shows how noise can occur at any point during the transmission of the message.

Figure 1. Shannon-Weaver model[1]



[1]From Shannon, 1947, and the CCMS Infobase, 2005.

Limitations of the Shannon-Weaver model.

In the field of information theory, Shannon's and Weaver's work was productive and of great interest to the mathematician Norbert Wiener, who later became a founding father of cybernetics. Yet in spite of transmission models being enormously substantial in the study of human communication, critics like Reddy (1979) contend that transmission models may actually be deceptive. Reddy maintains that the model is reductionistic and misleading. Transmission models imply that the sender bundles an idea into a container of language and then *transmits* it to the receiver, much as one would throw a basketball back and forth.

Three major criticisms of the Shannon-Weaver model are first, that the model doesn't deal with meaning, second, that it ignores context, and third, that the communication process is linear (no feedback in original model). Each criticism shall be discussed more fully here.

1. Meaning

The Shannon-Weaver model displays what has been labeled the 'conduit metaphor' of communication (Reddy, 1979). The sender changes ideas into words and sends the words to the receiver, who thus receives the ideas. The complete supposition of 'sending' and 'receiving' could be misleading. In the majority of circumstances, the sender still has their message even though they have sent it. The undertone of the conduit metaphor is placing something into a container, having it travel through some kind of conduit to the receiver who gets it and removes the object. How the object gets into the container is neglected, that is, how does somebody accomplish getting meanings 'into' words and how is someone else able to take the meanings 'out of' words?

McQuail (1994) acknowledged that transmission models weren't intended to deal with meaning, but stated, "they raise the question of their misapplication to human-to-human communication" (p. 57). The Shannon-Weaver Model and others like it disengage the message from other components of the communication process. The model tends to depict the message as a reasonably uncomplicated matter. Actually, Shannon is not at fault here, since meanings were simply not his concern: "Frequently the messages have *meaning*, that is, they refer to or are correlated according to some system with certain physical or conceptual entities. These considerations are irrelevant to the engineering problem" (Shannon, 1949, p. 379).

2. Context

Transmission models don't consider context or environment in which the communication process occurs. The same communication might assume an entirely

different meaning, depending where it takes place. For example, a woman could squeeze her husband's hand at lunch together, but what if she squeezed her boss's hand at lunch? The same message is interpreted entirely differently. McLuhan (1964) aptly stated, "Environments are not just *containers*, but are processes that change the content totally" (p. 25).

Schramm (1954) went on to introduce the notion of a 'field of experience', which shows a much greater awareness of the intricacies involved in human-to-human communication, reminding us of the numerous common socio-cultural factors which are necessary for successful communication to take place. One example of a sociological factor contributing to the effectiveness of communication is the relationship between sender and receiver. The way a professor communicates to a student may be different from the way they communicate to a colleague. Danesi (1994) notes, "the balance of power between the sender and receiver has a notable sway on the way we communicate" (p. 83).

3. Linear

Griffin (1997) identified the lack of feedback in this model by stating, "another deficiency of the Shannon-Weaver model is that it represents communication as a one-way flow of information" (Learning through Feedback section, ¶1). The original Shannon-Weaver model did not include any feedback. According to Griffin (1997), feedback is indispensable if communication is to be effective. When answer phones were a new phenomenon, many people found it unsettling to leave messages, because they were used to receiving the intermittent 'uh-huh' and 'mmm hmm' from the person they

were talking to on the phone. Visual feedback is also a powerful component of face-to-face communication—head nods, smiles, frowns, changes in posture, gaze and so on. The feedback loop was subsequently added in, and is considered part of the Shannon-Weaver model.

On a side note however, some researchers like Baudrillard (1972) argue that those models which include a feedback loop are seriously misleading as not all communication is in fact reciprocal. He argues that if one considers communication to involve an exchange, then institutions like the mass media produce non-communication. As Baudrillard (1972) sees it, the mass media are what perpetually inhibit a reply, thereby making any form of exchange impossible. Baudrillard (1972) states, "The mass media are anti-mediatory and intransitive. They fabricate non-communication—that is what characterizes them, if one agrees to define communication as an exchange. . ." (p. 280).

Another current researcher, Ien Ang (1996) writes about contemporary Asia and the changing new world (dis)order, Australia-Asia relations, and issues of theory and methodology. She has this to say on transmission models:

> I would suggest . . . that it is the *failure* of communication that we should emphasize if we are to understand contemporary (postmodern) culture. That is to say, not success, but failure to communicate should be considered 'normal' in a cultural universe where commonality of meaning cannot be taken for granted. (p. 33).

Shannon-Weaver model applied to distance education.

Despite the limitations and disagreements about communication models, the Shannon-Weaver model still provides a useful lens through which to view the distance education process. Distance education is a field of study that has come under a lot of

scrutiny in the past twenty years and researchers are still clarifying what it is. Communication models offer a helpful beginning to explain the process of distance education, and specifically online learning. Distance education can't succeed without effective communication between the teacher and the student.

In an online environment communication occurs when learners interact with one another and with their instructor. Figure 2 illustrates how the Shannon-Weaver model of communication could be applied to understand the process of distance education.

Figure 2. Shannon-Weaver Model Applied to Distance Education

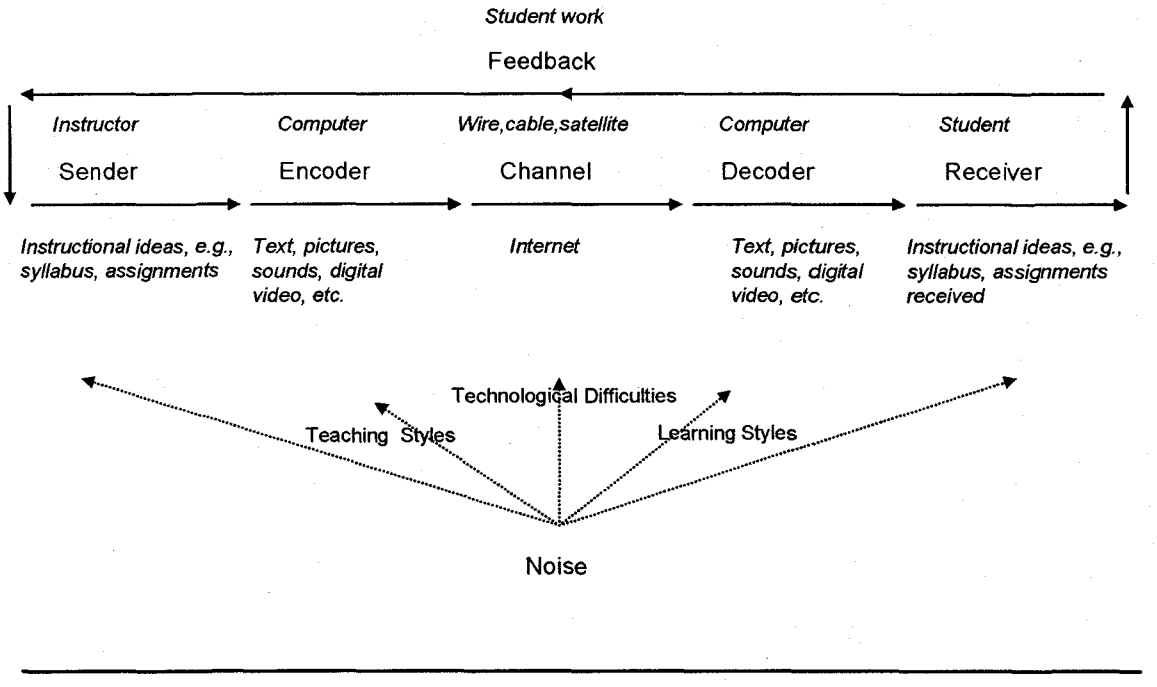


Figure 2 shows the sender as an instructor and the receiver as a student. Both the encoder and decoder are shown as a computer, and the channel as a wire, cable or satellite. These are all necessary elements for online education to occur. The instructor has instructional messages (e.g., course syllabus, content, assignments, etc.) that they

want the student to understand. The instructor encodes the ideas into text, pictures, or sounds using their computer, in order to send them over a cable or satellite. The student's computer decodes these signals, so that the student may read the text, see the pictures or hear the sounds. The student receives the instructional message. When students respond to the message it is called feedback. Feedback allows the sender and receiver (in this case the teacher and student) to evaluate and determine if the message was understood correctly. Saba (2005) notes that, "feedback in distance education is often referred to as interaction" (Introduction section, ¶2). Examples of this may be submitting assignments, sending a question in an e-mail, taking an exam or posting material to the bulletin board. Instructional messages can be sent over long distances and stored for learning at different times.

This model shows that noise is also part of the communication process. Any disturbance that interferes with or distorts the transmission of a message is called noise (Shannon, 1949). In other words, noise may occur at any point during the process of message transmission and may jeopardize the clarity of the communication. When instruction is designed and when feedback and interaction are planned, efforts should be made to minimize anything (e.g., noise) that might interfere with the communication process. There are many types of 'noises' that could be considered interference in the distance education process, some of which are tangible and others less tangible. Some examples of tangible noises might be technological difficulties on the channel, incompatible computer software between the sender's computer (encoder) the receiver's computer (decoder), audible static on telephone lines, and delays during video-conferencing. Some examples of less tangible noises may be the emotional mood an

instructor or student is in when the teaching and learning process occurs, the time pressures an instructor feels under to deliver content to students, or students feel under to deliver assignments to their instructor, and the amount of experience in teaching an instructor has, or how much prior knowledge the student has in the subject area. In Figure 2 teaching styles and learning styles are presented as noise (a less tangible type) that distorts the message transmission.

For example, if a student's learning style is most suited to a style of teaching that the teacher is not familiar with and rarely uses, a high level of noise could occur during the transmission process. The closer the match of the instructor's teaching style to the student's learning style, the lower the level of noise that interferes with the learning process and so communication has a higher chance of being effective.

In this study, it is suggested that teaching styles may be viewed as noise that occurs with the sender and the encoder, and that learning styles may be viewed as noise that occurs with the receiver and the decoder. If there is a high *mismatch* between teaching and learning styles, there is a high noise level and a low level of effective communication. By contrast, if there is a high *match* between teaching styles and learning styles, there is a low noise level and a higher level of effective communication.

Because the focus of this study is on faculty perceptions of effective teaching styles, not learning styles, little emphasis is placed on the student learning styles. Effective teaching styles could be researched by examining numerous factors, e.g., learning outcomes, student satisfaction, student motivation but, as implied by the third

research question, this study examines effective teaching styles based upon faculty perceptions.

Understanding and using effective teaching styles in the online medium can help faculty to reduce the amount of 'noise' that could interfere with a student learning successfully. Teaching styles are pervasive in both the sender and the encoder in this model. To illustrate this point, let us imagine that an instructor wants to teach a student about what a computer is, and have the student be able to answer the question, 'What is a computer?' Depending on the teaching style of our instructor, there are various approaches she or he might choose to teach it. Listed below are some examples of how the instructor might use their computer to encode their instructional message (i.e., have students answer the question 'what is a computer?'):

1) Draw a picture of a computer
2) Write a paragraph describing a computer
3) Have their students watch a video of a computer in use
4) Ask the students to research and report their findings back to the instructor and other students
5) Tell the students to visit a computer store and write an essay....and so on.

The instructor knows what a computer is, but how did the meaning of 'computer' first get into that word? The Shannon-Weaver model does not address this aspect of communication, and neither does the present study. For the purposes of this study, which teaching style an instructor employs and how they encode the concept is unrelated to the meaning and concept of the message. As Shannon (1949) wrote "the significant aspect is that the actual message is one *selected from a set* of possible messages" (p. 379).

It has also been acknowledged that a limitation of the Shannon-Weaver model is that it ignores the context in which the communication occurs. Whilst this may be a limitation if one were focusing purely on face-to-face education, it is not necessarily a limitation when examining online education. The nature of online teaching and learning is that it can occur any where at any time. In other words, it occurs in any environment where the instructor and any environment where the student have access to a computer and an Internet connection. In traditional campus-based higher education, the instructor and the student must be present in the same place at the same time, and the educational environment is usually limited to a lecture hall, seminar room, laboratory or the like. In traditional face-to-face instruction the context in which the teaching process occurs is more easily defined, and thus more easily studied. However, to communicate with each other in online education, both the sender and the receiver could be encoding and decoding their messages in an endless amount of contexts —so many contexts that the relevance of environment takes on less meaning. Essentially the same process is occurring whether the instructor and their computer are in a coffee shop, an airport, their home office and whether the student and their computer are at the beach, at school, at the mall or in their bedroom. (If one believes environment takes on even more meaning because of these numerous contexts, then that is a whole different study). Teaching styles and learning styles are integrated with how instructors and students send and receive, and are integrated with how they encode and decode their messages.

In summary, this study acknowledges the limitations of the Shannon-Weaver model. Despite these limitations, the model is useful as a way to view the process of

online education and see how effective use of teaching styles can maximize the communication process.

Definition and History of Distance Education

This section reviews the literature in order to provide background information about the field of distance education. There are two purposes of this section. The first is to contemplate both the multiple terminology and the various concepts that define distance education. Experts continue to debate aspects that comprise distance education therefore both traditional and emerging concepts of definitions are examined. The second is to summarize the evolution of distance education from its early origins to where it has currently developed. Understanding this broad picture will put into perspective how significant the use of the Internet has been in the field of distance education. Noteworthy events during the evolution of distance education are combined into five development periods. Those periods will be Pre-Correspondence, Correspondence, One-way Communication, Two-way Communication and Distance Education.

Terminology for distance education.

Distance education is referred to in the literature by a variety of names such as distance teaching, distance learning, correspondence education, correspondence study, independent study, lifelong education, lifelong learning, experiential learning, directed private study, drop-in learning, independent learning, individualized learning, resource-based learning, self-access learning, self-study, or continuing education, to name a few. The first five are reviewed in more detail here.

Distance Teaching and Distance Learning.

Keegan (1986) pointed out that, "the terms 'distance teaching' or 'distance learning' do not emphasize enough, the two-way approach of the process of distance

education" (p. 109). As Keegan (1990) aptly phrased it, "just as 'distance learning' is too student-based as an overall term and ignores the role of the institution, so 'distance teaching' is too teacher-oriented because it over emphasizes the institution" (p. 30). Thus, neither distance teaching nor distance learning adequately embodied the two-sided approach of distance education.

Correspondence Education and Correspondence Study.

Keegan (1990) considered the term 'correspondence education' and suggested keeping it for the purpose of describing a particular form of postal, print-based distance education, but not referring to education based around computer-technology. He stated: "A term is, however, needed to designate the postal subgroup of the print-based forms of distance education in which student contact is not encouraged. It seems suitable to reserve the term 'correspondence education' for this purpose" (p. 30). But the problem here is that even when distance education is print-based the term 'correspondence education' is inadequate to describe courses by newspaper or systems with no postal component.

Communication theory experts tell us that words grow tired (Hawkins, 1994), and if they do, then 'correspondence study' is a worn out term. The directors of the correspondence schools of the United States came together to form an association as early as 1926 and, notably, the title chosen was the National Home Study Council and not the National Correspondence Study Council. Keegan (1990) stated, "Whether it is 'Home Study' or 'Correspondence Study', the distance student being described in today's world

is not necessarily limited to study at home—they may study in part at home and in part at other centers as well" (p. 36).

Print, audio, video and computer based opportunities must be incorporated in the chosen terminology. The foremost issue surrounding the term of correspondence education or correspondence study is that the didactic ability of this form of education is not taken into account. Furthermore, according to critics like Keegan (1990), both 'correspondence education' and 'correspondence study' carry connotations of some of the failings of distance education in the past. On the other hand, according to Daniel (1996) these terms embrace the dubious situation of study at a distance in many developing countries.

Independent Study.

A related concept is independent study. The fact that the student is separated from the teacher brings about great emphasis on the student's ability to study independently. Charles Wedemeyer (1971) broke away from the traditional way of looking at correspondence education and formed the concept of independent study. He maintained that it consists of various forms of teaching or learning arrangements in which teachers and learners carry out their essential task and responsibilities apart from one another. Wedemeyer (1971) described it as, ". . . communicating in a variety of ways for the purpose of freeing internal learners from improper class pacing; providing external learners opportunities to learn in their own environments; and developing the capacity to carry on self-directed learning" (p. 548). Wedemeyer's (1971) definition still involves an element of communication between teacher and learner in the process. It also relates to

the concept of distance education because it emphasizes the independent self-pacing learning for the student. Rumble and Harry (1982) noted that Wedemeyer's definition was "problematic because it neglects to establish the context within which a student exercises his or her independence" (p. 13). Rumble and Harry (1982) went on to give examples of teach-yourself books and educational broadcasting which are included in the meaning of independence and say that those examples "ignore the element of two-way communications, which is essential in distance education" (p. 13).

The term distance education has become the prevailing term in the literature, and seen as subsuming all other terminology mentioned above. Finding a suitable term to describe the field of study is only one part of the challenge. Next we will go on to examine the definition of distance education.

Traditional definitions of distance education.

What is distance education? A widely accepted explanation was given by Desmond Keegan in 1986 when he pulled together the elements of distance education into a single, unifying definition. Keegan's (1986) definition and other definitions such as those of Borje Holmberg (1982), Otto Peters (1988), and Michael Moore (1977) determined the traditional view of distance education: "noncontiguous communication between student and teacher, mediated by print or some other form of technology" (Keegan, 1986, p. 115). Perraton (1988) added to the definition: separation of teacher and learner in space and time or both (p. 36), and Jonassen (1992) added to the definition: the volitional control of learning by the student rather than by the distant instructor.

Mugridge (1999) suggested that during the mid to late 1990s, debates surrounding the definition had outlived their usefulness (Introduction section ¶7). However, rapid changes in society and technology led to continuing disputes over traditional definitions.

Keegan (1986) formed his groundbreaking definition by identifying and synthesizing various prior definitions of distance education. His definition comprised the following five main elements:

- Teacher-Student Separation
- Educational Institution
- Technical Media
- Two-way communication
- Absent learning group

Before Keegan contributed his work, others conducted the pioneering research and many of these early investigators were based in Europe.

In Germany, Otto Peters (1988) conceptualized distance education as an industrialized kind of teaching and learning; this stance came about by investigating and analyzing the distance teaching organizations of the 1960s. His theory is offered for analyzing large-scale distance education systems—in other words industrialization of teaching—but does not make any value statements as to whether industrialization of teaching is good or bad.

Another German distance education scholar was Borje Holmberg. He originally conceived his distance education theory of interaction and communication based on

seven assumptions, the main one being that the core of teaching is interaction between the teaching and learning parties. By his own acknowledgment, it was a weak theory, and subsequently in 1995, he widened and added more components.

Holmberg's (1995) modified definition contains two major elements, the separation of teacher and learner, and the planning of an educational organization. Its main characteristic is that of non-contiguous, that is, mediated communication. Holmberg (1986, 1990, 1995) argues that distance education research has established itself as a distinct scientific discipline, because it has a recognized basis of theory, has a curriculum for university study, and has its own research programs.

Distance education scholars were also hard at work in Canada. In the 1970s Michael Moore formulated his views which focused on two variables in education programs: first, the amount of learner autonomy, and second, the distance between teacher and learner. Moore (1977) developed a theory structure for distance education, 'a theory of independent study'. He analyzed distance education against two dimensions, 'distance' and 'student autonomy'. While in most instances distance means physical separation of student and teacher, in Moore's terminology distance is to be interpreted as a psychological effect of the interaction between dialogue and structure. Moore, (1973, in Keegan, 1990) who is now considered one of the leading founders in the distance education field, wrote:

> Distance teaching may be defined as the family of instructional methods in which the teaching behaviours are executed apart from the learning behaviours, including those that in a contiguous situation would be performed in the learner's

presence, so that communication between the teacher and learner must be facilitated by print, electronic, mechanical or other devices. (p. 37).

Keegan was successful in synthesizing the prominent aspects uncovered by Peters, Holmberg, Moore and others. As such, his definition was much relied upon throughout the late 1980s and into the 21st century.

Yet researchers still grapple with which aspects to include in the definition of distance education. Bernard, Lou and Abrami (2002) conducted a comprehensive investigation of the literature and came up with their own summative definition of distance education, which reads:

> The semi-permanent separation (place or time or both) of learner and instructor during planned learning events. The influence of the educational organization on the planning and preparation of the learning materials, student support services and the final recognition of course completion. The provision of two-way media to facilitate dialogue and interaction between the students and the instructor and allow for temporal control of this interaction. (Data Sources and Inclusion/Exclusion Criteria section, ¶2).

A year later, Simonson et al. (2003) neatly summarized distance education and maintained that there are "four commonly accepted components of distant education in the literature" (p. 28). Here is a summary of those four components.

- Learners and teachers are separate (geography and time)
- Institutionally based (distinguishes from self-study)
- Interactive telecommunications (shows interaction is critical)
- Connecting learners, resources and instructors

Simonson et al. (2003) stated, "for an event to be considered distance education, all four components must be present. If one is missing, then it is something other than distance education" (p. 29).

However the traditional definition of distance education is gradually being undermined as new technological developments challenge educators to re-conceptualize the whole notion of schooling and lifelong learning.

Emerging Definitions

Just as distance education has evolved over time, so have the roles of students, teachers, and institutions in the teaching system. Sir John Daniel (1996), the ex-Assistant Director-General for Education of UNESCO (retired June 2004) noted that "as recently as the 1980s, distance education was defined in terms of the correspondence tradition" (p. 56). According to İşman, (1997) distance education systems have been successfully implemented at the national level in several countries, "thus, it is possible that distance education can be delivered internationally using globally interconnected telecommunication technologies, such as satellite, fiber optics, and telephone services" (p. 124).

Daniel (1996) and Edwards (1995) sought to acknowledge the global capability of distance education, which was not explicit in the traditional definitions. Distance education is a potentially powerful development for this century because of the educational capacity it offers to people who live in diverse countries. Around the globe, educators are welcoming the advent of computer-based technology as the great equalizer that will provide immediate education in developing countries (McIsaac, 1993).

Daniel (1996, 1998) opined that distance education should be called open learning because of its capability to open up opportunities of study to previously excluded populations. Daniel (1988) concisely summarized his theory of distance education purely as "forms of instruction that rely heavily on ways of communicating other than meeting face-to-face" (p. 127). These forms of instruction can be called open learning if they make education accessible to more people (Daniel, 1988, p. 127). Daniel was instrumental in raising awareness of the difficulties faced by students in developing nations who wish to receive educational opportunities. He advocated that methods of distance education, or open learning, offer some useful solutions toward providing access to these disadvantaged populations.

For as many academics who advocated the realization of the opportunities brought on by distance education, there were those who took the opposite stance. Researchers such as Geoff Arger (1987) disagreed that open learning in developing nations will be successfully realized, largely because of inadequate underlying telecommunications infrastructures in these poorer nations. Arger (1987) performed a critical analysis of (largely Australian) literature on distance education in third world countries, and concluded that the evidence points to distance education in poorer nations never yet being achieved, nor likely to be achieved in future (Conclusion section ¶1–3).

Edwards (1995) also liked the term *open learning*, yet he argued that it meant a distinctly different approach to education. He used open learning to describe a new way of looking at education, and maintained that open learning shifts from mass production and mass consumption (distance education opportunities use mass-produced courseware to a mass market) to a focus on local and individual needs and requirements. Simonson et

al. (2003) commented about Edwards' use of the term open learning and noted that there is a big difference between his and previous definitions. "He also states that this can occur outside of the traditional organization of education, which is a major difference between his description of open learning and the previous definitions of distance education" (p. 31).

In conclusion, it has been important for distance education to define itself and to build up a theory base for its research. Without a theory base and consensus on a definition, improvement in the field has been hampered. Traditional theories are being challenged by rapid changes to the field brought about by technological advances, and emerging theories are offering a new viewpoint on how to define the field and study of distance education.

History

Although the term 'distance education' has not always been used, the concept of education at a distance is well over a century old. Yet during the past 20 years, in tandem with developing technological innovations, the field has been re-born. Progress in technology has swiftly altered the nature of distance education to the point where it may change education itself in this century. The purpose of this section is to summarize the evolution of distance education from its origins to where it is currently.

This paper combines significant events during the evolution of distance education into five development periods: Pre-Correspondence, Correspondence, One-way Communication, Two-way Communication and Distance Education.

Pre-Correspondence.

Sir John Daniel (1995) noted that synchronous communication is a modern term and is commonly used in the context of education to mean the teacher and the student(s) must be communicating at the same time. He likened Jesus Christ, who taught face-to-face in small and large groups, to a synchronous teacher. Daniel used the early Christian church teaching approach to illustrate some key concepts of modern distance education. The task of instructing a widely separated community was left to St. Paul, who found a way to teach his congregation by using asynchronous communication. St. Paul wrote letters to various church groups and requested that local church elders read them to their community when gathered for worship. Since each copy had to be handwritten and many individuals were illiterate, there was little opportunity for church members to study Paul's letters at home. Paul directed his approach to groups. Daniel (1995) wrote, "From

Paul's standpoint communication was asynchronous because he wasn't present when his letters were studied. However, for the church groups, communication was synchronous because they listened together to reading of the letters" (p. 6). He described this as "a forerunner of the remote-classroom approach to distance education" (p. 6).

Correspondence (1720s – 1930s).

In the correspondence education system, teachers sent their correspondence study materials to their students by mail—the postal service was the only method available to deliver schooling to students who lived in other places. The students returned their answers to the teacher and waited for their grades to be delivered by mail. Moore (1972) noted that until the 1950s, correspondence courses were the sole form of distance education. These courses relied on paper-based and surface mail communication. Moore also suggested that the main goal of correspondence education was to provide equal educational opportunities. Challenges of equal education faced by colleges, universities, and state departments of education could be answered in this manner. Correspondence education programs were developed in Australia, Canada, China, New Zealand, U.S.A., and other places where people were geographically dispersed.

Correspondence study was looked down on as inferior education because it was intended to offer education for those who could not pay for full time residence at an educational institution and were not among the elite. It was common for teachers and faculty to view correspondence courses as nothing but business operations. Correspondence education offended the elitists (Pittman, 1991). Indeed, many correspondence courses were regarded as simply poor excuses for the real thing.

Holmberg (1982) observed that the first correspondence education began through newspapers. The Boston Gazette of March 20, 1728, contained an advertisement quoting the offer of self-instructional materials in shorthand (and possible correspondence education).

Other variants of distance education began in Britain in 1836, when the University of London added an external examination application opportunity to its system. The main aim was to offer a credible exam service to people studying in small colleges (Moore, 1972).

By the late 1800s the idea of correspondence education had journeyed across the Atlantic from Europe and the first major correspondence program in the United States was established at the University of Chicago, according to Simonson et al. (2003, pp. 32–34).

In 1873 Anna Eliot Ticknor founded a Boston-based society to encourage study at home. She created the society to encourage educational study opportunities at home for women of all classes in society. Boston-based and mostly run by volunteers, the society provided correspondence instruction to 10,000 members over a 24-year period despite its resolutely low profile (Holmberg, 1982; Simonson et al., 2003). Again, printed materials sent through the mail were the main way of communication, teaching, and learning.

The effectiveness of traditional study versus correspondence study became of interest, and scholars varied in their opinions. Watkins and Wright (1991) explained that William Rainy Harper (professor of Hebrew at Yale University, New York), believed that "correspondence study would not, if it could, supplant oral instruction, or be regarded as

its substitutes" (p. 45). Watkins and Wright also cited Vincent (1885) in their book as below:

> The day is coming when the work done by correspondence will be greater in amount than that done in the classrooms of our academics and colleges; when the students who shall recite by correspondence will far outnumber those who make oral recitations. (p. 47).

Even if off the mark, Vincent's idea opened up a different way of looking at distance education for institutions.

In Europe, an outstanding distance teaching organization was about to be born. H.S. Hermod of Sweden began teaching English by correspondence in 1886 (Hanson, et al., 1997; Holmberg, 1986; Simonson et al., 2003). His organization, Hermod's, subsequently became one of the most important distance teaching organizations. The philosophy of distance education that distinguished Hermod's was the emphasis of free pacing by the student to progress through the program.

It was not only universities that were developing correspondence opportunities. Aware of the economic gains to be made, in 1891 Thomas J. Foster, a *Mining Herald* newspaper editor, developed a correspondence business that expanded into two million students by 1920 (Hanson et al., 1997).

Gradually, correspondence study grew more effective, thus increasing its popularity and position in education. At the turn of the century, in 1901, Moody Bible Institute formed a correspondence department that still exists today.

The 1920s saw further experimentation with still more universities opening up correspondence options (Benton Harbor, Michigan and the University of Nebraska). Gerrity (1976) explained that the University of Chicago faculty survey findings in 1933 suggested correspondence study merited a trial basis, which generated innovations and research data leading to improved teaching methodology. This study was a turning point for the future knowledge base in this field. Mail was a dominant means of delivery for over forty years, but new delivery technologies widened the possibilities for correspondence study. Pittman (1986) wrote, ". . . visual instruction, including lantern slides and motion pictures was added to the repertory of many extension units in the period of 1910–1920, but most promising new technology for correspondence instruction was instructional radio" (p. 22).

In other words, from at least the early 1800s to the early 1900s (for more than a century) postal communication dictated the nature of correspondence education. As the word 'correspond' suggests, it was a two-way communication method, albeit a slow one by comparison to today's technology. Two-way communication lay somewhat dormant throughout the mid–1900s as experiments with new technologies focused on one-way delivery.

One-way Communication (1930s – 1950s).

During the First World War as radio developed, then in the 1950s as television took hold, education made use of these delivery systems to reach beyond the traditional classroom walls. Radio and television were used as one-way systems whereby the teacher

presented information to students. Two-way interaction between the presenter and the audience could not occur.

Hanson et al. (1997) and others (Holmberg, 1986; Simonson et al, 2003) noted that in France, the Ministry of Education set up a government correspondence college in response to the impending Second World War. It has since evolved into a huge organization for adult education called the Centre National d'Ensignement par Correspondences.

In response to wartime needs, extension programs also provided a variety of technical and mechanical training opportunities, as well as short courses and refresher courses (Watkins & Wright, 1991).

Development of educational television from the 1950s on borrowed heavily from the idea of using radio to deliver instruction. Across America, increasing social support developed for distance education. With the growing popularity and need for correspondence study, new questions arose—the same questions we are addressing again today given the emerging communication technologies available. What were the learners' characteristics? What were the students' needs? How effective was the communication? And of most interest to the public, what was the value of outcomes in comparison with face-to-face study? The interest in finding answers for these questions provided impetus for many new research studies which contributed to the growth of knowledge about distance education. Gayle Childs set out to answer some of these questions in her 1949 dissertation, which studied the effectiveness and reliability of correspondence study as an educational method (Watkins & Wright, 1991).

Since the 1950s American higher education has been strongly supported by the Ford Foundation. In the mid-1950s, funded by a Ford Foundation grant, Childs studied the combined application of television instruction and correspondence study. The outcome of this study led Childs (1956) to conclude, "television instruction is not a method. Television is an instrument by means of which instruction can be transmitted from one place to another" (p. 86). Childs also found no appreciable differences in regular classrooms by means of television or by a combination of correspondence study and television.

To summarize, radio and television were used at first in conjunction with postal methods to deliver instruction, and were increasingly used as instructional delivery means on their own. Early research indicated that there were no significant differences in student learning outcomes between face-to-face and distance methods. However, the over-riding feature of radio and television instructional methods was their one-way nature. As more sophisticated technologies became available, teachers began to interact with their dispersed students.

Two-way Communication (1960s – 1970s).

During the 1960s and 1970s a number of alternatives to traditional higher education developed in the United States. Leaders in the field became seriously worried about how to guide future research movements in distance education. Two individuals who remain major characters in scholarly research are Charles Wedemeyer of the University of Wisconsin and Gayle Childs (above-mentioned) of the University of Nebraska (Watkins & Wright, 1991). Watkins and Wright (1991) stated that throughout

the 1950s, 1960s and 1970s they were looked to for leadership of the movement (p. 32). Wedemeyer and Childs not only led their own universities correspondence programs, but also shaped the direction for national and international growth.

A significant event occurred in the United States when President Kennedy signed the Satellite Communications Act in 1962 which created the Communications Satellite Corporation (Comsat). The first communication satellites were launched and major providers of distance education have since benefited from these globe circling satellites (Palmer, Collins & Roy, 1996).

Britain's Open University was founded in 1971. This landmark event in the history of distance education brought a new vision of independence as distinct from traditional education. The University opened up to everyone, and particularly to employed, part-time students of above-normal study age. It also broke from tradition with its policy of enrolling students without formal entrance qualifications. Britain's Open University played a major role in the development of much of the important research in distance learning (Daniel, 1995; Keegan, 1986; Rekkedal, 1994; Simonson et. al., 2003). Britain's Open University was, and continues to be, a leader in the large-scale application of technology to facilitate distance education. Keegan (1986) wrote, "As a large, successful and innovative deliverer of distance education, Britain's Open University brought the needed respect and confidence to correspondence programs around the world" (p. 111). The success of Britain's Open University was a major reason for the development of open universities in other countries, such as America and Japan. Britain's Open University not only overcame the narrow concept of place and time, but also erased

the borders of nations and nationalities (Daniel, 1995; Keegan, 1986, Simonson et al., 2003).

Keegan (1986) believed that the establishment of the British Open University marked the beginnings of electronic technology supplementing print based instruction in the United Kingdom. On a previously unheard of large scale, learning materials could be sent en masse to students. As a direct result of its success, the Open University model has been adopted by many countries in both the developed and the developing worlds (Keegan, 1986, p. 119).

The first U.S. open university was New York State's Empire State College (NYSES), which commenced operation in 1971 (Gerrity, 1976). One of the main purposes of the NYSES was to reach out to a population of learners unable to attend campus-based courses. Degree requirements and time limitations were given greater flexibility than was characteristic of tradition-based degree programs (Gerrity, 1976).

A related concept termed 'distance education' was introduced throughout the 1970s and 1980s. Traditional correspondence study faced challenges to reexamine and redefine its place amongst this new international movement (Watkins & Wright, 1991).

Distance Education (1980s – present).

In 1982, the International Council for Correspondence Education changed its name to the International Council for Distance Education to reflect the developments in the field (McIsaac, 1993). With the rapid growth of new technologies and the evolution of systems for delivering information, the goal of providing equal access to education seemed closer than ever.

The United States was slower to enter the distance education marketplace, but when it did, a form of distance education evolved unique to its needs. Unlike other countries that faced economic or massive illiteracy problems, the problem for the U.S. was economy of delivery. Severe shortages of science, math, and foreign language teachers occurred at the same time that states were mandated to serve rural schools. Together, these two conditions created an opening. The 1980s saw rapid growth of commercial courses. Examples of institutions that underwent huge expansion of courses offered via satellite include the Texas Interactive Instructional Network (TI-IN), based in San Antonio and founded in 1985, and Oklahoma State University (Palmer, Collins & Roy, 1996, Background of Distance Education section, ¶7–9). Fewer than ten states were promoting distance education in 1987. McIsaac and Gunawardena (1996) explained that a year later "that number had grown to two-thirds of the states and by 1989 virtually all states were involved in distance education programs" (The United States section, ¶1).

Growth throughout the 1980s and 1990s was enormous, for many reasons. First, growth was bolstered by greater participation of women in distance education, due to political and social changes in women's position within the family and society (Nasseh 1997). Other reasons for more women's participation included technological changes in the work place, and the economic necessity of participation.

Second, around the late 1980s and early 1990s, the development of fiber-optic communication systems allowed for the expansion of live, two-way, high quality audio and video systems in education. Many now consider it the least expensive option for high-quality transmission required for interactive distance education, despite the initial high costs.

Third and most important of all, widespread use of the Internet facilitated massive growth. Of all the delivery technologies described previously, none has had more explosive growth potential for distance education than the Internet. At the heart of this trend is improved access to the Internet. Simonson et al. (2003) comment that, "Now, more than 10,000 Internet service providers (ISPs) in over 120 countries make the Internet available to almost anyone in those nations with an adequate computer and a telephone line, for moderate fees" (p. 232).

Although some colleges and universities began offering online instruction early in the 1980s, the Internet provided them with new means of reaching out not only to their traditional service areas but well beyond, as the Internet knows no state, province or country borders. The expansion and subsequent public availability of the Internet during the early 1990s represented the solution to the problem of interaction faced by radio and television-based distance education.

Levine (2000) suggested that "the Internet is repainting the backdrop of university education in North America, resulting in three types of institutions: brick, click, and click and brick" (Section ¶). The brick institutions are traditional universities that deliver only face-to-face instruction; the click universities are virtual universities that only provide instruction electronically, and click and brick institutions offer programs that combine traditional and e-learning modes. Levine (2000) thought the majority of universities fell within the third category. The expected configuration is developing in Canada as almost all Canadian conventional universities have become involved in some form of alternative delivery of courses while retaining a large offering of face-to-face instruction.

There is no doubt that popular teaching and learning methods today include e-mail, websites, bulletin board systems and still the telephone. The Internet is being relied upon more and more as bandwidths widen and as technology performance heightens. "Millions of people use the Internet and are connected to tens of thousands of networks using computer-mediated communications" (Ackermann, 1995, p. 105).

According to Samans (2003) while online education is a natural progression of the distance education paradigm, the Internet itself is different in one important way from the other media which have previously been used for distance education. The Internet is solely a carrier of data itself and leaves it to the receiving host to interpret that data. However other media provide standards for specific forms of communication. Samans (2003) noted, "This significant difference means that the use of the Internet is not a new sub-field within the overall field of distance education but rather a force which impacts all previous forms and redefines their limits under a new paradigm" (Introduction section ¶3).

Current scholars (e.g., Simonson et al., 2003) suggested that the growth of distance education is putting pressure on policy makers to effectively guide its move into mainstream. Until very recently, the distance education programs offered by many universities was a peripheral activity managed by the university's extension or continuing education unit. Over the past five years, at more and more universities, on-campus students have been participating in online courses almost as much as the conventional off-campus distance education students (Matheos and Archer, 2004, The Evolution section, ¶3).

The change in this form of delivery brings distance education from outside of the mainstream university's operations right into the heart of the activities. Matheos and Archer (2004) believe that distance education is becoming a serious competitor to face-to-face instruction because it has become so attractive for students. For example, group instruction is often supplemented with one-to-one instruction by email or phone, students have far greater flexibility in their schedule, and they can participate in class anywhere there is an Internet connection. They noted that the demographics of the student body participating in various forms of distance education have changed radically over the last ten years. Their research exposed a large increase in students involved in a combination of distance and face-to-face education—individuals often called 'concurrent learners'. They offered numerous figures showing that the percentages of distance education students who were concurrently enrolled in on-campus study is going up across Australia and observed that the same trend is happening in America. Matheos & Archer (2004) stated, ". . . data in the United States corroborate these findings: at SUNY, over 80% of students participating in online learning were enrolled in face-to-face on-campus study as early as 1998" (The Evolution section, ¶9). The implications of this research are that, for whatever the reasons, campus-based learners are attracted to Internet-based online courses.

The Internet and Higher Education.

This section reviews the literature and examines what effect use of the Internet is having on higher education. The arrival and growth of the Internet has brought about many challenges and opportunities to universities and colleges, and has enabled development of increasing numbers of online courses and programs in higher education. Characteristics, advantages and disadvantages of online education are presented.

Clarke (2002) believes that the Internet has had an irreversible impact on all aspects of higher education, from teaching and learning to research to administration.

Early this millenium, *The Futures Project,* (October, 2000) funded by the Ford Foundation, published their revealing article entitled: *Policy for Higher Education in a Changing World.* Their research closely examined trends both inside and outside the U.S. and they came up with some remarkable findings, many of which have come about through prolific use of computer technology and the Internet. First, they concluded that, "the globalization of higher education is at a critical juncture – technology is making tertiary education accessible to a greater number of people than ever before" (p. 3). They identified four major forces driving this transition both in the US and internationally. "The first and most important factor is the movement from manufacturing and service-based economies to *knowledge-based economies*, which has touched every country" (p. 4). Second, they ascertained that greatly increased enrollments in most countries over the past four decades places huge pressure on higher education infrastructures leading to a need for change. This was found to be as true in developed countries as in developing countries. Third, they believed that in response to the increase of student numbers, a

growth of new providers, including 'for-profits' and private companies dramatically impact the older public institutions. Finally, they stated, "another force for change is the worldwide technological advances that now hold the potential to profoundly alter the nature of higher education, and already have in some cases" (p. 5). The *Futures Project* is responsible for tallying the number of institutions, both in the U.S. and internationally, that provide virtual courses. When their article was published five years ago, the count was beyond a thousand universities in the U.S. alone. They commented that, "web-based distance education has created new arms of existing universities and colleges as well as entirely new institutions" (p. 5), and also noted that, "virtual education is now a major force in the shift toward greater competition and toward the globalization of higher education" (p. 5).

In response to Eli Noam's (1995) *Electronics and the Dim Future of the University*, Majid Tehranian (1996) wrote about the impact of the Internet and other communication technologies in a thought-provoking essay. Tehranian stated:

> the new network technologies are further dispersing the sources of production and distribution of knowledge. It is still hard to tell what impact they will have on conventional universities. However, it is safe to assume that universities have to respond to this challenge by reinventing themselves. . . (p. 1).

In the United States, the number of distance education courses dramatically increased (72%) between 1995 and 1998, and notably, the Internet was the medium of choice for most institutions providing education, according to Carnevale (2000). He took his figures from the National Center for Education Statistics (NCES) and made a splash

with his article by reporting that distance education enrollments at the university level had reached high six figures nationally. The numbers included the heavy involvement of the US military (they view distance education as a cost-effective way to deliver technical training to soldiers).

With the rise of virtual courses, programs and even institutions, debate over face-to-face education versus distance education again piques the interest of researchers. However, as Saba (2000) perceptively noted, "although researchers continue to conduct comparative studies, their usefulness in revealing more information has diminished over the years; invariably they have returned a 'no significant difference' result between various forms of instruction" (p. 7). Interpretations like this helped to move the focus of researchers in the field away from comparing learner outcomes in both distance education and traditional education contexts, toward the quality of instructional design, pedagogical approaches, and teacher-student interaction used in distance education itself.

A strong voice on the topic is that of Dr. Richard Clark, a professor at Syracuse University. He likened the media to trucks, which deliver groceries to stores. In Clark's (1994) view, media forms are simply vehicles to deliver instruction: they do not have any more influence on student achievement than the truck delivering our groceries changes our nutrition (some may contend that the delivery truck *could* wield some changes to the food because of temperature changes etc). In any case, Clark (1994) believed that it is not media, but variables such as instructional method that foster distance education and student achievement.

Characteristics of online education.

One thing that online education can do, which face-to-face education simply can not do, is offer asynchronous education. Asynchronous education, or education in which students choose when to engage in class activities and interaction does not take place at a scheduled time, is a concept which has come back into vogue only in the last decade or so. Nonetheless it is still an evolution of the world of correspondence courses, not a new concept itself. Yet this version of asynchronous education has greatly improved upon its predecessor of surface mail-based asynchronous education. Samans (2003) defines an asynchronous learning environment (ALN) as,

> a 'virtual classroom', with pre-written lessons presented in defined units and bulletin boards ... providing threaded written interaction that offers a greater depth of discussion than the simple passing of letters. Instructors can also make use of additional technologies, such as packaged presentations and Web hyperlinks, to increase the depth of instruction in each lesson beyond what would be feasible by mail (Correspondence section, ¶6).

Asynchronous courses may also include downloadable video lectures. There is some evidence that asynchronous education may actually be superior to traditional classes in some ways. According to findings by Sannomiya and Kawaguchi (2000, August), students tend to learn superior planning skills as a result of working with asynchronous methods. Because of its compatibility with busy schedules, asynchronous education is also seen as a tremendous asset for the increasingly large number of adult

learners seeking to increase their employability through the pursuit of an advanced degree (Samans, 2003).

Jung (2000) maintained that, "what online education offers that is unique among communications technologies, is the facility of combining the attributes of each of the older media" (p. 2). In other words because the learning environment of text, pictures, videos, audio are all integrated into one system, faculty-student, and student-student interactions are made far easier and achievable. Additionally, online education enables access to huge databases relatively simply.

Kearsley (2000) made the point that when people are not familiar with online education; they presume it means some kind of detached, mechanistic context. They think that it makes education more formalized and less spontaneous because it is conducted in a heavily mediated environment. These assumptions are challenged in his book *Online Education: Learning and Teaching in Cyberspace.* Kearsley (2000) wrote, "The great irony is that online education can be much more humane and personal than most forms of classroom instruction. Online education involves levels of connectivity, community and knowledge sharing that is rarely seen in school settings" (p. 11).

Kearlsey (2000) identified nine themes that illustrate the major ways in which online education differs from traditional classroom instruction. He described them as: collaboration, connectivity, student-centeredness, unboundedness, community, exploration, shared knowledge, multisensory experience and authenticity. Unquestionably, online education has brought about a greater inclination toward collaboration among students and teachers. Many online projects involve information-

sharing activities between students or classes located in different places. Kearsley (2000) justifies this theme, saying, "Even when there is no specific need to collaborate, it happens anyway because it is so easy to interact online" (p. 5). He believes that, "this type of interaction stands in contrast to the traditional model of schools in which each classroom is a self-contained and isolated unit" (p. 5). Without doubt, connectivity is made easy. Students can easily connect with each other, their instructor, their parents, and even more useful, students can connect easily with experts in their field of study.

However, Jung (2000) stated in her review of Kearsley's book that although these themes are drawn from the professional literature in the field of online education, "these concepts still need to be elaborated and succinctly organized into a more coherent theoretical framework" (p. 1). She also went on to comment that the book doesn't provide many research findings about online education, "presumably because there is not yet enough research accumulated in the field of online education to draw any definite conclusions" (p. 2).

Indeed, part of the central changes that the Internet is bringing about in education blurs the lines between formal and informal learning. When students do their learning at home, from the office, in the evening or on the weekend, is it school or not? Does it matter? Aspects of online education are changing the role of students and teachers. Jung (2000) adds, "From the teachers' point of view, interactivity and participation, feedback, workload, moderating and facilitating . . . are all critical aspects of online education" (p. 2).

Advantages and disadvantages.

Why does Internet-based distance education have such strong potential for higher education? For one thing, over the next 20 years, the population of typical college-age students is expected to increase much faster than campuses can find space to accommodate them. Collectively, college students are also getting older. More than 40% of today's college students are 'nontraditional', over 25 years of age, and these are the most likely to have Internet access either at home or at the workplace. (Matheos & Archer, 2004).

There are two sides to the story of Internet delivery versus face-to-face teaching. On the one hand, there are many advantages for students; one of the most obvious advantages is the 'anywhere, anytime' phenomenon enabled by the Internet. Wherever they have Internet access, students can participate in study, be it from school, home, work, library, coffee shops, or airports. Asynchronous course components are available 24 hours a day, so students can complete their learning activities at their convenience, without regard for time zones. Other reasons people enroll in online courses are so they can live at home and save on travel and the costs of maintaining two residences: many can maintain their normal full-time job while completing their studies at their own pace and convenience.

Generally speaking, course materials on the Internet are platform independent, so a student can work from a Macintosh or from a PC. When personal identities remain concealed, students are on equal footing—gender, ethnicity, appearance or handicapping conditions are not apparent.

On the other hand, there are many disadvantages for students, as some still find Internet access a problem, especially in rural or lower socioeconomic areas. The technology 'have and have-not' situation was examined by Berge and Collins (1995), who found that even if the Internet is available, many potential students do not have access to computers (Educational Systems section, ¶2). Other students think they are beating rush hour if they have a big commute into campus, only to find that when they log on via slow modems or dial-up connections the traffic congestion on the Internet can be just as bad. The World Wide Web has unfortunately earned its nickname the 'World Wide Wait' by those frustrated with this situation. In addition, although it is assumed that today's students are technology literate, many are still technophobes who find the Internet confusing, or have limited ability to use the technology correctly (Berge & Collins, 1995; Hiltz, 1994).

Instructors of online courses must also spend time and personal resources, which are not always available, in order to create Internet-based courses. Instructors may even have to accept a new paradigm of teaching: that of facilitator and manager of learning rather than that of dispenser of information. Limitations of online instruction, such as complexity and changing nature of technology, isolation of faculty and students, and potential to reduce quality standards, have also been identified by scholars (Berge & Collins, 1995; Hiltz, 1994; Simonson et al., 2003).

The Changing Role of Faculty

This section considers the changing role of faculty in higher education. It examines how researchers think the influence of online learning is bringing about changes to the existing roles of faculty, and it reviews what are considered emerging best practice styles of teaching within the online environment.

Saba (2001) noted that people used the computer instead of pencil and paper for drill and tutorial during stage one of the paradigm shift. In stage two, people used technology, such as using a word processor, to improve their efficiency. People entered stage three as the cost of technology decreased, and the Internet became more popular and easier to use. Now, in stage four, people are using the Internet to solve problems, such as how to teach effectively. The more people become well versed in the computer and the Internet, the more this changing process will affect them.

A recurring theme throughout the literature is that the role of an instructor in distance education is likely to be somewhat different than in face-to-face instruction (Bates, 2000b; Clark, 1993; IDE, 1998; Saba 2001; Simonson et al., 2003). A comment reported by IDE (1998) notes the changes in this way:

> Distance education instructors must plan ahead, be highly organized, and communicate with learners in new ways. They need to be accessible to students, work in teams when appropriate, and play the role of facilitator or mentor in their interactions with learners. Finally, they may have to assume more administrative responsibilities than is true in a residential model (Assumptions section, ¶9).

Curriculum and instruction face changes, as well. Kriger (2001) and Young (2002) predicted the role of the instructor would be unbundled in the online environment. Unbundling means that different people do different parts of the work of a traditional instructor. Content specialists decide what material needs to go online. An instructional designer designs the presentation of material, and a technical specialist actually creates the online course. Instructors interface with students who take the online course. Since the instructor does not spend time writing lectures and creating course materials, more time is spent interacting with online students to challenge them individually (Reigeluth & Avers, 1997). Education will become a more individualized process where instructor and student will never miss a class (Darnell & Rosenthal, 2000; Rogers, 2001).

Teachers will also need to change their traditional roles. Many remote students need a great deal of social support, and distance educators may find themselves spending more time offering one-to-one tutorials and less time lecturing (Berg & Collins, 1995).

In a recent book Bates (2000a) recommended various policies and strategies about online learning and how to accomplish them. His book discussed the relative strengths and weaknesses of each in detail, and described the context from which these conclusions and recommendations are drawn. One of the major themes Bates (2000b) espoused in his book draws a lesson from history. Bates (2000b) stated that "the introduction of new technology is usually accompanied by major changes in the organization of work" (p. 110). Bates (2000a, 2000b) made the point that universities and colleges have been organized in a mixture of agrarian and industrial forms, with hierarchical, bureaucratic, and fairly rigid organizational structures and procedures. Bates (2000b) conceded that, "the autonomy of tenured faculty maintains an element of flexibility, and in some

respects, chaos" (p. 110). He went on to make the point that, "Faculty members need much more support and encouragement than has been provided to date for their use of technology for teaching and learning" (p. 111). Bates was convinced that it is necessary to focus on overall teaching ability for appointment, tenure, and promotion (even in research universities). When assessing teaching performance, the successful use of technology needs to be one criterion to be considered. Bates (2000b) recognized that teaching with technology requires a high skill level, and this requires training not just in technical aspects but also in educational practice. "In addition to training, faculty members need greater levels of technical and educational support staff than has been provided to date" (p. 111).

Clearly, online education raises questions about the role played by faculty, and not everyone welcomes these uncertainties. Indeed, the presence of the Internet and online teaching are bringing about changes to the roles of faculty members. However often changes meet with resistance.

In 1993 Clark surveyed attitudes towards distance education among academics in the U.S. The results (Clark, 1993) revealed their reservations towards distance study in higher education. Yet, simultaneously, academics acknowledged the decision for universities and colleges is no longer whether or not to have online programs, but rather, how to design and implement such a program(s).

Despite the advantages of making courses easily accessible to students through the Internet, many instructors and institutions are reluctant to make the move to online teaching. Anderson and Middleton (2002) discovered that many instructors do not want

to change their style of instruction. These authors went through the challenges of putting their medical courses online themselves, and admitted at first that they became confused and intimidated. Anderson and Middleton (2002) reported that the course not only taxed their abilities, but also required them to examine their beliefs about communication and knowledge, especially the idea that instructors should have all the answers because they were the principal information resource. Many faculty perceived that interactive lectures, small group activities, or closed labs are the only way that a particular subject can be taught. Anderson and Middleton (2002) maintain that others have not yet adapted their lectures to the advances provided by technology such as PowerPoint presentations and multimedia demonstrations and are reluctant to change their teaching style.

Many researchers have examined the reasons for instructors' reluctance. Some of the main ones include the perception of increased time and lack of incentive. More reasons have been documented as: the lack of technical and administrative support available to them (Betts, 1998; Schifter, 2000), concern about copyright and intellectual property issues (Berge, 1998; Moore & Kearsley, 1996), concern about the quality of online courses (Betts, 1998), and inadequate training for the instructors who are being expected to write and teach these online courses (Schifter, 2000). Despite the resistance, others (Bates, 2000b; Burgess, 1994) believe that the movement in paradigm will proceed and long-established practices will change as courses are moved online, requiring new ways of thinking about teaching and learning

Experts assert that instructional faculty will move into a 'new' role. Bates (2000a) and Young (2002) believe that instruction is moving out of its current craft-mode, and entering the era of technology-based production. As a result, faculty, as subject matter

specialists, will lead squads of professionals who are accountable for the quality of needs assessment, content, production, presentation, delivery and evaluation of courses.

Others believe that effective online teaching requires the instructor to not only have knowledge of the content area, but also to have interpersonal skills to effectively communicate with their students online (White & Weight, 2000). Instructors will be assuming broader roles as planners, designers, guides, mentors, and facilitators and will no longer be seen as leaders and lecturers (Young, 2002).

Bates (2000b also commented on this in his book: "The increased ease of use of new technologies has currently led to the development of 'Lone Ranger' approaches to technology-based teaching" (p. 110). He used the term 'Lone Ranger' to describe an individual faculty member working independently (perhaps with the assistance of a graduate student). Although the Lone Ranger approach is beneficial to get instructors started in using new technologies, it is not a cost efficient method of teaching with new technologies. Bates (2000a) recommended a project management approach, based on funding tied to clearly articulated project objectives, teamwork, and defined budgets and production schedules. His suggestion is not a new concept in the world of distance education. The British Open University introduced the concept of course teams in the early 1970s. Various faculty worked with a team of professional instructional designers, graphic artists, producers, directors, and other professionals to make a refined 'product' with a long shelf life.

It appears the changing role of faculty is a trend happening in other parts of the world too. In Turkey academics noted this change in faculty's role. İşman, Dabaj, Altinay

and Altınay (2004) summarized some major literature in this area and believed distance education will require alternative learning process and roles of teacher and students.

King (1993) commented on this shift of the role of the higher education instructor, and noted catchy phrases such as 'Sage on the stage to guide on the side' are being used to capture this trend. Simonson et al. (2003) offered insights into the movement in corporate training from stand up, instructor centered training, to sit down, online instruction and questioned whether 'stand up' training will be replaced with 'sit down' computer based online distance delivered sessions.

Dr. Robert Marine, (2000) an Assistant Professor and Director of Medical Education Research in the Department of Anesthesiology in Penn State's College of Medicine noted that the lecture is still the primary teaching approach for college faculty (¶3). Pressed for time and constantly under pressure of grant proposals and publishing deadlines, lectures are time-efficient for faculty. The culture of many universities, with their emphasis on research and research publications, often tends to promote the straightforward lecture method.

As stated by Weigel (2002), "replacing the current educational model in digital format will not work" (p. 14). Weigel (2002) thought it was important for faculty to know how teaching online is different from teaching in a classroom. Weigel (2002) maintained there are differences in designing a course, putting it online, and teaching online students (p. 16). Faculty need training and support in order to perform these three tasks efficiently.

If Saba (2005) is to be believed when he says that even now, "we are still at the Model T stage of distance education" (Course Teams section, ¶5), then it will become

more important for educators to know the best practices for online and for face-to-face teaching. Bates (2000a) observed that, as technology changes the teaching environment, it becomes increasingly important to outline the purpose and unique features of face-to-face teaching and the role of the campus, and to identify those learners for whom these features have the most relevance.

Saba (2005) used his Model T analogy to distance education to make the point that faculty need to be supported by professional staff to make their courses effective. He notes that

> . . . at the turn of the century, there were no paved roads between cities, and streets were not designed for cars. If someone told you in a few years, there would be an interstate highway system complete with service stations with factory trained mechanics at on ramps, rest stops, emergency phones, and other amenities you would not have believed the poor dreamer. (Course Teams section, ¶5).

Some faculty are already moving into a more distinctly defined role of a facilitator. Not only does their role have to undergo change, but for many it entails a shift in style of teaching too. Smith and Dillon (1999) called the interaction of technologies with instructional design the 'media/method confound' and asserted that, "it is not the technology that has an effect; it is the way it is used" (p. 15).

Last year, Matheos and Archer (2004) published an article in which they pointed out that "the microchip no more ensures good teaching and learning than does the blackboard. Faculty, not technology, make decisions about organization, content and activities, assessment, and interaction" (Conclusion section, ¶1). They found that most

faculty work independently, based on the traditional classroom model, and design their own courses inside the broad perimeter of their discipline or field. Often course materials and design need reviewing to make them suitable for an online environment. Faculty who want to retain autonomy and ultimate control during this transfer must expend effort and time.

Matheos and Archer (2004) reached the conclusion that in order to make the transition from face-to-face to online learning, faculty need support in three areas. First, they must learn the technology, for example an orientation to Web-CT.

Second, they must find out how to use the technology to support the pedagogy, for example how to develop collaborative learning online.

Third, there must be peer support for faculty going through the transformative process from face-to-face to online. In many cases, faculty who were beginners at teaching courses online would look at the content and expected outcome before all else, which would overshadow their delivery approach or teaching style. As they gained more experience in the online medium, they began to use more collaborative approaches, group work and student sharing, which are shown to result in higher teacher effectiveness and more positive student learning outcomes. In other words, over time they developed a more facilitative teaching style in the online environment.

Practitioners in the field think the development of online learning courses and programs is most effectively accomplished by collaboration of subject specialists, instructional designers, and media and software designers. Matheos and Archer (2004) determined that to be more cost-effective and time efficient, universities must ultimately

adapt their policies to allow time for this more complex type of course development. Faculty members need assistance in transitioning to working with a support team rather than going it alone. Saba (2005) commented that moving out of isolation is not easy for faculty:

> Given the fact that at the present time most faculty, including myself, do everything themselves in offering a course, it is hard to imagine a situation where help is available for defining course objectives, selecting the content based on objectives, visualizing important concepts, and creating tests and exams. (Course Teams section, ¶3).

Some work has been done to identify best practices for administrative evaluation of online faculty, in recognition that measurable instructor behaviors pointing to competence differ from face-to-face teaching (Tobin, 2004).

Tobin's (2004) humorous, yet poignant article described two fictitious Food Safety faculty who underwent training together and then began teaching online courses. The Dean of their department decided to evaluate them in their online course (after four years, despite yearly evaluations for face-to-face courses) using the traditional rubric for evaluating instructor performance. While one (Sal Monella) received high marks, she wondered whether the other (Mel Ted Butter) might need a little help in getting his 'classroom' back under control. Tobin (2004) wrote:

> Sal Monella, in his hypothetical food safety course, displays all of the outward signs of good classroom teaching: he has a syllabus that is tied to the academic calendar, he uses the 'glitter factor' of multimedia to hold his students' interest, he

> is quick to respond to students questions, and he provides links to a wealth of resources for students. Mel Ted Butter, on the other hand, seems not to evince these traits, going so far as to let students questions sit for days at a time. It appears as though the students in Butter's class are having to teach themselves. (How to Fool an Administrator in Three Easy Steps section, ¶6).

Just to be sure, the Dean phoned around a few students to get their feedback, but was shocked at what she heard. Students in Butter's class said "his style made them feel as though their learning was valued enough to become a part of the teaching materials for other students" (How to Fool an Administrator in Three Easy Steps section, ¶6) and they preferred his class over the other, and learnt more. The Dean was confused because her evaluative instrument said Monella is the better instructor—yet students favored Butter. Finally Tobin (2004) pointed out that Monella's performance ranked highly on the evaluative instrument because *quantity* was the driving factor. He had a lot of discussions, posted a lot of documents, used a lot of flashy multimedia, and generated a lot of web links to outside resources. Yet Butter seemed better able to provide what the students seemed to want. It was not just the information, but how to assess, use, and create more of it themselves.

Some academics have already begun to compile rubrics and evaluation tools for assessing online instruction. Roblyer and Ekhaml (2000) have compiled an admirable rubric for determining the level of interactivity among the students, the instructor and the outside world. Interactivity is seen as one of the most important variables in any online instructor's methods. The way in which an instructor manages interaction in their course may be seen as one of the important components of their teaching style.

Online Teaching and Teaching Styles.

Now we are coming to the heart of this research. This section reviews the literature on teaching styles—what they are and how Anthony Grasha categorized them into five styles. Finally, the importance of teaching styles in an online environment is reviewed.

Definition of teaching styles.

Many researchers have offered definitions of teaching styles, the most significant of which are summarized here. Conti and Wellborn (1986) maintained that 'teaching style' is a label associated with various identifiable sets of classroom teaching behaviors, which are consistent even though the content that is being taught may change.

Felder and Silverman (1988) began conducting research about teaching and learning styles in the 1980s. Felder (2002) came to believe that because learners piece together new and unknown information, a students' natural *learning* style is inductive. On the other hand, the natural *teaching* style is deductive, because the teacher presents material already understood to themselves (Deletion of the Induction/Deduction section, ¶1). This approach assumes that, in general, all higher education teachers adopt a deductive style of presenting material when teaching.

Yet research done by others (Fereshteh, 1996; Fischer & Fischer, 1979; Grasha, 1994) contradicted a one-size-fits-all teaching style at higher education level. Fischer and Fischer (1979) defined teaching styles as hypothetical constructs used to characterize the teacher-student interaction. They based the teacher-student interaction on several criteria, and others (Fereshteh 1996; Grasha, 1994,) built upon those criteria. Components of

teaching styles included an instructor's beliefs regarding teaching and learning and how these beliefs are translated into teaching practice within a learning environment. Teaching styles also encompassed how instructors present information, interact with students, manage and supervise learning tasks, and supervise students (Fereshteh, 1996, Grasha, 1994). Their reasoning is that teaching styles between instructors vary considerably. This study also adopts that stance.

Grasha's categorization of teaching styles.

Anthony Grasha (1994b) spent more than twenty years conducting research, writing articles and presenting at conferences on student learning styles such as competitive, collaborative, dependent, independent, participatory, and avoidant. He accounted for students' behavior in class and how faculty could best serve such qualities in students (Grasha 1983; Grasha 1990; Grasha & Riechmann 1975).

But at length, Grasha (1994b) reached an important conclusion. "Learning styles, unfortunately, were only one-half of the teacher-student interaction. The personal qualities of college teachers and their effects on the learning styles of students and upon what transpired in the classroom were missing . . ." (p. 142). These qualities are known as teaching styles. Although a number of terms for describing them were suggested in the literature (enthusiastic, organized, intuitive, introverted, egoideal, motivator, artist, etc.), Grasha formed a conceptual model of teaching style. He wanted to describe the stylistic characteristics of university faculty and to suggest when and how to use those styles. Grasha (1994b) wrote, "I assumed that a teaching style represented a pattern of needs, beliefs, and behaviors that faculty displayed in their classroom. Style also was

multidimensional and affected how people presented information, interacted with students, managed classroom tasks, supervised coursework, socialized students to the field, and mentored students" (p. 143).

Ultimately, Grasha was instrumental in identifying five teaching styles that portrayed typical approaches and strategies used by college faculty. He claimed that these styles converge into four different clusters that make up the stylistic practices of professors. He called these clusters Expert/Formal Authority, Personal Model, Facilitator, and Delegator. Grasha (1990, 1994b) explained that although faculty members most likely have a dominant style, they may fall into each of the clusters during various teaching activities, for example, when faculty lecture, the Expert and Formal Authority side of them is much more easily seen than the Modeling, Facilitative, or Delegative parts of their styles (Grasha, 1990).

Grasha's research showed that teaching styles are more than interesting qualities (Grasha, 1990; Grasha 1994a; Grasha 1994b). They also play a significant role in the classroom. According to Grasha (1994b), "Each of the four clusters of teaching styles . . . may be making a statement about 'who I am as a person', but they also help to create a particular mood or emotional climate in class" (p. 146).

For example, think about two of the clusters above. In the Expert/Formal Authority style, students get the message from the instructor that 'I'm in charge here'. The emotional ambience produced is neutral or 'cool'. As normally practiced, lectures transmit information to students in an Expert or Formal Authority style, where emotions are held in check the majority of the time.

On the other hand, a Facilitative/Delegative blend paints a contrary picture. The nature and quality of the interactions are different. The instructor's message is 'I'm here to consult with you on the projects and issues you are exploring'. The emotional climate is 'warmer' because teachers and students work together and share information. Boundaries may be less formal so more opportunities arise for participants to express their thoughts about tasks.

Teaching styles and the online environment.

Grasha's work was built upon observing faculty in face-to-face education environments, and he rarely acknowledged the influence of networked technology on learning and teaching styles. Quitadamo and Brown (2001) also lamented the lack of research in this area. They explained that considerable research touted the purported benefits of online learning environments but little work has been done specifically dealing with how styles of teaching influence student higher order thinking in these environments.

Kember and Gow (1994) believed that some teaching styles promote more effective student learning than do other teaching styles. One question that Kember and Gow (1994) were interested in answering was "Which styles of teaching most effectively develop student higher order thinking skills in online learning environments?" (p. 58). They found that although it is unclear whether traditional teaching styles can translate into online domains, instructors using facilitative, guidance-based interactive teaching styles more effectively create critical thinking opportunities for the majority of students (Kember & Gow, 1994). Friday (1990) also reported that students achieve greater

learning satisfaction with facilitative styles of teaching as compared to traditional authoritative instruction (p. 67).

Diaz and Cartnal (1999) found many instructors are under the impression that the same teaching styles and approach used in their traditional classes still also work in an online classroom. Research by Andrews (1996) noted that facilitative teaching approaches that promote problem solving and critical thinking can be uncomfortable for students, and may be in contrast with students' *superficial* approaches to learning. Collectively, these findings indicate that instructors who use facilitative problem-solving based instructional approaches provide thinking challenges—despite student discomfort with critical thinking.

Other academics disagreed that some teaching styles promote more effective student learning than others. Two academics, Spoon and Schell (1998), were interested in examining the nature of the learning experience when congruence and incongruence exists between the learning style of the student and the teaching style of the teacher. In their study, teaching style referred to "a person's instructional qualities that persist even though situational conditions may change" (Introduction section ¶2). They found no significant difference between groups of learners and teachers whose learning and teaching styles were congruent and incongruent. They concluded that the lack of significant differences between congruent and incongruent groups on academic achievement does not support some of the other research conducted in this area. Another finding emerged in their study. "Most of the traits associated with teaching and learning styles are not necessarily instinctual. Rather, teaching and learning styles develop over time, tend to change slowly, and reflect other characteristics of the person" (p. 1).

Spoon and Schell's research (1998) was contradicted by Felder (2002). He found that when mismatches exist between learning styles of the students and teaching style of the professor, students became bored and inattentive in class, did poorly on tests, got discouraged about the courses, the curriculum, and themselves, and in some cases changed subjects.

Keri (2002) conducted research into whether congruities between students' learning styles and instructors' teaching styles related to student satisfaction. "The results indicated that there were no statistical differences in the satisfaction of students whose learning styles were congruent to their instructors' teaching styles as compared to those students whose styles were not" (Abstract section, ¶1). Note that this research only referred to face-to-face environments.

Miglietti and Strange (1998) examined learning and teaching styles and classroom environment variables, and found that student-centered instruction positively impacted students' learning and satisfaction, regardless of their age. In other words, their preliminary research showed that instructors using facilitative, guidance-based, interactive teaching styles more effectively create critical thinking opportunities for the majority of students than instructors using other types of teaching styles. Other academics disagreed that some teaching styles promote more effective student learning than others.

To recap, despite the fact that some studies (e.g., Miglietti and Strange, 1998) found a correlation between facilitative teaching styles and critical thinking opportunities for students, other studies (e.g., Spoon and Schell, 1998) contradicted this evidence. Little

is known about the effect of teaching styles on student learning outcomes in an *online* environment and results from preliminary studies to date provide conflicting evidence.

Grasha (1983, 1990, 1994a, 1994b) defined 'teaching styles' as faculty's needs, motives, beliefs, and attitudes about how to learn and how to teach. It is important to understand the connection between Internet-based technology and its effect on teaching styles, especially in light of the increasing significance computer network-based teaching is playing in the higher education domain. The role of a higher education faculty member in distance and online education is likely to be fairly different from face-to-face instruction (Bates, 2000a; Clark, 1993; IDE, 1998; Kearsley, 2000; Saba 2001; Simonson et al., 2003).

We cannot ignore two distinct trends occurring simultaneously. First, distance education itself is becoming more ubiquitous. Second, distance-education technologies and methods are rapidly being integrated into campus-based classroom instruction. Bates (2000) and Young (2002) consider instruction to be moving out of its current craft-mode, and entering the era of technology-based production. Others conclude that effective online teaching requires the instructor to not only have knowledge of the content area, but also to have facilitative skills to effectively communicate with their students online (White & Weight, 2000).

Diaz and Cartnal (1999) found that many instructors are under the impression that the same teaching styles and approach used in their traditional classes still also work in an online classroom. How instructors employ various methods of teaching in a face-to-face traditional classroom environment is one issue. Colleges and universities faced by

strong competition, and the rapid penetration of computers and the Internet into higher education realize that a more important question is how to use technology to improve the teaching and learning process. It may be possible to improve the teaching-learning interaction in online environments by considering the teaching styles present in successful online teachers.

Summary of the Literature Review

At the beginning of the literature review, a model of communication was used to better understand the process of distance education. Teaching styles were seen as potential 'noise' that could interfere with effective learning for students. Examination of the impact of the Internet in higher education showed that there has been a rapid increase of online courses, programs and even virtual universities. More importantly, many academics observed that changes to the role of faculty—the ones faced with implementation of these online initiatives—are already occurring. Preliminary studies suggested that when faculty taught in an online environment, a facilitative, guidance-based, student-centered teaching style created more effective critical thinking opportunities and better student learning outcomes than did other teaching styles.

The focus of this study is concerned with the relationship of Internet-based technology to teaching styles of faculty members in higher education.

Chapter Three: Methodology

Research Design: Case Study Approach

The research design employed in this study used a qualitative case study method. Philosophies and views on research methodologies differ among academics in various disciplines, and are influenced by the accepted research paradigms of the times. Research in the 1960s and 1970s was conducted using mainly *quantitative* methods, whereas throughout the 1970s and 1980s *qualitative* research began to have a strong influence. The types of questions asked in qualitative research markedly added to the growing body of knowledge about distance education. Morgan (1984) has given an admirable overview of qualitative methods for research in distance education and Minnis (1985) has described how qualitative methodologies such as ethnography, case study and grounded theory can be applied to expand the research base in this field. Burge (1992) argues for qualitative research and a combination of qualitative and quantitative research methods in his article.

The present study uses a case study methodology and, as such, is a predominantly descriptive report. Steps in the research process are addressed in detail so that the reader understands the context as much as possible, knows why certain decisions were made, and realizes how conclusions were drawn. A qualitative approach was pursued based on findings from literature in previous distance education research. Holmberg (1986) identified methodology as a major limitation of distance education research. Early research imitated the scientifically experimental approach, which was originally designed for the laboratory where the environment could be carefully controlled. The realization that it was almost impossible to obtain laboratory conditions in which to study distance

education brought about modifications to the experimental approach. The concept of modified experimental methods to fit the special consideration of education research is known as quasi-experimental research. It dominated the distance education research until recently, when some researchers broke the narrow confines of experimentation, according to Saba (2000). Some researchers in the 1990s used student self-report surveys, (Fulford & Zhang, 1993), others, conversation and discourse analysis, (Chen & Willits, 1999), and still others, a fusion of these methods. Saba (2001) wrote:

> These types of methods indicate a clear break from the traditional scientific method and experimental studies for understanding important factors. Furthermore these studies are focused on a smaller group of subjects, but take a deeper look at the subjects' verbal and written behaviors. This is in sharp contrast to the methods employed by quasi-experimental researchers who sought to eliminate individual differences between the control and experimental groups in order to measure and demonstrate the effect of the treatment (Introduction section, ¶4).

He believed this is an important step in refining research methods in distance education, and in capturing a wider and richer range of data.

Case studies offer many advantages, including the ability to produce more detailed information than what is available through statistical analyses. The case study approach was chosen for its descriptive powers, explanatory insights and in depth focus. This relatively flexible method of scientific research was well suited for the exploratory emphasis (rather than prescriptive or predictive) of this study. Rather than attempting to

predict every possible outcome before the study was conducted, broad questions were originally posed, and narrowed in focus as the study progressed. The case study approach enabled the option to discover and address issues as they arose during the data gathering process.

The case study method enabled concentration on gathering in-depth information—information based on a small group of nine participants that could give the research results a more human face. Instead of investigating a greater number of participants on a shallow level, a smaller number of participants were investigated on a deep level, with more time spent to understand each individual. This emphasis enabled the researcher to 'get to know' each participant which better served the purpose of bridging the gap between abstract research and concrete practice.

Yet no method of research is without limitations, the case study method included. Just like other research methodologies, issues of external validity, construct validity and reliability had to be carefully considered. A common difficulty faced by case studies is the inability to generalize to a broader context. Case studies are inherently subjective by their very nature. Yin (1989) made the comment that "The case study has long been stereotyped as the weak sibling among social science methods" (p. 16), and is often criticized as being too subjective and even pseudo-scientific. Likewise, "investigators who do case studies are often regarded as having deviated from their academic disciplines, and their investigations as having insufficient precision, objectivity and rigor" (p. 16).

Since the case study approach heavily depends on personal interpretation of data, results may be difficult to test for reliability. The personal integrity, sensitivity and possible prejudices and biases of the investigator must be taken into consideration as well. Personal biases can creep into how the research is conducted leaving unknown gaps by the researcher in the study. In short, basing a cognitive conclusion on information gathered from a small number of participants runs the risk of inferring too much from what might actually be circumstance.

Despite the limitations of the case study approach, it offers many advantages and seemed to suit the purposes of the research questions in this study.

Participants

The University of Hawai'i is located in the State of Hawai'i in the Pacific Ocean, and is the state's sole public higher education institution. It is a ten-campus system that includes three universities and seven community colleges across the four islands of Oahu, Maui, Hawai'i, and Kauai (with branch campuses on Molokai and Lanai). Located on the island of Oahu, the University of Hawai'i at Mānoa (UH Mānoa) is the main campus and it enrolls approximately 17,000 students in graduate and undergraduate programs. The student demographics are atypical of many public higher education institutions in America with the student ethnicity being: 49% Asian, 22% Caucasian, 18% Hawai'ian/Pacific Islander, and 11% other (COE, 2000).

Because Hawai'i is made up of separate islands, the geographical barrier faced by faculty in this State make it unique. The State's mandate that certain programs and courses be offered statewide, in combination with the geographically split nature of the

islands has necessitated distance learning by some means for many years. Higher education faculty have gone to great efforts to overcome these barriers for decades. Historically, and to some degree currently, faculty have flown inter-island to teach classes on other islands. Other means of reaching all students include teaching sessions over two-way television, cable TV broadcasts, videoconferencing and most recently, online access.

Participants were selected from a target population of all faculty members employed by the University of Hawai'i. At the time the data was being gathered (Fall 2003), there were 4,219 faculty in employment; 2,850 worked at the university campuses and 1369 worked at the community college campuses (Faculty & Staff Report, 2003).

The University of Hawai'i has an equal employment policy in terms of gender, age and race for employment of its faculty and staff. The Faculty and Staff Report (2003, p. 24) describes the ethnicity, gender, and age of the faculty population as well as many other faculty attributes. The major attributes are summarized in Table 1.

Table 1. ***University of Hawai'i Faculty Summary Table***

Variable	Attribute	% Faculty
Ethnicity	Caucasian	55
	Asian	42
	Hispanic	2
	Black	1
Age (years)	Average	49 yrs
	Median	50 yrs
	Lowest	23 yrs
	Highest	82 yrs
Gender	Male	55
	Female	45
Highest Degree	Masters	36
	Doctors	38
	Other	26
Years of Service	Less than 2	33
	2–9 years	25
	10–19 years	23
	20 years or more	21

Note: Median Years of Service = 6

Selection criteria.

Determining whether a faculty member would qualify to be a participant involved setting up selection criteria. Here, criteria are stated, then followed by an explanation of why each was necessary.

1. the faculty member is currently teaching one or more online courses and has taught an online course for more than two years total;

2. the faculty member is currently teaching one or more face-to-face courses and has taught a face-to-face course for more than two years total;

The first two criteria were important because a faculty member needed to have had the experience in teaching both face-to-face and online courses in order to make meaningful comparisons and provide firsthand commentaries of what they experienced. It was decided that 4–6 semesters, including Fall, Spring and Summer (two calendar years) of teaching experience in both environments should provide enough familiarity for the faculty member to draw some broader views on their teaching experiences. Relatively speaking, the online environment is newer than the face-to-face medium. Although it is comparatively easier to select faculty who have been teaching for six years (the median number of years of service) in a face-to-face environment, the researcher believed it may be far more difficult, if not impossible, to locate faculty who have been teaching for the same period in an online environment.

3. their distance education courses are predominantly internet-based;

This criteria was important because some courses are listed as distance education courses. Yet, in reality, they require a large amount of face-to-face attendance by the students, e.g., once a week, or twice a month attendance at an in-class lecture, or even heavy participation at campus-based labs. The point of this research was to investigate faculty teaching online courses in which little to no in-person attendance is required of the students. By doing so, teaching styles used in face-to-face courses could be more directly compared to teaching styles used in purely online courses.

4. at least 30% of the participants needed to be teaching their online course (or have taught) in a software OTHER than WebCT;

A factor influencing the selection of participants from this target population was the system-wide decision to support the WebCT software.

In May 2003 the University's "Distance and Distributed Learning Action Plan" report was reviewed as new Strategic Plans were being prepared. Following that, in the Fall of 2003, this researcher met on separate occasions with three key staff members employed in the Information Technology Services Department (ITS), and one staff member in the Office of the Vice President for Academic Affairs. The purpose of these recorded interviews and informal discussions was to gather information about the context in which the distance education has been and is being conducted in. Notes are included in Appendix A.

Prior to this study, the University of Hawai'i's ITS department provided faculty support for both Blackboard and WebCT software. The semester before the data was collected, the institution formally announced its decision to support only WebCT.

Therefore most potential participants in this study would have had access to training and online course development support primarily in the WebCT software.

To avoid the possibility of the software itself being a confounding variable in this study (i.e., influencing the teaching styles of faculty) potential participants were asked what learning environment (online software) they use, or have used in order to ensure that a minimum of 30% of the participants were used to software other than WebCT.

5. the faculty member is teaching a subject not so far included in the participant pool;

At the outset of the research, it was determined that faculty teaching in unique subject areas would provide higher internal validity. If results came up consistently across unique subject areas, it could potentially rule out subject area as a confounding variable.

6. 50% of participants to be working at a research institution, and 50% to be working at a predominantly teaching institution.

Another criteria of the research was to select half the participants from a research-based campus (UH Mānoa) and half the participants from the community college campuses, where the strongest emphasis for faculty is on teaching. This was to include participants from both types of institutions. It was also a means to include faculty who are located on diverse islands.

Instrumentation

Interviews.

The predominant technique in gathering information for this case study was in-person interviews with the selected faculty members. Rather than simply asking respondents to complete a questionnaire, questions were asked in person, on the phone, and via email. In-person interviews were recorded. According to Babbie (2000) "in surveys, questionnaires are rigidly structured, however, less structured interviews are more appropriate to field research" (p. 291). The interview design was flexible, iterative, and continuous, rather than prepared in advance and locked in stone. Each time the basic process of gathering information and reflection occurred, some re-design of the questioning occurred, however less so at the end than the beginning. In other words, the researcher had a general plan but not a specific set of questions that had to be asked with a specific set of words and in a particular order each time. At the same time, it was vital that similar questions were asked of each participant to provide meaningful comparisons. The interviews were essentially conducted as conversations, in which the researcher established a general direction for the conversation, pursuing specific topics raised by the participants when necessary.

Web-based teaching styles inventory.

In addition to the phone calls, emails and interview conversations, participants were given the opportunity to complete a 40 item web-based questionnaire that would compare their online and face-to-face teaching styles. The questionnaire was adapted from the Grasha-Reichman Teaching Styles Inventory (which can be located at

http:///masterteacherprogram.com). Permission was granted to use the questionnaire for the purpose of this study (See email in Appendix B).

The questionnaire was adapted for this study by re-formatting the same questions into two columns. The first column left space for answers regarding face-to-face habits, the second column for online habits. It was put on a website with user passwords assigned to each participant. The new format of the questionnaire imitated the Grasha-Reichman original, and simply repeated the face-to-face questions for the online environment. Like the original instrument, this survey also calculated the dominant teaching style cluster for each faculty member and gave the participant immediate feedback upon finishing the questionnaire. However in this study, the faculty received two pieces of feedback: one for their face-to-face teaching style, and one for their online teaching style.

Procedures

The Schedule of Classes for two academic years from Fall 2002 through Spring 2004 were used to ascertain every course that was offered as an online course. An initial database of all online courses was created (List A). The database contained information such as the instructor's name, the subject area, the title of the course, and the level (e.g., post-graduate, graduate, or undergraduate). The database was then manipulated to identify instructors whose names appeared multiple times. Those who appeared at least three times were put into a separate database (List B) in order to address the 2-year minimum requirement of online teaching. List B contained 54 names. (This researcher's advisors' names were removed altogether).

Next, the University's online Staff Directory was used to ascertain email addresses, and emails were sent individually and privately to the people on List B. The email briefly outlined the research and called for people who would be interested in participating. (See Appendix C for a copy of the email).

In total, twelve participants were selected. Of the 54 names on List B, four replied immediately and were selected because they met the criteria. A second, follow-up email was sent to the initial non-responders, and an additional five replied. Of those, five were suitable participants. A third and final email was sent to the non-responders, to which one faculty member replied, and was selected.

The final two participants were recommended by faculty who were interviewed. One of the original four respondents (from Hawai'i Community College) recommended a new colleague (whose name had not appeared more than three times so did not make it to List B). However, she had been teaching both online and face-to-face for more than two years at a different institution (in California), and had only been teaching at Hawai'i Community College for just over a year. She was included as a participant (with the idea that the data could be discarded if irrelevant). The tenth participant was also recommended by a faculty member after his interview finished. This participant was also a relevant subject and in addition, she was employed simultaneously by two institutions (Kapiolani Community College, and a mainland community college), and she was using two learning environments (WebCT and Minella).

Each time a faculty member sent a reply email that they would be willing to participate, the participant was contacted by phone and the research study was presented

to them more fully than in the original email. They were checked to make sure they met the criteria outlined above. (If they did not, they were asked if they could suggest anybody who did meet the criteria and who might be willing to participate in the research). Participant questions were addressed, and in some cases a preliminary conversation about the topic of online teaching styles began. In such cases, the investigator made notes during and immediately after the phone call.

All participants agreed to participate in a one-hour recorded interview; complete an online questionnaire of up to about 10–12 minutes; allow their website to be used as an artifact if needed; agree to respond to follow-up questions either by phone, email or in person. All data collection was conducted on a one-on-one basis. The data collection process occurred throughout April–May 2004, and some follow up questioning took place in the summer months of 2004.

Preliminary analysis of the results was performed in the Fall of 2004, with final analysis occurring in Spring 2005. The main ideas were to: 1) identify the face-to-face teaching style of each faculty member; 2) identify the online teaching style of each faculty member; 3) identify whether differences occurred in their styles between the face-to-face and online environments; 4) find out how experiences teaching an online course compared with prior teaching experience; and 5) investigate faculty perceptions of successful online teaching practices. The data analysis was performed in three phases.

Phase I: Data Collation.

First, all interviews were transcribed from digital tapes to digital text. Second, all other information (such as notes from conversations, emails, telephone calls, links to

websites, copies of course materials etc) was collated into a portfolio for each faculty member. The individual faculty members' website questionnaire results were added to their individual portfolio, along with the interview transcripts. Third, the results from the website questionnaire were exported into a spreadsheet for independent examination. Finally, once all available information for each faculty member was collated into individual portfolios, and the questionnaire results were formatted, extraction was performed.

Phase II: Data Extraction

Each portfolio was read through multiple times. The first reading was to ascertain a general picture of each faculty member's particular situation. The second and subsequent readings were to code information that could be categorized into the following eight areas: 1) Demographics of faculty, 2) Face-to-face teaching experience, 3) Online teaching experience, 4) Indicators of face-to-face teaching styles, 5) Indicators of online teaching styles, 6) Unanticipated trends, 7) Participant questions/observations, 8) Other, particularly comments about online students or online teaching experience.

Coding Scheme

DF	Demographics of Faculty
FTE	Face-to-face Teaching Experience
OTE	Online Teaching Experience
FTS	Indicators of Face-to-face Teaching Styles
OTS	Indicators of Online Teaching Styles
UT	Unanticipated Trends
PQO	Participant Questions/Observations
O	Other

The coded information was extracted from the faculty portfolios and organized into the above-named eight tables per faculty, ready for analysis to be performed.

Phase III: Data Analysis.

Initially, a Teaching Styles Guideline was created to describe the four quadrants of dominant teaching styles. The teaching methods most commonly employed by that teaching style were added into the table. These guidelines, together with each of the eight tables mentioned above, were examined for each of the nine participants and summarized in descriptive prose. Next, all nine descriptions were examined holistically to identify emerging trends or patterns and ultimately, linked back to address the research questions. Explanations of the conclusions drawn are discussed more fully in the Results and Findings section.

Validity and Reliability

Merriam (1985) stated it best: "Most writers suggest that qualitative research should be judged as credible and confirmable as opposed to valid and reliable" (Case study section, ¶1).

However, concerns of validity and reliability were addressed throughout the research as much as possible. Because it was unknown (until analysis) what would, and would not be, important, the researcher: 1) recorded each interview; 2) made detailed notes of every discussion with the participants; 3) collected any available artifacts offered by the participants (such as website materials, samples of student work, textbooks and course related resources); and 4) sent transcripts and comments about the interviews,

discussions, and web questionnaire results for participant feedback (to ensure their perceptions were being accurately recorded).

Reliability, on the other hand, is a matter of dependability. The issue of subjectivity in a case study approach was addressed at the beginning of the research, when an independent third party was asked to perform inter-rater reliability checks with the coding and categorization of the participant teaching styles. The independent researcher was asked to use the teaching styles guidelines as a means to 'spot-check' the categorization of each participant's teaching styles. All nine participants were not checked because high consistency was established after examining the first six participants and it did not seem necessary to continue.

The validated instrument developed by Grasha-Reichman served as an additional means to ascertain what categories of teaching styles faculty were placed in, and was used to perform triangulation, *after* all other coding was performed.

The case study method has strong validity compared to surveys and experiments. Surveys and experiments often limit the study from going into depth, whereas that is one of the main strengths of this case study. Therefore, to further address issues of validity and in addition to emphasizing concepts, descriptive illustrations are reported in the form of 'mini-case studies' in the Findings section.

Chapter Four: Findings

In total, there were nine purposively selected participants. The group comprised four faculty members from the UH Mānoa campus and five Community College members: two from Hawai'i Community College (located on the island of Hawai'i), two from Kapiolani Community College (located on Oahu), and one from Leeward Community College (located on Oahu). All nine people participated in interviews, e-mail correspondence and phone calls. Six participants completed the web-based survey; three did not.

Before the nine faculty members mentioned above were interviewed, three other faculty members were interviewed first as a trial run. From the outset, the researcher decided to use the first three participants as a pilot test. The information and data gleaned from these three encounters was used to shape the structure of subsequent interviews, to make subsequent interviews more uniform, and to more clearly define the critical interview questions. Whilst it is important to note that there were three other faculty members who participated in this study, their data was never intended to be used in the final analysis.

Three research questions drove this study: 1) What differences, if any, occur in teaching styles, practices and habits of face-to-face and online instructors? 2) How do experiences teaching an online course compare with experiences teaching a face-to-face course? 3) Which teaching styles, practices and habits do faculty perceive as effective in the online environment?

To answer the research questions, the findings of this study are reported here in three parts: 1) Teaching Styles Comparisons, 2) Individual Faculty Experience Summaries, 3) Faculty perceptions of effective online teaching styles, practices and habits.

1) *Teaching Styles Comparisons:* First, a summary description of the teaching styles, and what teaching methods are associated with each style, is given to clarify what is meant by a 'Facilitator' or a 'Formal Authority'. These descriptors were used as the guidelines to categorize participant teaching styles and the material was adapted from Grasha (1994b). Second, an examination of differences and similarities that occur in teaching styles, practices and habits of instructors in face-to-face and online environments is presented.

2) *Individual Faculty Experience Summaries:* Nine individual participant summaries are presented. These 'mini-case studies' familiarize the reader with the faculty members and their teaching styles, practices and habits, and illustrate how experiences with teaching face-to-face classes compare with experiences teaching online classes.

3) *Faculty perceptions of effective online teaching practices and habits:* A summary table is presented.

Teaching Styles Comparison

Although each faculty member may possess characteristics and use techniques associated with multiple styles, they frequently have a dominant style—the majority of their teaching habits will fall into one of these four quadrants. An explanation of each quadrant is shown in Table 2.

Table 2. ***Teaching Styles and Associated Teaching Practices***

Approach	Teaching Style	
	1. Expert/Formal Authority	2. Personal Model
Teacher Centered	Lectures Term papers Tutorials Guest presentations Video/audio presentations of content Teacher-centered class discussions Strict standards and requirements Grades and tests emphasized	Demonstrating ways of thinking and doing things Coaching and guiding students Illustrating alternatives Sharing personal viewpoints Sharing thought processes involved in obtaining answers Using personal examples to illustrate content points Having students emulate the teacher's example
	3. Facilitator	4. Delegator
Student Centered	Small group discussion Instructor-designed group projects Student teacher of the day Self-discovery activities Learning pairs and debates Case studies Role playing and simulations Problem-based learning Practicum and guided readings	Student-designed group projects Independent study Independent research projects Position papers Student journals Modular instruction Cooperative learning activities

Teaching Style Descriptions

Expert/Formal Authority.

This instructor possesses knowledge and expertise that students need. This teacher strives to maintain status as an expert among students by displaying detailed knowledge and by challenging students to enhance their competence. They are concerned with transmitting information and ensuring that students are well prepared. They provide positive and negative feedback, establish learning goals, expectations, and rules of conduct for students. The Expert/Formal Authority is often focused on the correct, acceptable, and standard ways of doing things. The advantage is the information, knowledge and skills such individuals possess and the focus on clear expectations and acceptable ways of doing things. However, the disadvantage if overused, is the display of knowledge which can be intimidating to inexperienced students. The Expert/Formal Authority may not always show the underlying thought processes that produced answers. A strong investment in this style can lead to rigid, standardized ways of managing students and their concerns.

Personal Model

This individual believes in 'teaching by personal example' and establishes a prototype for how to think and behave. This instructor oversees, guides, and directs by showing how to do things. This teacher encourages students to observe and then to emulate their approach. The advantage of this approach is the 'hands on' nature, an emphasis on direct observation and following a role model. The disadvantage is that some teachers using this style may believe that their approach is 'the best way'. This

could lead some students to feel inadequate if they cannot live up to such expectations and standards.

Facilitator

The facilitator emphasizes the personal nature of teacher-student interactions. The instructor guides students by asking questions, exploring options, suggesting alternatives, and encouraging them to develop criteria to make informed choices. The overall goal of the facilitator is to develop in students the capacity for independent action and responsibility. A facilitative instructor works with students on projects in a consultative fashion and provides much support and encouragement. Advantages of this style include personal flexibility, the focus on students' needs and goals, and the willingness to explore options and alternative courses of action to achieve the goals. However, the disadvantage of this style is that it is often time-consuming and it can be ineffective when a more direct approach is called for. The facilitator style can make students uncomfortable if it is not used in a positive and affirming manner.

Delegator

This instructor is concerned with developing a student's capacity to function autonomously. Students work independently on projects or as part of an autonomous team. The teacher is available at the request of students as a resource person. An advantage of the Delegator style is that it contributes to students perceiving themselves as independent learners. However, the disadvantage of a Delegator is if they misread a student's readiness for independent work, some students may become anxious when given autonomy.

Examination of Differences and Similarities in Teaching Styles

Upon examining differences and similarities in teaching styles of the participants two tables have been created to present the findings. The first table (Table 3) summarizes the relevant characteristics of the nine participants in this study, and the second table (Table 4) presents the total number of dominant teaching styles found in face-to-face and in online teaching environments.

Table 3. ***Characteristics of Participants***

Participant Characteristic	Description
Gender	4 Male
	5 Female
Subjects Taught	Anthropology
	Computer Science
	English
	Educational Technology
	History
	Nursing
	Nutrition
	Travel Industry Management
Learning Management Systems used	WebCT
	Minella
	PHP Newk
	WebBoard
No. of Years Teaching Face-to-face	45 Highest
	04 Lowest
	20 Average
No. of Years Teaching Online	12 Highest
	03 Lowest
	05 Average

Table 4 shows the total number of faculty per dominant teaching style in both the online and the face-to-face environment. However, it was also important to examine each individual faculty. What is not shown in this table is that the number of faculty who had two *different* dominant teaching styles (i.e., one for face-to-face and a different one when teaching online) was four. The number of faculty who had the *same* dominant teaching style, whether teaching online or face-to-face was five.

Table 4. ***No. of Faculty per dominant teaching style***

Teaching Style	Face-to-Face	Online
Expert/Formal Authority	4	3
Personal Model	0	0
Facilitator	3	3
Delegator	2	3

Web-based questionnaire results.

A web-based 40-item questionnaire (Appendix D) compared face-to-face and online teaching styles. Participants were asked to rate how much they agreed or disagreed with each statement on a 1–5 Likert Scale. The higher the number, the stronger they agreed with each statement. Participants gave two answers for each item: one in terms of how they teach their face-to-face courses and one in terms of how they teach their online courses. Answers to these items were used to ascertain the degree to which instructors use specific teaching habits and styles. Examples of the items include:

- Students design one or more self-directed learning experiences.
- Examples from my personal experiences are often used to illustrate points about the material.

- This course has very specific goals and objectives that I want to accomplish.
- Students might describe me as a 'storehouse of knowledge' who dispenses the facts, principles, and concepts they need.
- I give students a lot of personal support and encouragement to do well in this course.

The results showed that four items stood out above the others because the majority of participants responded differently between online and face-to-face. In other words, most faculty felt they were doing this particular activity somewhat differently in their online class than in their face-to-face class.

- Activities in this class encourage students to develop their own ideas about content issues. (Delegator)
- Small group discussions are employed to help students develop their ability to think critically. (Facilitator)
- Developing the ability of students to think and work independently is an important goal. (Delegtor)
- I provide very clear guidelines for how I want tasks completed in this course. (Formal Authority)

Individual Faculty Summaries

The following nine summaries familiarize the reader with each of the participants and cover information such as the faculty member's teaching situation, face-to-face and online teaching experience, and what teaching style they predominantly use. At the end of the text summaries, a figure is used to represent the raw results of the Web based questionnaire.

NOTE: Only six of the nine participants completed this survey therefore the first three summaries do not have an accompanying figure.

Dr. Joanne Itano Introduction

Joanne Itano is Department Chair and Associate Professor in the Department of Nursing at the UH Mānoa School of Nursing and Dental Hygiene. Her role as a chair keeps her schedule tightly filled with staff management, department administration and student needs. For the past seven years she has taught various courses along with one same course: Nursing 411 NCLEX Review. It is a review course designed to meet the state requirements for eligibility to take the National Council Licensure Examination—Registered Nurse (NCLEX-RN). Usually students who take this course are in their final year of nursing, and have gone through this program as a cohort. Most of the students are Hawai'i residents.

Joanne notes that Nursing has had a longtime interest in distance methods and was one of the early departments to use the Hawai'i Interactive Television System (HITS) because of their need to get nurses trained on neighboring islands.

Initially Joanne taught this course face-to-face and later switched to offering it online after attending an ITS TALENT workshop which helped her to prepare the course in WebCT. Now Nursing 411 is only available online. Most often, students have taken previous WebCT online courses during their program before doing taking this course.

Teaching Style

When Joanne taught this course face-to-face, and when she co-teaches her face-to-face course in pathophysiology, she enjoys using PowerPoint in her lectures. She feels a great need to present and cover all the content so that the students won't miss any

important information. The pathophysiology course covers a lot of content about diseases; students continuously come across new medical jargon with abbreviations and terminologies. "I would rather talk about it and help them to figure it out, rather than say 'here's the work, go figure it out yourself'."

She thinks people pay a lot of lip service to being facilitators instead of lecturers (e.g., the sage on the stage versus the guide on the side), but maintains there is still an important place for lecturing. "A lot of people will say that (being a 'guide on the side') is really important, but we still lecture a great deal. I mean, can you see how thick our nursing books are? We have a lot of content the students must know."

Joanne loves email. She says she is very comfortable with that style of communication because it is organized, efficient and effective—traits she values.

Now that the course is functioning online, students receive minimal interaction or feedback from this instructor. They work in a modular fashion and once a week they take an automated test, which gives them immediate feedback and a grade upon completion. "Umm . . . there's very little feedback from me. Once they submit the test they get their score, and that's their feedback". There is no weekly interaction, nor feedback from the instructor, although occasionally she receives an email with a question from a student. Joanne has never used discussions and would not consider using them, especially in this course. She likes the efficiency of the computer-based medium and says, "I certainly agree that online courses are not *less* workload, but it certainly shouldn't be more workload. It shouldn't be, because if it is, we shouldn't be doing this. I mean, why would you introduce a technology that is going to use *more* of your time? That doesn't make

any sense to me." In this course, her students work through the content on their own for their own learning experience and practice. She views it as a trial run for the state licensing exam they must sit and pass, once they have graduated from this program, in order to become a nurse. "The students need to be somewhat self-motivated to study for this NCLEX test because they're going to graduate and then they have to pass this exam in a couple of months if they want to practice nursing."

Summary

Her dominant face-to-face teaching style is *Expert/Formal Authority.*

Her dominant online teaching style is *Delegator.*

Dr. David Nickles Introduction

David came into the Information and Computer Sciences (ICS) Department at the UH Mānoa campus as a new faculty member five years ago; this is his first college teaching position. When he arrived he worked with Dr. Dan Suthers to develop ICS 311 Algorithms and Data Structures into an online course. After that he put another course online: ICS 101 Tools for the Information Age—the first undergraduate course in the department to go online. Until then, the department was only targeting graduate level classes to be online.

David tried using the WebCT software but didn't like it because he thought it was convoluted and an unclear way to present materials, so he used Blackboard instead, with fewer complaints from the students. The student enrolment was extremely large—600 students per semester. It was a massive logistical people management activity, with two lecture sections and about fourteen lab sections. The resulting challenges led David into developing his own system using software called PhP Newk, from the Open Source community, to help better manage the large number of students. At first it was problematic but he worked on ironing out the problems and got it much better streamlined.

David says there has always been an online facet to all his courses, given the nature of the subject he teaches. However, what really inspired him to teach a fully online course was one experience he had as an online student during his Master's program. He found it very different from the traditional ways in which he was accustomed to (and indeed preferred) learning. "I can listen to a lecture and regurgitate it without any

problems, so having to go online and read notes . . . and having to be proactive [meant] I was missing the comfortable ways of getting the learning reinforced. I didn't establish anyone to study with in the library . . . it was a lot more solitary." He thought there could be a more engaging way to teach online students.

Teaching Style

David's philosophy about the best way to learn is "doing it until you get it right. That is not to demean the style, but to really glorify in its simplicity. Do it until you get it right—that's a great learning style." That has always worked well for him and he thought students would find it a great way to learn. With 600 new people every semester, he had to find a time efficient and convenient way to administer, teach and grade each student, so discussions and group work didn't seem like the best answer. But when his online students started referring to his course as 'unit mastery' that somewhat pulled him up in his tracks. "I think the reason is because the course was being converted into a workbook style just so that it could be put in the web-browser." In addition, he found that the 'workbook' approach was restricting his flexibility.

At the same time this happened, because he had high numbers of ESL students who were struggling to understand the lectures, he had begun to videotape his live lectures and post the video online a few days later. "I was surprised at how well I was able to do that myself. I took a camcorder in, set it up at an angle right in the front row (I move around a bit but tend to stay in the same spot). So it had me and the slides projected in this huge auditorium for 300 people . . . The talking head I don't like so much, but you know, it captured my tone, my gestures and I didn't have to do any fancy picture

editing." Students were giving him kudos for putting it up there because they could listen to him again. David laughs, saying, "I don't know why someone would want to listen to me twice! But they did, so they really deserved their grades."

After meeting with success in this face-to-face course with development of a companion website to house videotapes of the lectures, as well as PowerPoint slides, he decided to use that as the basis for re-shaping his online course. However, the large numbers of students still dictated the way in which he could teach the course. "The thing about teaching a course for 300 or 600 students is for the instructor it is not as personal or intimate as teaching a class of 15 or 30 students. . . where you can get to know everyone's name." Whether face-to-face or online, with 300 students, it is difficult get to know even one or two student's name. "There's just like this invisible barrier between you and them, and it just seems like no-one crosses that." David says he doesn't necessarily like that experience, but it is a required course, set up to get a lot of people through, so there is a degree of inevitability about the way it is presented.

Interestingly, he believes that the students don't get to know each other in the face-to-face lecture (they form their friendships during lab time), yet in an online class there is a lot of discussion and students get to know a handful of other students.

Summary

His dominant face-to-face teaching style is *Delegator.*
(Expert/Formal Authority is a strong secondary style)

His dominant online teaching style is *Delegator*
(Facilitator is a strong secondary style)

Dr. Jennie Padilla Introduction

Jennie teaches History at the Hawai'i Community College (HCC) campus in Hilo, based on the island of Hawai'i. All her courses are undergraduate level. Three of them are face-to-face with class sizes of about 10–30 students. She also teaches one online History course with a class size of 80–120 students. This online course is actually offered through Diablo Valley College (DVC), where Jennie used to teach before she moved to Hawai'i two years ago. DVC is a publicly supported two-year community college in the Contra Costa Community College District. The main campus is located in Pleasant Hill, California (20 miles east of UC Berkeley). DVC has six satellite centers and enrolls more than 26,000 students.

Although Jennie's face-to-face courses are predominantly comprised of Hilo residents, the online course she teaches at DVC attracts students from diverse locations such as California, Alaska, Minnesota and Japan, to name a few.

Jennie began college teaching in 1989 and just over a decade later in 2000 she taught her first online course. She calls her current face-to-face courses 'paperless classrooms' and explains, "I have computer-enhanced instruction for all my face-to-face instruction . . . I have a website that they can go to for the syllabus, my testing, WebCT discussions and I have my PowerPoint lectures . . . they can find out about the books I use, the study guides, any of those things."

She once observed a teacher using PowerPoint and it had a big impact on her. "I thought, wow! I want to do that too!" She taught herself and began using it in her classroom. Next, she sought more technical training and her face-to-face classes became

web-enhanced. Those steps led her into trying a completely online class, and although she has only taught one so far (History of the American West), at the time of this study she was in the middle of developing another online course to be offered in Fall 2004, through Hawai'i CC. Diablo Valley College supports the use of WebCT, as does the University of Hawai'i, thus Jennie prefers to use it because of the support structure available to her.

Teaching Styles

Jennie likes structure, and says that her classes are very structured, because managing large numbers of students demands a high level of organization and time management. One thing that came out clearly with this faculty member is that her teaching styles and techniques barely differ between online and face-to-face courses. Bearing in mind that her classroom is strongly web-enhanced, she believes that does not change her style between mediums. Although she notes small differences in some aspects, such as online students being a little 'braver' in discussions online, and an increased need for flexibility with online students, she believes her style remains constant.

She observes that students in online courses are willing to discuss controversial subjects more freely because they're not in the classroom and don't necessarily know the other students personally. They challenge each other. However face-to-face students are certainly more reluctant to put forth their opinions on contentious topics. They are more likely to assist than confront each other.

When asked what she would say to a student about her teaching routine, she replied, ". . . that I'm responsible for 30% where I teach—the passive learning where I'm the lecturer . . . and 30% they are responsible for teaching the class and we get into class discussions, sharing in groups and talking to the class. Then the rest of the class is a mixture of learning pairs and debates, or audiovisual film work. . . "

She also views her teaching styles as changeable throughout the semester. At the beginning, she starts off using a deductive approach, when students need more handholding, and toward the end of the semester she moves into an inductive approach, to encourage students to be independent learners.

Jennie thinks that since she began teaching online, over time, she has made some adjustments in the way she teaches—in terms of raising her standards. "I think I've raised my standards over time, and I think in raising those standards you really force them (students) to do more critical thinking, and you begin to expect more out of your students."

Although online teaching suits her individual lifestyle, and has been economically beneficial to her, her heart still remains in getting the personal contact with students that face-to-face teaching offers her. "It's not the same as face-to-face, not even in the ballpark. I don't get to give them a big hug at the end of the semester and tell them how highly I think of them."

Summary

Her dominant face-to-face teaching style is *Facilitator.*

Her dominant online teaching style is *Facilitator.*

Dr. Barbara Liechty Introduction

Barbara teaches at two institutions: De Anza Community College in California and Kapiolani Community College (KCC) in Oahu, Hawai'i. Although resident in Hawai'i now, Barbara used to live in California while teaching at De Anza. After moving to Hawai'i four years ago, she let go of her face-to-face courses but kept part of her teaching position at De Anza by providing some courses online. At De Anza, the academic year is split into four 12-week quarters and Barbara teaches a variety of Human Nutrition and Food Science courses. De Anza is a community college that feeds into San Jose University and Stanford University. Students are typically taking nutrition courses as part of their pre-requisites to get into medical fields at universities in California.

De Anza College has a student enrollment of 45,000 students. Barbara says the College introduced online courses about 15 years ago, and has continually provided funding and infrastructure and supports faculty members to develop their courses into distance education programs. Release time is not given to faculty to develop their courses online—instead salaries are higher with expectations that the faculty members take on that responsibility as part of their duties. Hand in hand with that, IT support services enable faculty to make their online courses with 'relative ease'. There are templates set up so faculty can simply edit their web pages without much knowledge of HTML coding, for example. All faculty web pages look the same (branding), unless the Division seeks permission to deviate.

The contrast with Kapiolani Community College (KCC) is great. When Barbara arrived there she found, and still finds, that the infrastructure is lacking: there is not a

cohesive standardized system to assist faculty to get their courses or programs online. At KCC, Barbara teaches 'The Science of Human Nutrition'. The course is not a direct feeder into programs at UH Mānoa, although some students do go on to graduate study there. At both institutions, all Barbara's courses are offered at the undergraduate level. While her KCC classes are struggling for numbers, her De Anza classes are capped at 50 enrollments and waiting lists are very long.

Although Barbara has been teaching at college level for 22 years, now she only teaches online. Barbara got into online teaching at De Anza in the early 1990s and was literally told by the Chancellor (whom she now considers forward thinking) "you will do this, and you will do it well". So, in 1992, she collaborated with other faculty, and they pulled together some materials and literature and put their first course online. To quote Barbara, "for the first two years, it was horrendous." There was no structure, no Learning Management System (LMS), and most of all, both the students and the faculty only had the old correspondence style of distance education as their template for how things should work. In the beginning her class sizes were smaller—around 20 students. Nobody was used to online learning in terms of what it has grown into today, and wouldn't have imagined teaching 50 or more students online.

At De Anza, faculty can choose from among four software programs (WebCT, Blackboard, ETUDES and Minella) in which to teach their online courses. Currently, after 14 years of online teaching experience, Barbara chooses Minella for her De Anza courses. At KCC, she is strongly directed into using WebCT much to her chagrin; she finds it cumbersome and difficult for students and faculty to master. She wishes she could

persuade KCC to move away from WebCT, but realizes that there are political and financial reasons behind the decision to support this software system.

Teaching Styles

Barbara believes that a 'good teacher' can teach either online or face-to-face, and there should be no difference for the students in terms of learning outcomes. She has been teaching both online and face-to-face for many years, and only stopped teaching face-to-face about four years ago when she moved to Hawai'i. Her advice to students taking her courses is, "get in, do the work, and get out." She tells them, "if you read everything I tell you to read, and ask plenty of questions, you'll pass." When she was going through graduate school, she hated group work and, consequently, she will not make her students do it. She thinks that peer-feedback is one of the latest buzzwords, and does not "buy into that type of teaching." Although she receives positive course evaluations from her students, she admits that the one thing they say to her is, "I wish there was more interaction online." She says that is partly because she has not found a time-efficient way to manage discussions online.

Instead of 'fluffing around' with the social niceties, she prefers to cut to the chase. Besides, as she puts it, "discussions are not as successful in online classes as face-to-face, because when you get oddballs, and you always get one, they can throw you off for days." Barbara realizes she can't keep everyone happy, but she has found a teaching system that gives the majority of her students the skills and knowledge they need. Most of them go on to further education and need these pre-requisite courses to get into their

desired programs. She says she would like to include more case studies in her teaching in future.

When she taught face-to-face classes, Barbara liked to make use of independent research projects. She would have her students complete learning units and self-discovery projects.

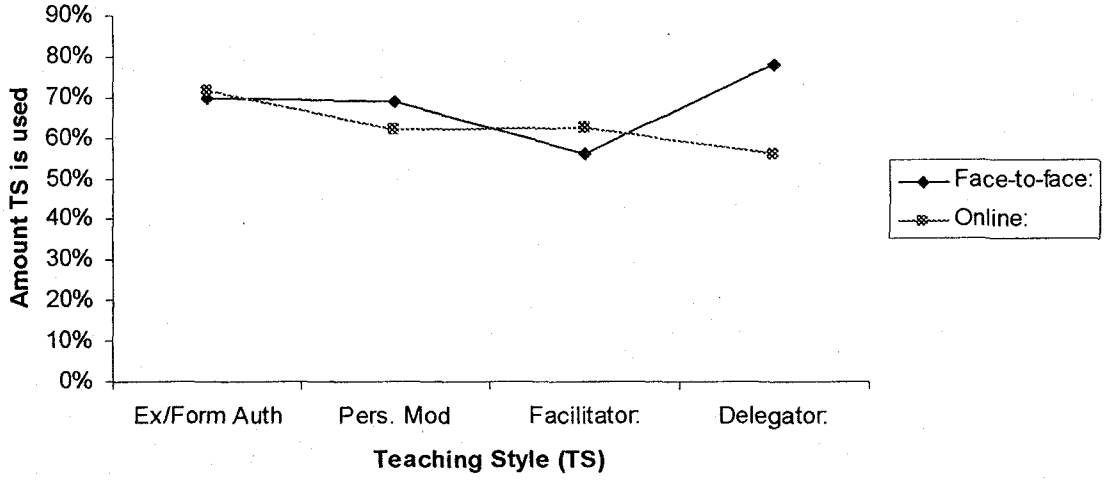
Barbara would choose online teaching ahead of face-to-face because of the flexibility it allows her lifestyle. She can work at two institutions in two different states, with minimal flying. She also comments that the quality of work produced by students online versus face-to-face is unquestionably higher. Reasons for that may include the demographics of the students themselves, such as older and more mature students than the typical college-age 'kids' who attend live classes. Also, she suggests there may be a base motivation level to take an online class and be successful in it. Students in an online class tend to come from all across the United States, as well as internationally. Naturally you get some of that in face-to-face classes, but not to the same extent.

Summary

Barbara's dominant face-to-face teaching style is *Delegator.*

Barbara's dominant online teaching style is *Expert/Formal Authority.*

Figure 3. Barbara Liechty Teaching Styles



Dr. Grace Miller Introduction

Grace teaches three online courses: ANT 150 Human Adaptation; ANT 200 Cultural Anthropology; ANT 215 Physical Anthropology; and one face-to-face course: ANT 210 Archeology. These courses are offered at Leeward Community College located in Oahu, where Grace has her office. All her courses, whether face-to-face or online, have about 25–35 students.

From 1990 to 2000 she was the chair of her department—during which time her major goal was to get all her faculty a computer at least, and Internet connection if possible. She came to the belief that this was going to be a 'big thing' and in 2000 she took a one-year sabbatical based in Kona. She had a quick two hour orientation to WebCT before she left, then spent most of her sabbatical at the computer teaching herself. "Mostly I just sat on the computer and taught myself a lot of stuff. I had to learn how to scan in pictures, and I learnt Adobe Photo Deluxe, Frontpage, and I taught myself WebCT. When I was on sabbatical I was working on one specific course, which was ANT 215".

Grace had only ever taught traditional classes until this point, but during her sabbatical she offered the course online as an experiment while she was building it—two students enrolled. She thought that would be the most difficult course to put online because it has a lab component. It has twelve online labs and about seven live labs during the semester.

For about four of the labs she takes a travelling lab, complete with all the bones, to neighbor islands. She has found that despite using links to sites featuring fantastic 3-D

rotating bones, students just can't quite grasp the idea of bone and feature identification without getting their hands on them. "I mean, it is a super site and the highest tech, everything, but the students just can't get the hang of it virtually. The students still tell me after the live lab, 'this just made all the difference' and '*now* I understand'."

Teaching Styles

As a student Grace strongly detested group work; as an instructor she rarely uses this approach. She likes to lecture and have students take notes in her live classes. She prefers students do their work individually. She comments about her theory of an online course in this manner: "Yeh, I guess my philosophy of an online course is that it ought to be convenient for the student, otherwise what is the point?" Her course is run completely asynchronously with very strict standards and requirements that students must adhere to. Student work throughout the semester is pretty much self-paced, except for labs and exams which are posted at certain times. She gives extra points for students who participate in her teacher-centered discussions. This is also serves the purpose of "even-ing up with my face-to-face classes", in which she gives points for attendance, but can't really do that online.

Grace reflects upon her online course which influenced what she is now doing in her face-to-face class. She found that she wanted her face-to-face students to look at the site she made . . . "It's changed my Anthro 150 because I liked the labs that I created online so well that essentially I've done away with writing exercises in the 150, and I basically give them the labs instead."

She describes herself as a very linear person who likes to work in a methodical manner. Online takes up more time than face-to-face. ". . . students in online get more communication. I get more email since I get more questions, they're longer, and I can answer more at length since I'm not in class."

She enjoys her face-to-face classes. "Sometimes the spontaneous off-the-wall questions are just fun! You think, geez, interesting way to look at it, I never would have looked at it that way, but that's OK. You don't get that kind of spontaneity, in a way, in an online class."

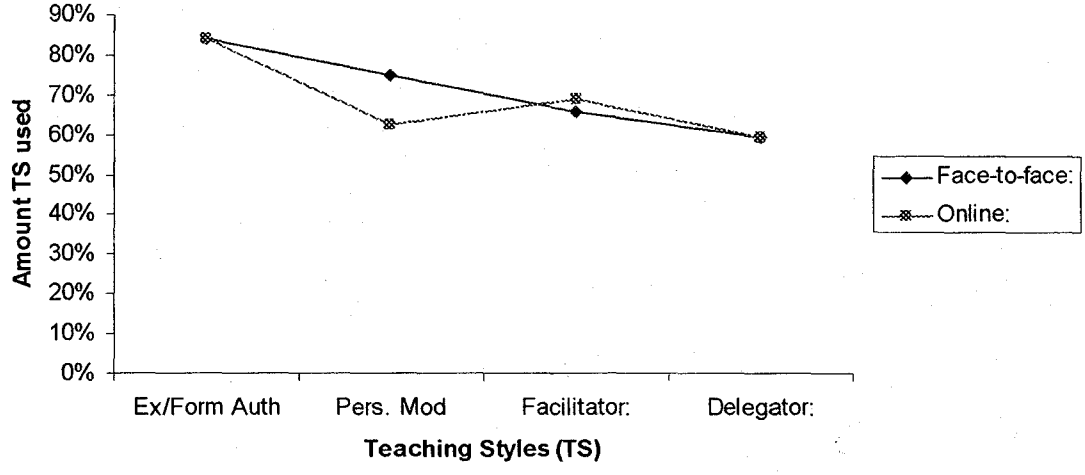
Grace feels a strong responsibility to define what the students have to learn and she reports, "I have gone so far in my Anthropology 200 cultural class as to say to students 'don't give me your opinion unless I ask for it'." She thinks that might be because these are not upper division nor are they graduate level courses. "They are actually students who know very little about the content of the subject." She is quite proud of the fact that she has practically never had a student who wished to get into a debate with her between creationism and evolution. "That's not the point. I tell them 'you're free to believe anything you want but, here in this class, you're going to learn the content of this class'."

Summary

Her dominant face-to-face teaching style is *Formal Authority/Expert.* (Personal Model was a secondary style)

Her dominant online teaching style is *Formal Authority/Expert.*

Figure 4. Grace Miller Teaching Styles



Dr. Birch Robison Introduction

Birch teaches at the Hawai'i Community College (HCC) campus in Hilo, based on the island of Hawai'i. Birch is responsible for teaching three courses which are run in a sequence as part of a Reading Program. The first and third courses are offered face-to-face: English 102: College Reading Skills and English 21: Developmental Reading. The second course is taught fully online: English 103: Critical Reading, Thinking and Problem Solving. All his students are undergraduate level, and in most of his courses he has between 10–25 students—90% of whom live in Hilo.

Although Birch has been teaching more than 45 years, he came to HCC 20 years ago and has held his faculty position in the English Department ever since. Comparatively, his online teaching experience is much less than his face-to-face experience: he taught his first fully online course in 1999 using WebCT. He has recently mastered using PowerPoint with Impatica and is excited to incorporate sound in his online courses, which were totally visual until this point.

Birch enjoys the online environment, despite the bigger time commitment, because it makes him better organized. "I would say I have far less free time, but far less emergency times . . . like I'm not sitting up late on Sunday night correcting 25 papers at once." His enthusiasm for online teaching has affected his practice in the classroom-based courses. Birch now refuses to take a classroom unless it has Internet connection, and forewarns his potential students that they will need access to a computer to complete the course work. In fact, he refers to his face-to-face courses as 'hybrid' because of the large amount of online component. A student could actually complete almost all

coursework without ever coming to the classes, although two-thirds of them choose to attend regularly. He likes the online environment because "the level of interaction taking place between the instructor and students is better than face-to-face", and explains, "in the classroom you have a tendency to pay attention to the squeaky wheel but in an online environment you can reach far more people."

Birch says that online teaching has its downfalls too, complaining, "there is absolutely NOTHING that is spontaneous", and "doing some things online are kind of scary in a way because you don't quite know what happens to the student you lose, and you don't catch them before they totally disappear". Additionally, he feels he can give better feedback in the classroom when he meets students in person.

Teaching Styles

Birch feels that his teaching style in the face-to-face and online courses are very similar, especially considering the large web-based component in his face-to-face classes. Working with online technology has brought about changes in his teaching habits.

Birch makes the comment, "If you want to know what I did before, (before he taught online in 1999) it was totally lecture, discussion and maybe an in-class activity." Now, he describes his teaching approach as better organized and well planned ahead of time.

In the online classes, Birch feels that everything is quite rigid, planned and well designed. He announces weekly schedules, weekly agendas and the majority of communication with students is through some presentation that he has spent time creating

to put on the website. Although learning processes are important, the content is what drives his focus on the curriculum. His approach is to present a set of procedures that the students are expected to practice, improve upon and ultimately master.

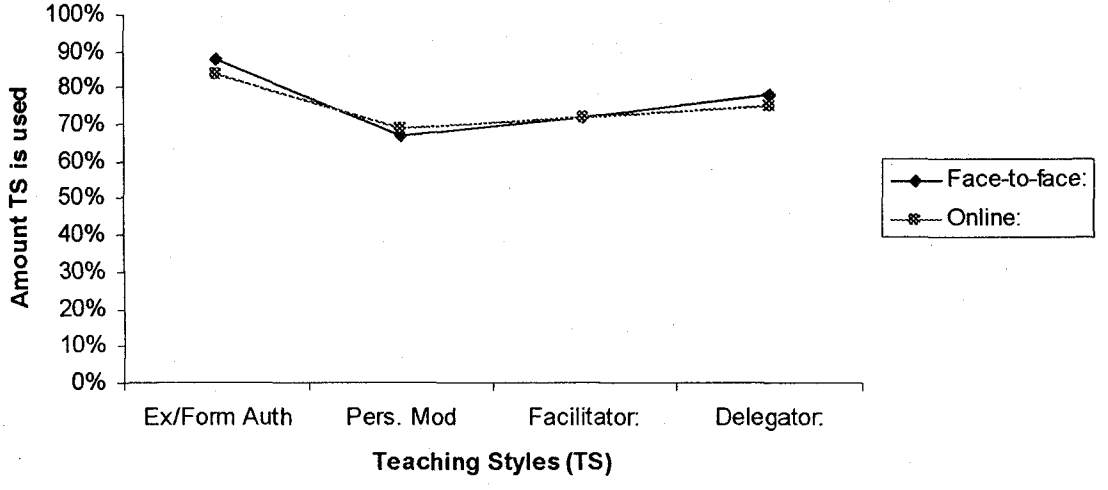
He believes his role as the instructor is to provide and control the flow of content, which the student receives and assimilates. His focus is not on creating a relationship with the students: as long as they master the content they are given, he has done his job. To help them master this content, he provides both positive and negative feedback and gives them consistent expectations and learning goals throughout the semester.

Summary

His dominant face-to-face teaching style is *Expert/Formal Authority.*

His dominant online teaching style is *Expert/Formal Authority.*

Figure 5. Birch Robison



Dr. James Shimabukuro Introduction

Jim teaches at the Kapiolani Community College (KCC) in the English Department. He has been at KCC for about 35 years and this semester, because of his many other commitments, he was responsible for teaching just one course: ENG 215 Argumentative Research and Writing. Prior to this, Jim taught face-to-face courses for decades. Even though the ENG 215 course was formally offered in two sections of about 20 students in each, since he taught them both online, Jim took advantage of the medium and combined them into one class.

Jim uses WebBoard because it is a forum program, which allows him the freedom he seeks. He tried WebCT and found it clunky. "I don't have to work the way WebCT works, I can do it my way", says Jim. Jim believes he was one of the first, if not the first, in the UH system to teach online in 1998. He recalls that earlier online students needed a lot of handholding and could not adjust to online activities. They needed a terrific amount of reassurance. Nowadays, he finds a mix of students in his class and notices there is almost a 50-50 split between "kids straight out of high school and the returning-to-study adults." His frustration is in managing these two separate populations in one course. He finds students fall into one of two camps: 1) The student who is independent and just wants to get on with it. "The lectures are too slow. Just show me the directions and leave me to it . . . do I really need to come to class?" and 2) The student who needs the constant reassurance and needs to know if they understood things correctly "Ah, yes I read the directions but I still don't know what to do."

Teaching Styles

Jim thinks his learning style partially colors his teaching style. He considers himself a low maintenance learner and explains his individual approach toward learning is independent: "I can read it on my own. I can do it on my own". One of his goals as an instructor is "to reach the point of adult to adult instead of parent to child". He likes to take the role of encourager and lets the students take ownership of the class. He also likes to foster a community feel within the class.

The biggest adjustment for Jim in moving from face-to-face to online is the issue of time. He finds that students who lag take an inordinate amount of time. "It's almost like creating a special class just for one person. Having to explain, adjust schedules, having to write separately to them . . . the ones who keep up actually use the least amount of my time."

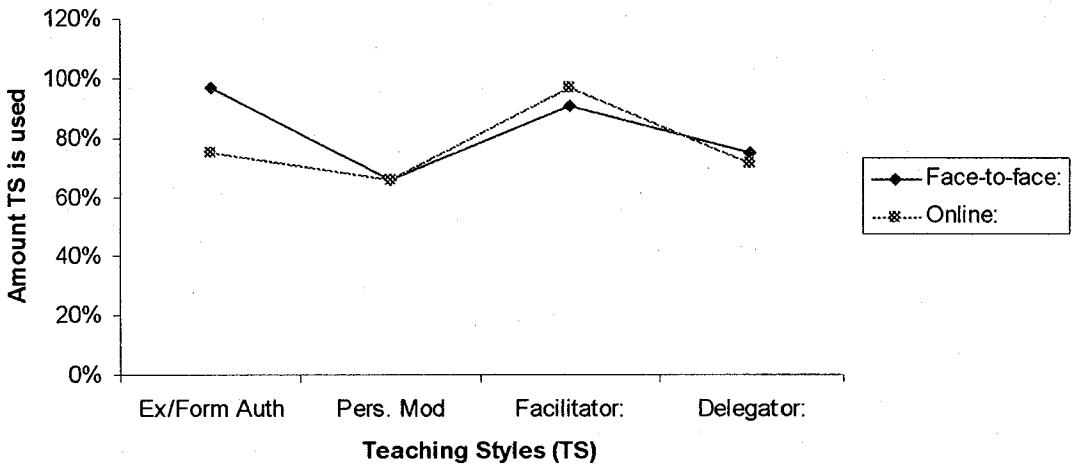
Jim transitioned from teaching live classes to teaching hybrid and now to fully online. He thinks a specific kind of teaching that can flourish online is one-on-one tutorials. "Most of us know how we react to e-mail: Oh hell, another boring listserv post to all of us . . . woops, here comes a message aimed at me alone. Suddenly we're attentive, curious to know what someone wants to tell us". He theorizes that if the someone is our teacher, we pay attention as we do when we're in his or her office to get the response to our latest essay. For many students (maybe most), that kind of personal attention is critically important, thinks Jim. It gives them the message that they are important, what they does matters, and it matters especially that they do it well. "Until students learn that lesson, they learn nothing."

Summary

His dominant face-to-face teaching style is *Formal Authority.*
(Facilitator a strong secondary style)

His dominant online teaching style is *Facilitator.*
(Formal Authority a secondary style).

Figure 6. Jim Shimabukuro Teaching



Dr. Dan Spears Introduction

Dan is a professor at the UH Mānoa campus in the Tourism Industry Management (TIM) School. After graduating with his PhD from Kansas State University he took his first faculty position in this Department in August 2000 and, as such, he considers himself a new faculty member. With all the other responsibilities he must meet, Dan finds his teaching load rather heavy: during the semester in which this study was being conducted, he was teaching three large face-to-face undergraduate classes and one online graduate course—TIM 602. The TIM 602 Services Marketing online courses is part of an eTIM Certificate for an online program, made up of four courses. Although he caps this course at 18 students, he believes that 18 is really too many because of the large time commitment needed for each student. He estimated spending about 35 hours per week on this class alone; 20 hours for administration, grading, and teaching; 15 hours for technology support. He experiences frustration at the amount of time he needs to put into technology support. After he records a lecture session at the new G-technology center, getting it converted is a lengthy process. It comes out in DVD format and then Dan converts it into AVI format, spending as little money as possible, by a complicated and time consuming process. Since his lectures are only a small part of the whole course, he finds this situation very de-motivating.

Dan taught his first online course in 1997 as a doctorate student at Kansas State University and was using voice over PowerPoint at that time. In his current TIM 602 course he uses WebCT, but as he finds it "too cumbersome" he treats WebCT as the home page, although his content has been made in Frontpage, and free software called EZBoard. As a requirement for his course, online students must do a presentation on

video and post it to the website. Students can do it at home with a webcam, or come in to the TIM School to use the facilities. Since many of the students are based in Asia (therefore it is not possible to come in to the TIM School campus) he allows them to do voice over PowerPoint. Often this component requires a lot of one-on-one coaching for the students to complete their task.

Teaching Styles

Dan believes his learning style dictates his teaching style. He thinks students flourish doing self-discovery activities. "It is all about self-learning. I tell them (the students) it's about what YOU make of your experiences here". He likes his students to run the discussions in his online course and encourages students to take a teaching role, but if need be he'll moderate. "If I notice the issue is getting out of control, then I become moderator, and say 'get back on the issues, get back on the issues'." He tries to stick to his style but says, "restrictions of non-face-to-face make it difficult to get my message across." Dan thinks the teaching techniques he uses for his online courses have crept into his live classes. The most obvious example is that he now runs all his face-to-face courses in a web-enhanced manner, using a companion website and a discussion board. Student designed group projects are a favorite teaching technique. Currently his online courses make strong use of videos during group work. In future, he would like his online courses to be even more video intensive to provide greater visualization and a closer approximation of being a face-to-face 'classroom'.

In his face-to-face classes he still loves to lecture. "I love lecturing, that's one of the things I love to do – they're big classes". In fact he prefers the live environment to the

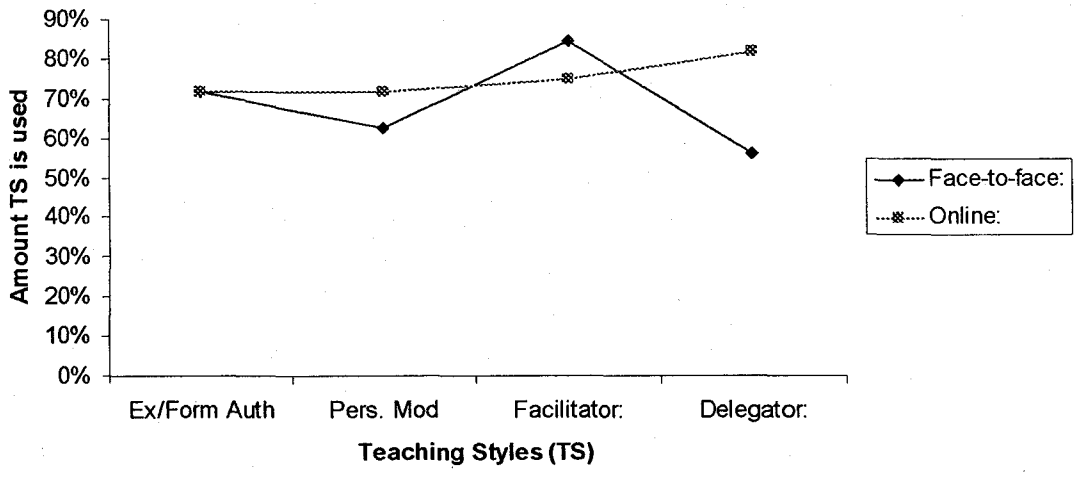
online medium. "I do get more enjoyment out of being in class because I can see people and I can see what they call the 'bright eyes' if they're getting it . . . I need that validation in order to keep me satisfied in my job". He thinks it is important to spend time coaching and guiding his students and will illustrate alternatives when necessary. He is a fan of role playing, simulations and small group discussions.

Summary

His dominant face-to-face teaching style is *Facilitator.*

His dominant online teaching style is *Delegator.*

Figure 7. Dan Spears



Dr. Shirley Yamashita Introduction

Shirley Yamashita teaches in the Educational Technology Department of the College of Education at the UH Mānoa campus. Although she began her college teaching career 35 years ago she joined this department later, in 1998. A year after that, she taught her first online class.

Shirley is responsible for teaching three graduate level courses and three undergraduate level courses. Two of Shirley's graduate level courses are completely online: ETEC 667 Technology in Non-Tech Disciplines I and ETEC 668 Technology in Non-Tech Disciplines II. One of her undergraduate courses is available either online or face-to-face: ETEC 448 Links to Lifelong Learning. The remaining courses are listed as face-to-face, but she explains that they are basically hybrid courses, i.e., have a large web-enhanced component.

Typically her classes, whether face-to-face or online, have between 17–20 students enrolled. Almost all face-to-face students are Oahu based, while about half her online students are non-Oahu residents.

Shirley became interested in online courses as a way to reach previously deprived populations. She also feels that online learning "offers a chance to establish a closer one-to-one relationship with students and concomitantly, individualize learning so that each student reaches his/her highest potential".

Teaching Styles

She strongly believes there are no differences between her face-to-face and online teaching habits. All her face-to-face classes use a lot of technology and have a high web component to them. Her expectations of online students are equal to her face-to-face students.

Shirley uses a variety of methods: short lectures, demonstrations, discussions, student-led presentations, projects, and hands-on learning experiences. Her online teaching routine mirrors her face-to-face teaching most of the time. She likes to use peer feedback extensively and believes it is highly valued by the students, according to course evaluations and reflections. "Peer-feedback is considered essential. As the instructor, I am only *one* component of the entire 'learning community' which is comprised of *all* of the students as well." She holds the philosophy that peer feedback helps "the giver of the feedback to hone their thinking skills, but also helps the receiver with constructive criticism that will catapult him or her to higher levels of achievement." She emphasizes learning, not competition.

Although Shirley completed her web questionnaire with exactly the same answers for face-to-face as for online, the interview questions brought out some small differences in the two contexts. Whereas her face-to-face classes incorporate a significant amount of group work, and collaboration is always encouraged for individual assignments, in her online classes she makes assignments a little more individual. "Online learners prefer individual work, so I tend to make most of the assignments individual." That being said, they are encouraged to collaborate and are asked to provide feedback to each other.

When Shirley plans the curriculum for her classes, she focuses on personal growth for the student, learning processes, and content, in that order. She values interaction between herself and the students, and makes it a high priority for her face-to-face classes as well as her online classes. However, she notes, "in a face-to-face class, there is a finite amount of time when the class meets together and when the class can interact with the instructor. In an online class, there is no finite time limitation—it is literally a '24/7' class. Students who are shy and who would normally *not* participate in face-to-face classes do participate in online classes and at the end of the semester, I have interacted greatly with *each* and *every* student. Can anyone say that of face-to-face classes?"

Summary

Shirley's dominant face-to-face teaching style is *Facilitator.*

Shirley's dominant online teaching style is *Facilitator.*

Figure 8. Shirley Yamashita

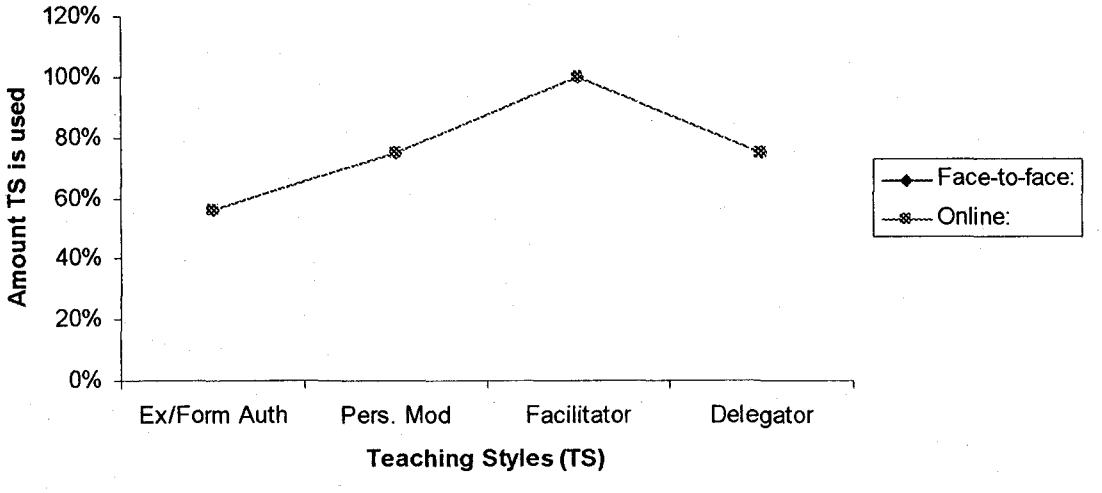


Table 5 presents a synthesis of the ideas generated by the majority of faculty as to what constitutes successful online teaching habits and practices.

Table 5. ***Faculty Perceptions of Successful Online Teaching Practices***

Technique	Explanation
Interaction	An essential responsibility of an online instructor is to solicit a high level of student interaction. Interaction means that any kind of communication is taking place between the student and the instructor, other students, or with the content itself.
Participation	Similarly, but distinctly different from interaction, participation concerns involvement and presence, without entailing any response or feedback. Level of instructor involvement strongly affects the amount of student interaction and participation. If an instructor interacts and participates a lot, e.g., by regularly posting messages in the discussion forum or commenting via e-mail, students do likewise.
Feedback	Timely feedback is highly important to students in online courses; they want to know if their work is satisfactory. Feedback is usually by an email, or a comment on assignments that students have submitted. Another form of feedback is peer evaluation. It is helpful for students because it comes from another learner's perspective, rather than someone who has already mastered the content.

Table 5 (continued). ***Faculty Perceptions of Successful Online Teaching Practices***

Technique	Explanation
Facilitation Skills	A principal purpose of the online instructor is to moderate and facilitate student discussions. That means encouraging student participation in discussion forums and conferences; making sure certain students don't dominate; keeping discussions focused on the topic; ensuring multiple perspectives are raised; and providing a summary of discussion highlights. Presenting information is lessened; helping students find information is paramount. It may take longer to teach particular content in this way, since some students take time to acquire the skills or knowledge desired on their own.
Experience	One of the difficulties faced by most new online instructors is their lack of experience with moderating or facilitation techniques (unless they come from a background where these methods are commonly practiced, e.g., elementary education). Online course training programs focus on the how-to of the specific online software, but fail to prepare instructors with facilitation skills needed in online teaching. Instructors who have these skills already have a big advantage. Faculty who acquired some experience as online learners felt they understood better how to teach online.
Transition Coping Strategies	In a classroom, the faculty member tries to impart information and enthuse students to learn content matter. They are the dominant resource for students. In online learning most information resources can come from databases or collaboration, so faculty find themselves in a different role. Currently the culture of creating a lesson plan alone is normative practice. Strategies are needed to help faculty cope with the added demand of a heavier teaching workload of an online course.

Summary of Findings

The findings of this study indicate that online teaching at the University of Hawai'i is comparatively new—the average number of years of this group's teaching experience in face-to-face was 20 years, compared to 5 years teaching experience online. Two thirds of the faculty in this study used the institution-supported WebCT software to teach their online courses. Due to the selection criteria, one third used an alternative to WebCT . Their reasons for choosing software programs other than WebCT were because they believe WebCT restricts what they want to do, or their chosen software achieves it better than WebCT.

When these nine instructors teach their face-to-face classes, 4 use the Expert/Formal Authority style; 3 use the Facilitator style; 2 use the Delegator style. When they teach their online classes, 3 use the Expert/Formal Authority style; 3 use the Facilitator style; 3 use the Delegator style. Although many instructors from this group used some techniques from the Personal Model style, it was not present as a dominant style in either face-to-face or online teaching. (See Table 4). There was a minimal difference between the teaching styles of faculty in the online and the face-to-face medium: 4 faculty had a different dominant teaching style in the online environment, (but they fell into a different quadrant by narrow margins); 5 faculty kept their same teaching style in both environments.

Their experiences teaching an online course differed compared with prior teaching experience, as shown in the Identification of Issues tables below. In order to help future online instructors in their teaching approaches and interactions with students

it was necessary to identify issues that faculty are dealing with in day to day reality. Once a list of issues had been identified, it became clear that not all faculty saw each issue in the same way. Therefore, two tables of issues were created to separate the dichotomous issues, and 'unanimous' issues. Table 6 shows four dichotomous issues that occur as a result of online teaching: Instructor-student interaction, Changing concept of time, Hybridization of face-to-face, and Perceptions of student access to technology. That means faculty were in agreement about it being an issue, but they were split in their opinions and perceptions as to which 'side' of the issue was an issue.

Table 6. ***Online Teaching issues viewed dichotomously by faculty (n=9)***

Issue	Explanation
Faculty-Student Interaction *'It's better and it's worse'*	Five faculty in online courses find interaction with their students increases compared to face-to-face courses—because most students are comfortable making comments and asking questions though e-mail. The increased interaction occurs not only at a class level, but also on a one-to-one level with each student. *(Better in online than face-to-face)* However, four instructors believe their interaction with students is less rich in an online environment because it lacks the cues of body language, intonation, facial expressions, and the immediacy of in-person conversation. *(Worse in online than face-to-face)*
Concept of Time *'Time Intensive versus Time Saving'*	Six faculty think online courses are more time intensive than face-to-face courses. Reasons include increased student interaction, technology challenges and coaching each individual student. They have far less free time; they are online all the time and will answer students right away, i.e., they 'teach' their course every day at any hour ('24/7'). For these faculty, a sense of time changes. With their face-to-face course, they think in terms of class on e.g., Monday and Wednesday, and they think in terms of time units – e.g., one hour increments. They plan the course that way, and view students that way. With their online course, the idea of 'wait until Wednesday' to say something, changes. If the instructor thinks of something on Sunday at 2am, they can immediately tell their student by posting it, and they do. *(Time Intensive)* Two of the six faculty say they need to spend an inordinate amount of time on the technical side of preparation, course development and continuous updating. Their hours are just 'eaten up' at the computer. *(Time Intensive)*

Table 6 (continued). ***Online Teaching issues viewed dichotomously by faculty (n=9)***

Issue	Explanation
Concept of Time (cont.) *'Time Intensive versus Time Saving'*	Yet, as one faculty member comments, isn't technology here to DECREASE our time commitments? It is possible for online teaching to be controlled and managed to reduce the time expended in teaching, for certain types of courses. Additionally, three faculty reported being more organized and more structured, creating a more time efficient way of operating. *(Time Saving)*
Hybrid Courses *Transition or catapulted*	Five faculty moved into online teaching by transitioning. They used their existing face-to-face course and gradually added in web-based components. Their face-to-face course became a 'hybrid'. Lastly, they developed a fully online course. *(Transition)* Sometimes it works in reverse. Four faculty members were catapulted into teaching an online course. As they gained more experience teaching online, they added more web-based components to their face-to-face courses, changing them into 'hybrid' classes. *(Catapult)* Whether transition or catapult, all faculty developed hybrids.
Perceptions of Student Access to Technology *'Hi-tech vs. technophobic'*	Perception of student access to technology varies among faculty. Four faculty thought their students are computer literate, have the latest and greatest technology at their fingertips and have already taken an online course elsewhere. *(Hi-tech)* Yet five faculty members have the experience of students who still use dial up modems, can't afford up-to-date software, are really quite technophobic, and are (at first) intimidated by the online medium. *(Technophobic)*

As previously mentioned, faculty experiences teaching an online course differed compared with prior teaching experience in face-to-face instruction. In order to help future online instructors in their teaching approaches and interactions with students it was necessary to identify issues that faculty are dealing with in day to day reality. Whereas Table 6 showed four issues that faculty saw differently from each other, Table 7 identifies seven issues that faculty commonly raised and the majority agreed upon.

Table 7. ***Online Teaching issues commonly agreed upon by faculty(n=9)***

Issue	Explanation
One Motivation For Teaching Online	Nine faculty felt that a motivating factor for their participation in online teaching is flexibility. Online teaching provides faculty with the same anytime, anyplace experience that makes distance education attractive for students.
'Quiet Student' Participation	Nine faculty commented that students who might normally be withdrawn in a traditional class find non-verbal interaction less intimidating and participate more strongly in the online classes.
Student Work Quality	Seven faculty stated that student work quality is usually higher in online courses than face-to-face. There may be many reasons for this, including more mature population of students, higher intrinsic motivation levels to participate in an online course, increased instructor-student interaction, and students receptivity to the learning material (i.e., they come to 'class' when they're ready, not at a designated class time). Two faculty members believed that work quality is the same, whether face-to-face or online. Interestingly, none believed work quality to be poorer in online.
Teaching in Isolation	Few faculty who participated in this study engaged in team teaching for their online course. Bates (2000a) used the term 'Lone Ranger' to describe a commonly found approach to technology-based teaching. The 'Lone Ranger' is an individual faculty member who works independently—perhaps with the assistance of a graduate student. Seven faculty fit into this category. Two faculty who participated in this study sometimes work with a team of professional instructional designers, graphic artists, producers, and directors to make a refined 'product' with a long shelf life. In addition some collaborate with colleagues for team-teaching parts of their course. However, there were indications this trend is going to grow in future.

Table 7 (continued). ***Online Teaching issues commonly agreed upon by faculty(n=9)***

Issue	Explanation
Lack of Spontaneity	An issue that troubles seven faculty is the lack of ability to be spontaneous in their online courses. They feel that teaching online requires more organizational skills and structure than face-to-face courses and as a result, courses are less flexible. For example, it was not as easy to make adjustments based on student feedback in online courses as face-to-face.
Replicate Face-to-face	When instructors have prior experience in traditional face-to-face teaching situations, they have a tendency to look at how they can replicate what they are doing, in their new online course. Seven of the faculty began by trying to stick to their teaching style, but only when they came up against restrictions of non-face-to-face, did they adapt some styles and techniques. With online experience a pre-requisite qualification for new faculty positions in many departments, this trend may decrease in future.
Relationship between Learning Style and Teaching Style	Often, faculty feel their own learning style dictates or is reflected in their teaching styles. In this study, six faculty made the comment that their teaching style is influenced by their own learning style. Two faculty weren't sure, and one faculty member believed the two are not related.

Chapter Five: Discussion

This section will first address the goal of the study by interpreting the findings, second, determine whether the hypotheses were supported or not, third, address the case study method used for this study, fourth, assess the limitations of this study, and finally, suggest areas for future research.

Goal of the Study and Interpretation of the Findings

Three research questions drove this study: 1) What differences, if any, occur in teaching styles, practices and habits of face-to-face and online instructors? 2) How do experiences teaching an online course compare with experiences teaching a face-to-face course? 3) Which teaching styles, practices and habits do faculty perceive as effective in the online environment?

The goal of the present study was to understand the teaching styles and practices of higher education faculty members who teach online and face-to-face courses, and to identify faculty perceptions of successful teaching practices in the online environment, in order to help future online instructors in their teaching approaches and interactions with students.

The findings of this study are consistent with others (Berge, 1996; Kearsley, 2000) that based on faculty perceptions, effective online teaching requires good moderating and facilitation skills. It was mentioned in the literature review that preliminary research suggests facilitative teaching styles seem to be more effective in online courses than do other teaching styles (Diaz & Cartnal, 1999; Grasha, 2000;

Matheos & Archer, 2004). However, examination of teaching styles and practices among these nine participants revealed that a variety of teaching styles are being used in online instruction. Some are facilitative styles, others are not. The findings of this study indicated that for the nine UH faculty who participated in this study, instructors are no more likely to be facilitators online than they are in traditional class settings. These instructors feel a strong need to replicate their face-to-face practices and teaching styles in the online forum.

Simultaneously, many instructors who are teaching online courses are changing how they teach their face-to-face classes—making them more web-enhanced and, to a degree, emulating aspects of their online courses. Faculty do not leap into online teaching and do things radically different from they way they teach their face-to-face courses. True, some take advantage of cutting edge technology developments to achieve show-case learning activities for students but, on the whole faculty don't use the online environment to do things very differently from what they have previously done.

Yet small changes do take place in their teaching habits and practices. For one thing, interaction with students is considered different by these faculty members—some say it is better and others say it is *not* better, it's worse! Whichever camp they are in, all nine faculty comment that a sense of interaction with students is different in online than in face-to-face, therefore they way in which they design, manage and carry out interaction has to be adjusted from what they do in a purely face-to-face course (excluding web-enhanced, or 'hybrid' face-to-face courses). In some cases this adjustment is so large, that it impacts on their overall teaching style, and in other cases, the changes do not affect the dominant teaching style. For example, an Expert/Formal

Authority faculty member who relies heavily on lectures and teacher-centered discussions in their face-to-face course, may decide to record their lectures then post them online and initiate discussion threads using WebCT as a means of replicating their face-to-face teaching style. However, whereas in their face-to-face class they rarely receive questions during their live lectures, in their online class they receive many questions about the lecture content, in the form of direct emails to the instructor, from multiple students. Additionally, usually when they lead the in-class discussions they feel as though they are 'pulling teeth' to get student participation, but in the online environment, they get responses from almost all the students, and even from the 'quiet ones'. Do they spend an inordinate amount of time addressing each student individually, which may lead into several exchanges between them and the student? Do they post the answer to the question for all students to read, in the hopes that it will address the same question that many other students have too? Depending on how they respond and to what degree, their style may morph into a different dominant style.

Imagine that the Expert/Formal Authority instructor decides not to answer all the student questions individually but, instead, takes the questions and allocates several small groups to discuss and answer the problem, and ultimately post it on the bulleting board for all students to view. In addition, they set some self-discovery activities based around students investigating information that will lead to them problem-solving their own questions. If enough changes like the ones described here permeate their overall teaching approach, then they have moved into using a different dominant teaching style (in this case, a Facilitator).

Another change in teaching habits includes the issue of time: time management, a sense of time, time of day or night that instruction occurs, time that they spend per student, amount of preparation time and so on. Six faculty think that teaching online courses takes more time to teach than face-to-face courses. However, this includes course preparation, which often entails learning computer skills, even keyboard skills in some cases, new software and in some cases updating their own knowledge of the content area.

Yet another change, and perhaps the most far-reaching of all, is the growth of web-enhanced or 'hybrid' courses. In this study, five faculty transitioned into online teaching. They started with their existing face-to-face course and gradually they built in web-based components until the course became a mixture of face-to-face teaching and web-based components, i.e., a 'hybrid' course. Lastly, they developed a fully online course.

The other four faculty members did not transition into online teaching, they were catapulted into teaching an online course. They had to create the materials and gain the necessary skills to teach an online course. As they gained more experience teaching online, they began to add web-based components to their face-to-face courses, changing them into 'hybrid' classes.

In other words, to varying degrees, all nine faculty not only created and taught online courses, but they also added web-based components to their face-to-face courses. For example, some had courses that *required* the students to go to their website and complete certain activities in order to get their grade, while others had courses that provided a companion website with resources, materials, additional learning activities,

and copies of PowerPoint lectures. Although highly encouraged to visit the site, it was *optional* for students because they could still get their grade by completing only the face-to-face components.

In today's education environment does anyone wonder if blackboards are good or bad for teaching? It is simply taken for granted that they are familiar elements of the classroom and of the classroom social life. They can be used well or badly, they have strengths and weaknesses, but what matters is how they are used, by whom, and for what purposes. The same can be said of online education. What matters is how it is used by the instructor, and to what end. This study identified six practices that faculty perceive are effective in the online environment: Interaction, participation, feedback, facilitation skills, gaining experience, and developing coping strategies to make the transition (See Table 5). Consideration of these practices provides a useful guideline for future instructors of online courses.

Hypotheses

There were two hypotheses in this study: 1) that higher education faculty use a facilitative teaching style in their online teaching; and 2) that faculty modify their teaching styles when they move from face-to-face teaching into online teaching.

The findings from this study did not support the first hypothesis, and did not conclusively support the second hypothesis either. Although only a small group of nine faculty participated in this study, among the group there were a mixture of styles used to teach online courses: three faculty had a dominant style of Expert/Formal Authority, three faculty had a dominant style of Facilitator, and three faculty had a dominant style of

Delegator. None of them had a dominant style of Personal Model (although some techniques from this approach were present in their teaching).

There was also a mixture of dominant teaching styles in the face-to-face teaching context, with four of the faculty using Expert/Formal Authority, three using Facilitator, and two using Delegator. Again, none were using Personal Model as their dominant style.

However, when examining the pattern of each individual faculty, it was found that four participants had a *different* dominant online teaching style than dominant face-to-face teaching style. Five participants had the *same* teaching style, whether teaching face-to-face or online. In other words, some faculty adopt a different teaching style, and others do not.

Case Study Method

The case study method was useful for the exploratory nature of this research. The method allowed flexibility to follow interesting information as it came to light. The method also yielded in-depth information upon which to draw an understanding of faculty, who are actually in the field, practicing online instruction.

However, there were some drawbacks associated with this method. Because only a small number of faculty could be examined, the findings lack generalizability. In addition, the process of data gathering and data analysis was lengthy and time consuming because, unlike an experimental research design, strict parameters were not in place from the outset.

Summary

It could be said that the Internet, like a blackboard, is one of the many tools that can be used in the education process. When the revolutionary tool of a blackboard was introduced and adopted, it necessitated a certain style of teaching. In order for students to see the blackboard, and to hear the teacher's explanation, students needed to see the blackboard and to hear their instructor. Students all had to sit the same way (in order to face the board and the teacher) and to be inside a room that was not too large, or they would be unable to see and to hear. Most important of all, the blackboard allowed visual (instead of only oral) representation of ideas. The classroom and its physical set-up shaped and molded the teaching styles of thousands of teachers. In other words, that tool became a pivotal change agent for how education was taught. This kind of education is predominantly synchronous learning—teacher and student must be present for learning to occur.

Education using the Internet is analogous to the blackboard. Online education is changing the way teachers teach and, inevitably, gradually changing their teaching styles. The advent of computers and the Internet allows asynchronous learning to take place. These tools are widely used for distance education.

One could also view online education in today's world like the early movies. When movie producers created the first motion pictures, they closely imitated the theatre format. In these beginning movies, a camera was fixed to the stage until one day somebody realized that the camera could be moved. Then scenes could be shot from various angels and time manipulation could be performed when editing.

Online education currently tries to emulate the classroom. Faculty today have the chance to be designers of new ways of teaching and learning. Although these new ways may well imitate classroom instruction, they could also be very different.

To continue with the media analogy, over time, countless wonderful dramatic plays have been created for and viewed on television—plays that could also have been made for the stage. But only television can present events—such as the Olympics, or historic moments like Princess Diana's funeral—as they occur to millions of viewers. We are in exciting times, with an opportunity to define what is unique about distance education and to discover how it can be combined best with our current practices.

Mainstream campus-based education is already undergoing a form of hybridization as distance education technologies creep into face-to-face instruction. College students are coming to accept and require asynchronous learning opportunities within their so-called 'classroom' classes. At the very least, they want the opportunity to refer to a class website. Is it possible that the 'Distance Education Revolution' will pervade mainstream education to the point where Distance Education is no longer considered 'Distance', but simply, 'Education'?

Conversely, online instruction could impede effective teaching and learning because of the complicated and changing nature of technology, isolation of faculty and students, and unfamiliarity with the most effective teaching styles and practices that take advantage of the medium and provide the optimal learner outcomes. Understanding which teaching styles are most effective in the online environment, and how to use those

teaching styles, is one step toward helping instructors and students to succeed in their communication and education.

Limitations

There are limitations that need to be acknowledged and addressed regarding the present study. The first limitation concerns the external validity, the second limitation concerns the reliability and the third and probably most important limitation associated with this research is the inherent subjectivity of the case study methodology.

One of the limitations of this study is external validity, or the generalizability of the study. There were only nine participants, and each participant was a faculty member employed by the University of Hawai'i. The participants were working within the system boundaries of this institution, and many of them received their training and workshops through institution-sponsored seminars. Different findings might have been produced under different circumstances or with different participants.

Because the case study approach heavily depends on personal interpretation of data, results may be difficult to test for reliability. The personal integrity, sensitivity and possible prejudices and biases of the investigator must be taken into consideration as well. Personal biases can creep into how the research is conducted leaving unknown gaps by the researcher in the study. In short, basing a cognitive conclusion on information gathered from a small number of participants runs the risk of inferring too much from what might actually be circumstance.

The Grasha-Reichman Teaching Styles was used to determine categorization of faculty teaching styles. However, this carries with it a number of major assumptions about what teaching methods, practices and techniques make up each of the Teaching Styles, such as Expert/Formal Authority, Personal Model, Facilitator, Delegator. If these assumptions do not hold, the study is limited in its usefulness.

It might have been more useful to compare instructors from at least one other institution, and certainly from another U.S. mainland university or community college. The two faculty members who had experience teaching for a mainland institution brought in unique perspectives on many aspects including the software used for online learning, the expectations of Hawai'i-based online students versus mainland students, and the scale of interest and acceptance of online learning at a policy-making level.

Some of these limitations can be seen as fruitful avenues for future research under the same theme.

Suggested Areas for Further Research

The present study provided valuable information regarding teaching styles, practices and habits in online courses. More work is certainly needed on these issues as an increased interest in technology and online learning is expected inside, as well as outside, higher education.

Three unanswered questions were raised during the process of this research: 1) is there a correlation between number of students in a course and the teaching style used? 2) do instructors who are new to online teaching modify their teaching styles over time?

3) do students perceive their instructor's teaching styles the same as instructors perceive their own teaching styles?

Furthermore, it became evident that a study to examine the levels of effectiveness when an instructor's teaching style and a student's learning style are well or poorly matched would be useful.

In addition, the study did not examine more than two faculty members teaching the same subject. Although the literature on teaching styles shows that teaching styles do not seem to be subject specific, all studies that yielded this finding were conducted in traditional classrooms. No work focusing on online teaching has been done in this area.

A further limitation of this study is that participants were only examined at one point in time. The data from this study capture faculty teaching styles at a given point, but do not discern whether these teaching styles may change over time, given further technological advances or more experience in the online teaching environment.

Comparison between faculty in different institutions, or even different countries could also be enlightening. The environment of the institution, in particular of the ITS infrastructure and support, may have some impact on the faculty's teaching practice which could influence their dominant teaching style.

One approach that may yield worthwhile information is in studying the teaching styles of online instructors over time. There is some suggestion that as instructors gain more experience in the online medium, their approach towards content creation, teaching, student management and interaction may change.

Another area that needs further research is examination of the 'hybridization' trend. As more academic staff meet with expectations to integrate technology, and particularly online technology into their teaching practices, identifying the impact on their teaching styles may prove useful.

Finally, research in the area of faculty and student interaction in the online environment needs critical investigation. Effective ways in which to design and establish instructor presence online, facilitate interaction with students, and practice interactive teaching methods, need urgent consideration.

Chapter Six: Appendices

APPENDIX A[1]

Summary Notes from Interviews and Discussions with University of Hawai'i ITS Staff Members.

Fall 2003

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1. BACKGROUND

In 1989, the University system-wide distance learning program was just beginning to use the Hawai'i Interactive Television System (HITS). A new office was established called the Office of Information Technology. OIT had two roles. One was to start the University system-wide distance learning program using the HITS system (which was just being started at that time); and the other was to coordinate technology related planning and policy development for the university system. At the time, technology was basically managed in separate units. There was the Academic Computing Center, the Administrative Computing Group, and a Telecom, which did telephones and wires and they all reported to different Vice Presidents. The idea was to try and coordinate the planning and policy of these.

A group of people throughout the university developed the university's first strategic plan for IT, in about 1991 or 1992. One of the recommendations of that plan was to pull the IT support group together into one organization. This was going on all over the country. It actually happened in 1994, at the University of Hawai'i.

Currently, ITS is basically all IT support for the full UH system, IT is centralized, and ITS includes the academic computing function, the distributed learning technology support, the user support, the administrative support system, the voice data and video-networking etc. One of the staff members interviewed, David Lazarus, has the role of managing the whole thing – he is the university's Chief Information Officer.

2. UH SYSTEM COMPARED TO OTHER INSTITUTIONS

In terms of the delivery of benefits to the user population, ITS staff believe that Hawai'i is ahead of many institutions...the primary mission has been to provide access to higher education to people who don't have access, particularly on the neighbor islands. UH does a very good job of providing access to neighbor islands of programs that are not present on their islands, and has done so since the early 1990s. They had a strong policy basis from the beginning that gave a focus on entire programs, rather than single courses, to

[1]Note: *These are the researcher's original notes and have not been edited for content or grammar.*

conserve resources and energy. It is needs driven. ITS staff maintain that UH has done a really good job of faculty development relative to many places and is well ahead of the curve on their organizational approach, although this plan, which is pushing towards mainstreaming, is not without controversy. Having said that, it has been the approach since the start, and the rest of the country is coming to believe that this is the way to go, based on the opinion of what the IT staff see happening around the mainland.

The University of Hawai'i is unique, having all public higher education in one university system, so that is a huge opportunity to leverage by engaging all of the campuses together to serve the students.

Although they keep an eye on what other places are doing, they haven't adopted someone else's model lock stock and barrel. UH ITS know they are behind in a lot of areas too, such as student services, and in identifying opportunities that would generate revenue to feed back into the institution. That is probably a side effect of the mainstreaming approach.

3. FUNDING/MAINSTREAMING

Where does the funding come from if you're looking at trying to mainstream? Well it's wherever the funding from comes from for continued learning. It's the state funding and a variety of sources.

What is mainstreaming really about from the point of view of ITS? If a student happens to walk in to the UH Mānoa campus and go into Webster Hall nursing program, the State of Hawai'i subsidizes e.g. 60% of the cost of education, and the tuition is e.g. 40%. Why should nursing staff in Kauai be told that they have to run their nursing program on a self support basis? They are still the University of Hawai'i, and it's a tax paying system. This is where technology has the ability to equalize access, but it has to be meant if that is what the commitment is about. Fundamentally, that's what mainstreaming is. It is to the mission is to serve the students of Hawai'i, so it has to be addressed in a coherent manner

However in reality, it varies from program to program. The technology infrastructure that is provided through ITS is funded from the University's operating budget. It operates similarly to the library and encompasses a variety of sources, but in general its considered part of the operating budget. For example, the network that carries the HITS signal is the same network that carries the library, the student registration system, the financial system....the only part of it that's really unique to HITS is the interactive televisions that are on each campus. Every campus essentially pays the cost of supporting the classrooms on their campuses. The library support is provided by the libraries, student support is provided by student services.

4. WEBCT AND BANNER

ITS supports WebCT and it is available to everybody on campus. Some universities have five different learning management systems; one college uses one; one college uses another. There might even be a Blackboard here and a Blackboard here because the two different colleges couldn't agree on how to do it. Whether WebCT is the best one or not, what most institutions are finding now, including UH, is that it is really important to have one standard learning management system for the university. If not, it presents a confused face to the students, creates confusion for the faculty because they're learning different things, and loses one of the biggest value of these types of systems: integration. In January 2004, for example, ITS will be rolling out a linkage with the new Banner system, so that if you add a class that has been identified as a WebCT class it would automatically enroll you. Right now in WebCT the faculty member has to add all the students names in, and if a student drops the class they have to delete them, and its all manual. The grade book could flow literally back to Banner without having to enter grades online, so all kinds of possibilities are there. But it can't be done with five different learning management systems all over the place – it's just too complex technologically. It is about making everybody responsible for the parts of their activities that could be enhanced through distributed learning, rather than to say "oh that has to do with distributed learning – I don't do that, they do that".

ITS staff members think that many barriers to the faculty adoption rate come from faculty who are not really particularly competent with technology to start with. Currently the feeling among faculty is that "Blackboard is easier to get started with, and WebCT lets you do a lot more once you know what you're doing."

It is difficult for ITS to keep up with training. By the time they attempt to get over 1500 faculty all trained in WebCT, the next software comes out!

5. LEARNING OBJECTS

Not very many faculty are actually using learning objects or are participating in broad-based learning repositories. Standards work seems ahead of the reality, but it is still useful because it will help faculty start to understand. There is a lot of resistance because faculty like to be responsible for everything they teach, according to ITS trainers, so learning objects may help break that down.

The Open Knowledge Institute (OKI) is about standards for learning management, and they've just released their first set of standards. They are starting to develop pieces where it is possible to use this quiz manager, and that discussion board, and pull it together. There are universities who are starting to develop learning management systems, so WebCT or Blackboard may not be around in the future. There are other people who think these initiatives will never pay off, and are buying really high end versions of WebCT and Blackboard, but for now UH hasn't done that.

6. STUDENT SERVICES ONLINE

The movement in student services is towards a one stop shop. Pre-Banner, a student would walk in to the Student Services Building to pick up their check, take it down to the bank, put it in, then back up to the cashier, then downstairs to get their transcript, then upstairs for their advising. From that inefficiency, a more streamlined model has emerged as the best practices in student services: that of the one-stop-shop.

This new one-stop-shop can be called the 80-20-10. That means 80% of the student's interactions with the university would be done online, 20% would be done through a generalist (like a bank teller), and of the 20%, 10% would have to be done through a specialist. The bank is a good example – 80% of your transactions are done online or through an ATM. When you go the bank, you see a teller – they do deposits, withdrawals, give you travelers checks etc. If you want a home mortgage, that is really complicated, so they will send you to the specialist.

So that would be the model – there would be a student services specialist who could do basic financial aid, basic cashiering, basic student employment, basic records, basic admissions, and then when a student encounters a problem, they go to the specialist. The implementation of this model is occuring around the country. It is a really important point about mainstreaming because if it is done right, most of the student services problems for distant learners are addressed. If 80% of the transactions are online, then maybe those generalists start to be available by phone, video-conferencing, desktop cams, and even call centers if economies of scale are created.

APPENDIX B

From: Laurie Richlin <Laurie.Richlin@cgu.edu> Add Sender
Sent: Thursday, May 13, 2004 7:58 am
To: Diana Leigh Amundsen <damundse@hawaii.edu>
Subject: [spam?] RE: Re: Anthony Grasha's research – Can you help?

You have permission to use the inventories. Please send a copy of your research report/paper to the address below when you have completed it.

Laurie Richlin, PhD
Director
Preparing Future Faculty &
Faculty Learning Communities Programs
1017 N. Dartmouth Avenue
Claremont, CA 91711
909.607.8978
laurie.richlin@cgu.edu
http://www.cgu.edu/pff

From: Diana Leigh Amundsen [mailto:damundse@hawaii.edu]
Sent: Tue 5/11/2004 12:05 PM
To: Laurie Richlin
Subject: Fwd: Re: Anthony Grasha's research - Can you help?

Hi Laurie,

As per the attached e-mails, I am simply seeking permission to use the Grasha-Reichmann Teaching Styles Survey created primarily by Tony Grasha, and last copyrighted in 1996.

I am a Master's student at the University of Hawai'i, and very interested in Faculty's teaching styles pertaining to online and distance learning. I am conducting a case study with approximately 10 faculty members, and would like to be able to use the above-mentioned survey applied to their teaching styles in an online environment.

Would you grant me permission to use his instrument in my research as found on the website at

http:///masterteacherprogram.com

Thank you for any assistance you can provide.
Diana Amundsen

==========

Diana Amundsen G.A.
Evaluation Research

ETEC Department - COE
University of Hawai'i
1776 University Ave., Wist 236A
Honolulu, HI 96822, USA
Tel: (808) 956-4803
Fax: (808) 956-2740

APPENDIX C

From	Diana Leigh Amundsen <damundse@hawaii.edu> Add Sender
Sent	Tuesday, April 13, 2004 6:42 pm
To	
Subject	Online Instructors Thesis Project

Hello Dr ,

My name is Diana Amundsen. I am a Master's student completing my degree in Communication here in Hawai'i, and gathering data for my final thesis project. I am hopeful that you may be able to assist.

The research is a case study about faculty members who have experience in teaching online as well as face-to-face courses. I have discovered from the Schedule of Classes that you have been teaching (*subject*) content online for the past two years (at least?). If you are able to participate, it would bring a most interesting aspect into my research.

Participation would involve a live interview, completion of a simple 40-item web-based questionnaire, and perhaps follow-up questions, if needed. First, I need to ask you a few brief questions about the topic of online learning and then schedule a recorded interview that would last about 1 hour.

Would you have any time available next week or the week after? (Between 4/19 and 4/30). My schedule is flexible so I can fit in with whatever suits you.

Thank you for considering my request.
Aloha and Kia Ora,
Diana Amundsen.

==========

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APPENDIX D

This is the web-based Teaching Style Survey.

Key: 1 = Strongly Disagree :: 2 = moderately disagree :: 3 = undecided :: 4 = moderately agree :: 5 = strongly agree										
Question:	Face-To-Face:					Online:				
1. Facts, concepts, and principles are the most important things that students should acquire.	1	2	3	4	5	1	2	3	4	5
2. I set high standards for students in this class.	1	2	3	4	5	1	2	3	4	5
3. What I say and do models appropriate ways for students to think about issues in the content.	1	2	3	4	5	1	2	3	4	5
4. My teaching goals and methods address a variety of student learning styles.	1	2	3	4	5	1	2	3	4	5
5. Students typically work on course projects alone with little supervision from me.	1	2	3	4	5	1	2	3	4	5
6. Sharing my knowledge and expertise with students is very important to me.	1	2	3	4	5	1	2	3	4	5
7. I give students negative feedback when their performance is unsatisfactory.	1	2	3	4	5	1	2	3	4	5
8. Activities in this class encourage students to develop their own ideas about content issues.	1	2	3	4	5	1	2	3	4	5
9. I spend time consulting with students on how to improve their work on individual and/or group projects.	1	2	3	4	5	1	2	3	4	5
10. Activities in this class encourage students to develop their own ideas about content issues.	1	2	3	4	5	1	2	3	4	5
11. What I have to say about a topic is important for students to acquire a broader perspective on the issues in that area.	1	2	3	4	5	1	2	3	4	5
12. Students would describe my standards and expectations as somewhat strict and rigid.	1	2	3	4	5	1	2	3	4	5
13. I typically show students how and what to do	1	2	3	4	5	1	2	3	4	5

in order to master course content.										
14. Small group discussions are employed to help students develop their ability to think critically.	1	2	3	4	5	1	2	3	4	5

Key:
1 = Strongly Disagree :: 2 = moderately disagree :: 3 = undecided :: 4 = moderately agree :: 5 = strongly agree

Question:	Face-To-Face:					Online:				
15. Students design one or more self-directed learning experiences.	1	2	3	4	5	1	2	3	4	5
16. I want students to leave this course well prepared for further work in this area.	1	2	3	4	5	1	2	3	4	5
17. It is my responsibility to define what students must learn and how they should learn it.	1	2	3	4	5	1	2	3	4	5
18. Examples from my personal experiences are often used to illustate points about the material.	1	2	3	4	5	1	2	3	4	5
19. I guide students' work on course projects by asking questions, exploring options, and suggesting alternative ways to do things.	1	2	3	4	5	1	2	3	4	5
20. Developing the ability of students to think and work independently is an important goal.	1	2	3	4	5	1	2	3	4	5
21. Lecturing is a significant part of how I teach each of the class sessions.	1	2	3	4	5	1	2	3	4	5
22. I provide very clear guidelines for how I want tasks completed in this course.	1	2	3	4	5	1	2	3	4	5
23. I often show students how they can use various principles and concepts.	1	2	3	4	5	1	2	3	4	5
24. Course activities encourage students to take initiative and responsibility for their learning.	1	2	3	4	5	1	2	3	4	5
25. Students take responsibility for teaching part of the class sessions.	1	2	3	4	5	1	2	3	4	5
26. My expertise is typically used to resolve disagreements about content issues.	1	2	3	4	5	1	2	3	4	5
27. This course has very specific goals and objectives that I want to accomplish.	1	2	3	4	5	1	2	3	4	5

28. Students receive frequent verbal and/or written comments on their performance.	1 2 3 4 5	1 2 3 4 5
29. I solicit student advice about how and what to teach in this course.	1 2 3 4 5	1 2 3 4 5
30. Students set their own pace for completing independent and/or group projects.	1 2 3 4 5	1 2 3 4 5
31. Students might describe me as a "storehouse of knowledge" who dispenses the facts, principles, and concepts they need.	1 2 3 4 5	1 2 3 4 5
32. My expectations for what I want students to do in this class are clearly defined in the syllabus.	1 2 3 4 5	1 2 3 4 5
33. Eventually, many students begin to think like me about course content.	1 2 3 4 5	1 2 3 4 5
34. Students can make choices among activities in order to complete course requirements.	1 2 3 4 5	1 2 3 4 5
35. My approach to teaching is similar to a manager of a work group who delegates tasks and responsibilities to subordinates.	1 2 3 4 5	1 2 3 4 5
36. There is more material in this course than I have time available to cover it.	1 2 3 4 5	1 2 3 4 5
37. My standards and expectations help students develop the discipline they need to learn.	1 2 3 4 5	1 2 3 4 5
38. Students might describe me as a "coach" who works closely with someone to correct problems in how they think and behave.	1 2 3 4 5	1 2 3 4 5
39. I give students a lot of personal support and encouragement to do well in this course.	1 2 3 4 5	1 2 3 4 5
40. I assume the role of a resource person who is available to students whenever they need help.	1 2 3 4 5	1 2 3 4 5

Thank you for completing this questionnaire. To see your results, click on the **Submit** button...

Submit

Chapter Seven: Bibliography

Ackerman, E. (1995). *Learning to use the Internet.* Wilsonville, OR: Franklin, Beedle and Associates Inc.

Anderson, S. K., & Middleton, V. (2002). You want me to do what? The cultural and psychological struggle of putting a course online. *The Technology Source, 7,* 117–123. Retrieved January 17, 2005, from http://ts.mivu.org/default.asp?show=article&id=917.

Andrews, D. (1996). CD-ROM weds the web. **In Diaz, D. P.** *Journal of Educational Multimedia and Hypermedia, 8(1),* 89-98. Retrieved February 1, 2005, from http://www.ltseries.com/LTS/html_docs/cdhybrid.htm.

Ang, I. (1996). *LivingRoomWars: Rethinking Media Audiences for a Postmodern World.* London: Routledge.

Arger, G. (1987). Promise and Reality: A critical Analysis of Distance Education in the Third World. *Journal of Distance Education, 2,* 1. Retrieved January 14, 2005, from http://cade.athabascau.ca/vol2.1/arger.html.

Bates, A. W. (2000a). *Managing Technological Change: Strategies for College and University Leaders.* (1st edition). San Francisco: Jossey Bass Publishers.

Bates, A. W. (2000b). *Managing Technological Change: Strategies for College and University Leaders First Edition.* (An Executive Summary). Retrieved January 23, 2005, from http://ist-socrates.berkeley.edu/~fmb/articles/managingchange.html.

Baudrillard, J. (1972). *Requiem for the Media.* Retrieved January 16, 2005, from http://www.calarts.edu/~bookchin/mediatheory/essays/19-baudrillard-03.pdf.

Berge, Z. L. (Summer, 1998). Barriers to online teaching in post-secondary institutions. *Online Journal of Distance Education Administration. 1(2).* Retrieved March 16, 2005, from http://www.westga.edu/~distance/Berge12.html.

Berge, Z. L., & Collins, M. P. (Eds.) (1995). *Computer-mediated communication and the online classroom, Volumes I, II, and III.* Cresskill, NJ: Hampton Press Inc. Retrieved January 08, 2005, from http://www.unitus.org/bbsintro.htm.

Bernard, R. M., Lou, Y., & Abrami, P.C. (2002). *Comparing Distance Education and Traditional Instruction: An "In-progress" Meta-Analysis of the Empirical Literature.* Retrieved January 16, 2005, from http://naweb.unb.ca/proceedings/2002/Po2Bernard.htm.

Betts, K. (1998). An institutional overview: Factors influencing faculty participation in distance education in postsecondary education in the United States. *Online Journal of Distance Learning Administration, 1, 3.* Retrieved February 12, 2005, from http://www.westga.edu/~distance/betts13.html.

Burgess, W. E. (1994). *The Oryx guide to distance learning: A complete listing of electronic and other media-assisted courses.* Phoenix, AZ: Oryx Press.

Carnevale, E. (2000, January). Survey Finds 72% rise in number of distance education programs. *Chronicle of Higher Education, 46(18),* 57. Retrieved February 2, 2005, from http://chronicle.com/free/v46/i18/18a05701.htm.

Chen, Y. J., & Willits, F. K. (1999). Dimensions of educational transactions in a videoconferencing learning environment. *The American Journal of Distance Education, 13(1),* 45-59.

Childs, G. B. (1971). Recent research developments in correspondence instruction. **In O. MacKenzie & E. L. Christensen** (Ed.), *The changing world of correspondence study* (pp. 79-92). University Park: Pennsylvania State University Press.

Clark, R. (1994). Media will never influence learning. *Educational Technology Research and Development, 42(2),* 21-29.

Clark, T. (1993). Attitudes of higher education faculty toward distance education: A national survey. *The American Journal of Distance Education, 7(2),* 19-33.

Clarke, R. (2002). *Digital Property Rights vs. Human Rights: Desperate Publishing Houses Are Demanding A New Dark Ages.* Retrieved April 16, 2005, from http://www.anu.edu.au/people/Roger.Clarke/II/ACSSA02.html.

Conti, G., & Welborn, R. (1986). Teaching learning styles and the adult learner. *Lifelong Learning. 9(8),* 20-24. Retrieved February 8, 2005, from http://www.lifelonglearning.co.uk.

Danesi, M. (1994). *Messages and Meanings: An Introduction to Semiotics.* Toronto: Canadian Scholars' Press.

Daniel, J. (1988). The Worlds of Open Learning. **In N. Paine** (Ed.), *Open Learning in Transition: An Agenda for Action,* National Extension College, Cambridge: 126-127.

Daniel, J. (1995). Tribulations, Triumphs, and Trends: Higher Education in 1995. *Higher Education: Blending Tradition and Technology, 3,* 14.

Daniel, J. (1996). *The Mega Universities and the Knowledge Media: Technology Strategies for Higher Education* (pp. 55-57). Kogan Page, United Kingdom.

Darnell, D. (1972). Information Theory. **In R. Budd & B. Ruben** (Eds.), *An Approach to Human Communication* (pp. 156–169). New York: Spartan Books.

Darnell, D. R., & Rosenthal, D. M. (December, 2000). Evolution of a virtual campus. *Community College Journal, 45(2)* 21-23.

Demiray, U. (1998). *A Review of The Literature on the Open Education Faculty (1982-1997).* Retrieved January 16, 2005, from http://www.tojet.net/e-book/ebook.htm#1.

Diaz, D. P., & Cartnal, R. B. (Fall, 1999). Students' Learning Styles in Two Classes: Online Distance Learning and Equivalent On-Campus. *College Teaching, 47(4),* 130-135.

Edwards, R. (1995). Different discourses, discourses of difference: Globalisation, distance education and open learning. *Distance Education, 16(2),* 241-255.

Felder, R.M. (2002). Learning and Teaching Styles in Engineering Education [Preface to (1988)]. *Engr. Education, 78(7),* 1-2. Retrieved December 13, 2004, from http://www.ncsu.edu/felder-public/Papers/LS-1988.pdf.

Felder, R. M., & Silverman, L. (1988). Learning and Teaching Styles in Engineering Education. *Engr. Education, 78(7),* 674-681. Retrieved December 13, 2004, from http://www.ncsu.edu/felder-public/Papers/LS-1988.pdf.

Fereshteh, H. (Fall, 1996). The Nature of Teaching, Effective Instruction, and Roles to Play. A Social Foundation's Perspective. *Contemporary Education, 68(1),* 73-75.

Fischer, B., & Fischer, L. (1979). Styles in teaching and learning. *Educational Leadership, 37,* 245-254. Retrieved December 8, 2004, from http://www.ascd.org/frameedlead/html.

Friday, R. A. (1990). Faculty training: From group process to collaborative learning. *Journal-of-the-Freshmen-Year-Experience, 2(1),* 49-67.

Garrison, D. R., & Archer, W. (2000). *A transactional perspective on teaching and learning: A framework for adult and higher education.* Oxford: Pergamon.

Garrison, D. R., & Shale, D. (1987). Mapping the boundaries of distance education: Problems in defining the field. *The American Journal of Distance Education, 1(1),* 7-13.

Gerrity, T. W. (1976). *College-sponsored correspondence instruction in the United States: A comparative history of its origin (1873–1915) and its recent development (1960–1975).* Unpublished doctoral dissertation, Columbia University, New York.

Global Virtual University Website. (2005). Retrieved February 3, 2005, from http://www.gvu.unu.edu.

Grasha, A. F. (1983). Learning styles: The journey from Greenwich Observatory (1796) to the college classroom (1983). *Improving College and University Teaching, 32,* 46-53.

Grasha, A. F. (1990). Traditional and naturalistic approaches in assessing student learning styles. *Journal on Excellence in College Teaching 1,* 20-7.

Grasha, A. F. (Fall, 1994a). Introduction: Discovering Your Best Teaching Styles. *College Teaching. 42(4),* 122-23.

Grasha, A. F. (Fall, 1994b). A Matter of Style: The Teacher as Expert, Formal Authority, Personal Model, Facilitator, and Delegator. *College Teaching. 42(4),* 142-149.

Grasha, A. F., & Riechmann, S.W. (1975). The Grasha-Riechmann student learning style scales. **In W. Berguist** (Ed.), *Handbook for faculty development.* Washington, D.C.: CASC.

Grasha, A. F. & Yangarber-Hicks, N. (2000). Integrating Teaching Styles and Learning Styles with Instructional Technology. *College Teaching, 48(1),* 2-10. Retrieved January 3, 2005, from http://www.findarticles.com/p/articles/mi_hb056/is_200001/ai_n5797960.

Griffin, E. (1997). *A First Look at Communication Theory* (3rd edition). New York: McGraw-Hill. Retrieved January 12, 2005, from http://www.afirstlook.com/archive/information.cfm?source=archther.

Hanson, D., Maushak, N., Schlosser, C., Anderson, M., Sorenson, C., & Simonson, M. (1997). *Distance education: Review of the literature (2nd edition).* Washington, DC: Association for Educational Communications and Technology. Retrieved March 18, 2005 from http://www.educ.ttu.edu/online/maushak/5370/Notes/what.htm.

Hawkins, J. L. (1994, November). Icons: Clear as Mud: Did Words Go Out of Style? *Data Based Advisor, 12(11),* 10.

Hiltz, S. R. (1994). *The Virtual Classroom: Learning without Limits via Computer networks.* Norwood, NJ: Ablex Publishing Corporation.

Ho, C. P. (2004). Instructional strategies and learning objects for Pacific-delivered courses. **In K. Kondo** (Ed.), Networks without borders: toward cross-cultural learning communities. *NIME 2003 Symposium, 44,* 104-117.

Holmberg, B. (1982). *Distance Education: A Short Handbook.* Stockholm: LiberTryck.

Holmberg, B. (1986). A Discipline of Distance Education. *Journal of Distance Education, 1(1)* Retrieved February 16, 2005, from http://cade.athabascau.ca/vol1.1/holmberg.html.

Holmberg, B. (1990). *Perspectives on Research on Distance Education.* 2nd updated and expanded edition. Hagen, Germany: ZIFF.

Holmberg, B. (1995). *Theory and Practice of Distance Education.* London/New York: Routledge.

Innovations in Distance Education. (1998). *An Emerging Set of Guiding Principles and Practices for the Design and Development of Distance Education.* Retrieved February 5, 2005, from http://www.outreach.psu.edu/DE/IDE/guiding_principles.

İşman, A. (1997). Diffusion of distance education in Turkish higher education. *Educational Technology Research and Development, 45(2),* 124-128.

İşman, A., Dabaj, F., Altinay, A. & Altınay, F. (2004, May). Roles of the Students and Teachers in Distance Education. *International Journal of Instructional Technology & Distance Learning, 1(5).* Retrieved February 13, 2005, from http://www.itdl.org/Journal/May_04/article05.htm.

Jonassen, D. H. (1992). Applications and limitations of hypertext technology for distance learning. **In L. Sherry, (1996).** Issues in Distance Learning. *International Journal of Educational Telecommunications, 1 (4),* 337-365.

Jung, I. (2000, June). [Review of the Book. Online Education: Learning and Teaching in Cyberspace]. *IRRODL 1(1).* Retrieved February 3, 2005, from http://www.irrodl.org/content/v1.1/insung.pdf.

Kaplan, A. (1964). *The Conduct of Inquiry: Methodology for Behavioral Science.* San Francisco: Chandler Publishing Company.

Kearsley, G. (2000). *Online Education: Learning and Teaching in Cyberspace.* Belmont CA: Wadsworth Thomson Learning.

Keegan, D. (1986). *The Foundations of Distance Education.* London: Croom Helm.

Keegan, D. (1990). *Foundations of Distance Education* (2nd edition). London: Routledge.

Keegan, D. (1991). The study of distance education: terminology, definition and the field of study. **In B. Holmberg & G. Ortner** (Eds.), *Research into distance education* (pp. 36-45). Frankfurt am Main: Lang.

Keegan, D. (1994). *Distance Training in the European Union.* Hagen, Germany: ZIFF.

Kember, D. & Gow, P. (1994, Jan-Feb). Orientations to Teaching and their Effect on the Quality of Student Learning. *Journal of Higher Education, 65(1),* 58-74.

Keri, G. (2002). Degrees of Congruence Between Instructor and Student Styles Regarding Student Satisfaction. *Radical Pedagogy, 4(1).* February13, 2005, from http://radicalpedagogy.icaap.org/content/issue4_1/04_Keri.html.

King, A. (1993). From Sage on the Stage to Guide on the Side. *College Teaching, 41(1),* 30-35.

Kriger, T. J. (2001, November). A Virtual Revolution: Trends in the Expansion of Distance Education. *USDLA Journal, 15(11).* Retrieved May 12, 2005, from http://www.usdla.org/html/journal/NOV01_Issue/article02.html

Levine, A. (2000, October 27). The Future of Colleges: 9 Inevitable Changes. *The Chronicle of Higher Education, 47(9).* Retrieved February 8, 2005, from http://www.chronicle.com/weekly/v47/i09/09b01001.htm (requires password).

Lievrouw, L. A. & Livingstone, S. A. (2002). Introduction: the Social Shaping and Consequences of ICTs'. **In L.A. Lievrouw and S. Livingstone** (Eds.), The Handbook of New Media (pp. 1–15). London: Sage. Retrieved February 8, 2005, from http://www.sagepub.co.uk/pdf/books/009523Intro.pdf.

Marine, R. (2000). *Teachers Use Methods Similar to Their Personalities.* Retrieved February 14, 2005, from http://www.ed.psu.edu/news/personalities.asp.

Matheos, K. & Archer, W. A. (Winter, 2004). From Distance Education to Distributed Learning Surviving and Thriving. *Online Journal of DLA,* 7(4).

McIsaac, M. S. (1993). Economic, Political, and Social Considerations in the Use of Global Computer-Based Distance Education. **In R. Muffoletto & N. N. Knupfer** (Eds.),

Computers in Education: Social, Political, and Historical Perspectives (pp. 219-232). Cresskill, NJ: Hampton Press, Inc.

McIsaac, M. S. & Gunawardena, C. N. (1996). Distance Education. **In D. H. Jonassen**, (Ed.), *Handbook of research for educational communications and technology.* (pp. 403-437). New York: Simon & Schuster Macmillan. Retrieved June 7, 2005, from http://seamonkey.ed.asu.edu/~mcisaac/dechapter/index.html.

McLuhan, M. (1964). *Understanding media: The Extensions of Man.* (New Edition). Cambridge, MA: The MIT Press.

McQuail, D. (1994). *Mass Communication Theory, An Introduction* (3rd edition). pp. 52–57. London: Sage.

Merriam, S. B. (1985). The Case Study in Educational Research: A Review of Selected Literature. *Journal of Educational Thought, 19(3),* 204-17.

Miglietti, C., & Strange, C. C. (1998). Learning styles, classroom preferences, teaching styles and remedial course outcomes. *Community College Review, 26 (1),* 1-19.

Minnesota Virtual University Glossary. (2005). Retrieved March 3, 2005, from http://www.mnvu.org/mnvu/265.jsp#F.

Moore, M. G. (1972). Learner autonomy: the second dimension of independent learning. *Convergence, 5(2),* 76-88.

Moore, M. G. (1973). Towards a Theory of Independent Learning and Teaching. *Journal of Higher Education, 44,* 661-679.

Moore, M. G. (1977). A Model of independent study. **In B. Holmberg.** *Status and Trends of Distance Education Research.* Retrieved April 12, 2005, from http://www.eden-online.org/papers/rw/holmberg_article_for_web.pdf.

Moore, M. G. (1985). Some observations on current research in distance education. *Epistolodidaktika, 1,* 35-62.

Moore, M. G. (1986). Self directed Learning and Distance Education. *Journal of Distance Education, 1(1),* 7-24.

Moore, M. G. (1990). Recent Contributions to the Theory of Distance Education. *Open Learning 5(3),* 10-16.

Moore, M. G. (1992). International Aspects of Independent Study. **In B. Watkins, & S. Wright**, (Eds.), *The Foundations of American Distance Education: A Century of Collegiate Correspondence Study.* Dubuque, IA: Kendall/Hunt Publishing Co.

Moore, M., & Kearsley, G. (1996). *Distance Education: A Systems View.* Belmont: Wadsworth Publishing Company.

Mortensen, D. (1972). *Communication: The Study of Human Interaction.* New York: McGraw-Hill.

Mugridge, I. (1999). The Language of Distance and Open Learning. *Journal of Distance Education, 4(2),* 13. Retrieved February 7, 2005, from http://cade.athabascau.ca/vol4.2/13_dialogue_-_mugridge.html.

Nasseh, B. (1997a). *Distance Education and Learning Infrastructure.* Retrieved January 23, 2005, from http://www.bsu.edu/classes/nasseh/bn100/distance.html.

Open University Website. (2005). Retrieved January 12, 2005, from http://www.ed.psu.edu/news/personalities.asp.

Palmer, R. D., Collins, R. A. & Roy, P. (1996). *Directions in Distance Education.* Retrieved January 25, 2005, from http://www.natcom.org/ctronline/95-96dir.htm.

Perraton, H. (1988). A theory for distance education. **In L. Sherry** (1996). Issues in Distance Learning. *International Journal of Educational Telecommunications, 1 (4),* 337-365. Retrieved January 14, 2005, from http://carbon.cudenver.edu/~lsherry/pubs/issues.html#definitions.

Peters, O. (1988). Distance Teaching and Industrial Production: A comparative interpretation in outline. **In L. Sherry** (1996). Issues in Distance Learning. *International Journal of Educational Telecommunications, 1 (4),* 337-365. Retrieved January 14, 2005, from http://carbon.cudenver.edu/~lsherry/pubs/issues.html#definitions.

Pittman, V. (1986, July). Pioneering instructional radio in the U.S.: Five years of frustration at the University of Iowa, 1925-1930. *A Paper for the First International Conference on the History of Adult Education* (pp. 14-17). East Landsing, MI: National Center for Research on Teacher Learning.

Pittman, V. (1991). Rivalry for respectability: Collegiate and proprietary correspondence programs. **In K. Huebner & W. Wiener** (2001). *Second American Symposium on Research in Distance Education, 95(9).* Pennsylvania State University: University Park.

Quitadamo, I. J., & Brown, A. (2001). Effective Teaching Styles and Instructional Design for Online Learning Environments. *Proceedings of the National Education Computing Conference, U.S.A.,* 469-942.

Reddy, M. (1979). The Conduit Metaphor - A Case of Frame Conflict in Our Language about Language. **In A. Ortony** (Ed.), *Metaphor and Thought* (pp. 284-324). London: Cambridge University Press.

Reigeluth, C. & Avers, D. (1997). Educational technologists, chamelions, and systematic thinking. **In R. M. Branch & B. B. Minor** (Eds). *Educational media and technology yearbook, 22.* (pp. 132-137). Englewood Cliffs, NJ: Educational Technology Publications.

Rekkedal, T. (1994). *Research in distance education - past, present and future.* Retrieved December 28, 2004, from http://www.nettskolen.com/forskning/29/intforsk.htm.

Roblyer, M. D. & Ekhaml, L. (Summer, 2000). How Interactive are YOUR Distance Courses? A Rubric for Assessing Interaction in Distance Learning. *Online Journal of Distance Learning Administration 3(2).* Retrieved February 16, 2005 from http://www.westga.edu/~distance/roblyer32.html.

Rumble, G. (1997). *The costs and economics of open and distance learning.* London: Kogan Page.

Rumble, G., & Harry, K. (1982). *The distance teaching universities.* Canberra: Croom Helm.

Saba, F. (2000, June). Research in Distance Education: A Status Report. *International Review of Research in Open and Distant Learning, 1(1).* Retrieved January 26, 2005, from http://www.irrodl.org/content/v1.1/farhad.pdf.

Saba, F. (2001). *Why distance education will fail and harm higher education.* **In Annetta, L.** Investigating the Relationship Between Cost, Reach, and Richness in Distance Education. *Online Journal of DLA, 7(4).* Retrieved January 26, 2005, from http://www.westga.edu/%7Edistance/ojdla/winter74/winter74.htm.

Saba, F. (2005). *Distance Education: An Introduction.* Retrieved January 14, 2005, from http://www.distance-educator.com/intro.htm.

Samans, J. C. (2003). The Impact of Web-Based Technology on Distance Education in the United States. *Journal of Online Education.* Retrieved June 18, 2005, from http://www.nyu.edu/classes/keefer/waoe/samans.html.

Sannomiya, M. & Kawaguchi, A. (2000, August). A case study on support for studentsí thinking through computer-mediated communication. *Psychological Reports, 87(1),* 295-302.

Schifter, C. C. (2000). Compensation models in distance education. *Online Journal of Distance Learning Administration, 3 (1).* Retrieved February 20, 2005, from http://www.westga.edu/~distance/schifter31.html.

Schramm, W. (1954). How communication works. In *The Processes and Effects of Mass Communication.* Urbana, University of Illinois Press.

Schramm, W. & Porter, W. E. (1982). *Men, Women, Messages, and Media Understanding Human Communication*, (2nd edition), New York: Harper & Row, Publishers.

Shannon, C. (1949). A Mathematical Theory of Communication. *The Bell System Technical Journal, 27,* pp. 379-423, 623-656, July, October 1948. (Reprinted with corrections) [Electronic Version]. Retrieved December 28, 2004, from http://cm.bell-labs.com/cm/ms/what/shannonday/paper.html.

Sherry, L. (1996). Issues in Distance Learning. *International Journal of Educational Telecommunications, 1 (4),* 337-365.

Sherry, A. C. & Fulford, C. P. & Zhang, S. (1998). Assessing distance learners' satisfaction with interaction: A quantitative and qualitative measure. *The American Journal of Distance Education (12)3,* 4-28.

Simonson, M., Smaldino, S., Albright, M.,& Zvacek, S. (2003). Teaching and Learning at a Distance. *Foundations of Distance Education* (2nd Edition). Upper Saddle River, New Jersey: Pearson Education, Inc.

Smith, P. L., & Dillon, C. L. (1999). Comparing distance learning and classroom learning: Conceptual considerations. *American Journal of Distance Education, 13(2),* 6-23.

Spoon, J. C., & Schell, J. W. (1998). Aligning Student Learning Styles with Instructor Teaching Styles. *Journal of Industrial Teacher Education, 35(2).* Retrieved February 4, 2005, from http://scholar.lib.vt.edu/ejournals/JITE/v35n2/spoon.html.

Tehranian, M. (1996). The End of University? *USDLA Journal, 15(10)*. Retrieved February 12, 2005, from http://www.usdla.org/html/journal/OCT01_Issue/article03.html.

The Futures Project. (2000, October). The Universal Impact of Competition and Globalization in Higher Education. Retrieved February 6, 2005, from http://www.futuresproject.org/publications/universal_impact.pdf.

Tobin, T. J. (Summer, 2004). Best Practices for Administrative Evaluation of Online Faculty. *Online Journal of DLA, 7(2)*. Retrieved December 16, 2004, from http://www.westga.edu/%7Edistance/ojdla/summer72/tobin72.html.

University of Hawaii. (Fall, 2003). *Faculty & Staff Report* (pp. 9-11). Retrieved April 18, 2005, from http://www.hawaii.edu/cgi-bin/iro/maps?fsuhf03.pdf.

Watkins, B. L. & Wright, S. J. (1991). *The Foundations of American Distance Education: A Century of Collegiate Correspondence Study*. Dubuque, IA: Kendall/Hunt Publishing Company.

Weaver, W., & Shannon, C. E. (1948). A Mathematical Theory of Communication. *The Bell System Technical Journal, 27,* pp. 379-423, 623-656, July, October 1948. (Reprinted with corrections) [Electronic Version]. Retrieved December 28, 2004, from http://cm.bell-labs.com/cm/ms/what/shannonday/paper.html.

Wedemeyer, C. (1971). Independent study. *The encyclopedia of education* (4th edition), New York: Macmillan.

Weigel, Van B. (2002). *Deep learning for a digital age: Technology's untapped potential to enrich higher education.* San Francisco: Jossey-Bass.

White, K. & Weight, B. (2000). *The online teaching guide: A handbook for attitudes, strategies, and techniques for the virtual classroom.* Boston: Allyn & Bacon.

Wright, S. J. (1991). Opportunity lost, opportunity regained: University independent study in the modern era. **In B. Watkins & S. Wright** (Eds.), *The Foundations of American Distance Education: A Century of Collegiate Correspondence Study*. Dubuque, IA: Kendall/Hunt Publishing Company.

Young, J. R. (2002, May 31). The 24 hour professor: Online Teaching redefines Faculty members' schedules, duties and relationships with students. *The Chronicle of Higher Education, 48(38),* 31-33. Retrieved February 11, 2005, from http://chronicle.com/weekly/v48/i38/38a03101.htm (requires password).