

## AN ABSTRACT OF THE DISSERTATION OF

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Online courses and even degree programs are becoming a widespread phenomenon at universities across the United States. Research into the effectiveness of these courses is in the early stages. This qualitative study explored student perceptions of their online class experience using expectancy-value theory as a framework in an attempt to gain a better understanding of the criteria for designing an effective on-line course.

The purpose of this case study was to describe the experience of students enrolled in online courses at two western universities in order to answer the following questions:

1. What do students value in terms of an outcome?
2. What do students value in terms of an online experience?
3. What do students consider to be negative factors (costs) in terms of an online experience?

Data were collected using a variety of techniques. Twenty students in two online classes at one university participated in focus groups. Ten students from two universities participated in open-ended interviews, conducted

either face-to-face or via telephone. Fifteen students, including those who were interviewed, maintained anecdotal records to capture real-time reactions to the experience. Participants represented a variety of disciplines, ages, and backgrounds.

Transcripts from interviews and focus groups were pooled with information from anecdotal records and entered into QSR Nud\*ist (qualitative analysis software) for coding. Categories represented in the data include orientation, course content, student-student interaction, student-teacher interaction, course interface and navigation, flexibility, hardware/software issues, and support systems. Students described both positive and negative factors in each of these categories.

Negative factors identified by participants closely matched factors identified in cognitive load theory as extraneous cognitive load, suggesting that reducing negative factors in online courses may also reduce cognitive load, leading to improved learning. Additionally, findings from this study suggest that it may be possible to increase student motivation to participate and persist in online courses by adjusting the course design to enhance positive factors identified by participants and minimize factors they identified as negative.

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Online Classes: The Student Experience

by  
Mary C. Bucy

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\_\_\_\_\_  
Mary C. Bucy, Author

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## **ONLINE CLASSES: THE STUDENT EXPERIENCE**

### **INTRODUCTION**

Today in the United States we face a revolution in the way education is delivered. This revolution reflects massive changes in contemporary society as a whole. Information technologies have become integral to our way of life, changing the ways we relax, recreate, work, learn, communicate, shop, write, and read—in short, the way we live. We have come to expect a fast pace of information exchange and ease of information access. Information is delivered to us via newspapers, magazines, radio, and television. And now, the Internet has given us information at our fingertips, from news, to products, to entertainment, to academic articles. Information is central to society.

Driving this expansion of an information society is an explosion in technology. The Internet, which started out as a technology for people with programming capabilities, has evolved into a medium that provides the layperson with immediate links to needed information at the “click of the mouse” (Teh, 1999). Now, information is available to us without ever leaving our homes. Electronic mail (e-mail) allows us to communicate instantaneously with a variety of people around the world without having to travel. As a result of these and other technologies, distances have become less of an obstacle to communication. Even work can be conducted from homes via telecommunications.

With information so accessible, today’s society looks at education as a life-long endeavor (Galusha, 1998). Adult student populations are expected to be the fastest growing segment of higher education, with older students

constituting the majority (Galusha, 1998). These older students are enmeshed in active lifestyles, with families, jobs, and communities placing demands on their time. Taking time out to attend traditional classes on a university campus is not an option for many. In this information rich, high-technology environment, universities are under pressure to provide education services to this diverse population in a format that is not tied to time or place (Goodwin, 1993).

The idea of providing education to distant students is not new. Correspondence courses have been available since the mid-1800's, when the penny post allowed the efficient transfer of educational materials (McCabe, 1997). As technologies evolved, so did distance education, making use of radio, television, and satellite as each new medium became available (Klesius & Homan, 1997). Today, we are seeing computers used more and more to provide a multimedia-rich distance education experience.

Distance education is defined by two basic criteria: 1) that the students and teacher are separated geographically, and 2) that technology is used to lessen or eliminate that distance (Klesius & Homan, 1997). Within this definition fall many forms of distance education, from correspondence courses, to satellite broadcasts, to computer-mediated delivery.

This research looks specifically at courses provided through the Internet. This form of educational experience goes by many names: web-based instruction, online learning, Internet education, dispersed learning, e-learning, etc. It is reasonable to assume that within just a few years, nearly all university students, both on and off campus, will have convenient access to computers and the Internet (Bates, 1997). The infrastructure will soon be

in place to allow universities to reach much of their clientele in their homes via the Internet.

Universities cite a variety of reasons for acting quickly to develop web courses and entire degree programs. Some suggestions are that web-based instruction will improve the cost-effectiveness of education, that it will improve access to education, and that it will improve the quality of learning (Bates, 1997). Many worry that competition from other universities and also private companies will put them out of business if they do not quickly move to the forefront in delivery of online courses and degree programs. They are beginning to see themselves as competing in a national or international marketplace (Duderstadt, 1997). Others point to predictions that enrollment in higher education institutions will rise temporarily and then drop again, and suggest that it might be wiser to invest in technology than in capital construction (Gallick, 1998).

Whatever the reasons, it is apparent that distance learning is quickly becoming a mainstream part of post-secondary courses and degree programs (Roblyer, 1996). A National Center for Education Statistics 1999 report indicates that of the 5,010 post-secondary institutions in the U.S., 1,680 offer distance education courses, with a total enrollment of 1,661,100. Fully one-third of all two-year and four-year post-secondary education institutions offered distance education courses in 1997-98, and an additional 20% anticipated offering courses within the next three years (Lewis, Snow, Ferris & Levin, 1999). Proportions are even higher when we look only at public institutions; in 1997-98 about three-quarters were offering distance education courses. The speed at which universities are initiating online courses is also significant. The number of distance education enrollments and course offerings approximately doubled between

1994-95 and 1997-98. In public, four-year institutions they tripled in that same time period (Lewis et al., 1999).

Not everyone is comfortable with the speed at which online courses are being implemented. Because the technologies are new, and are evolving rapidly, it is difficult for research to keep up. "There is some danger that the innovations made possible through distance education are advancing more rapidly than our understanding of its practical uses" (Merisotis & Phipps, 1999 , p. 14) . Web-based technologies are growing so quickly that users simply haven't had the time to accumulate the wisdom of experience (Barley, 1999). And the research base hasn't kept up with the evolving technologies in order to inform designers fully. Often, by the time a research study has had time to move through the publication process, the technology has advanced beyond that studied in the first place. In order to stay on top of the competition, designers must move ahead before the research catches up. This causes certain problems since distance education involves heavy up-front investments. It is important to get it right from the start because, unlike face-to-face courses, it is hard to make changes except at the end of the course. As a result, frequently a significant amount of time and money is invested into hardware and software before the student has really been taken into account (Carnevale, 2000).

Yet students are the client. Online courses must meet the needs of these students and provide them with a quality education—and they must do so within the context in which the students are learning. Few studies have looked in depth at online students or listened to their accounts of studying in the online world while maintaining a life in another world. Student stories can help us understand the complexities of managing multiple worlds and, as a result, can help us design online courses that more closely meet the

needs of online students. The study reported in this document is a collection of stories from students taking a variety of online courses, while managing their family, professional, and social lives. Their stories provide insights into course design that could otherwise be overlooked. The remaining chapters report these stories and their implications.

## **LITERATURE REVIEW**

### **Introduction**

Research about distance education is currently in its early stages (Christensen, Anakwe & Kessler, 2001). While hundreds of articles have been written on distance learning, only a small percentage contain original, quantitative research (Carey, 2000), and there are few well-controlled experiments (Maki & Maki, 2000b). Most information available about distance education consists of opinion pieces, how-to articles, and second-hand reports that provide no original data (Merisotis & Phipps, 1999). Research, however, is underway on many fronts as educators scramble to keep up with the advancing technology.

A large portion of the research about online education focuses on comparing learning outcomes between online and traditional students (Merisotis & Phipps, 1999). Other studies explore (a) student characteristics such as motivation and learning style; (b) the role of interaction in online courses, and; (c) factors that influence student satisfaction.

This chapter will examine the state of the literature in these areas, explore some of the issues that arise when studying online education, and then place the current research within the context of this literature base.

### **Research comparing online and traditional formats**

To date, there is little research available that examines the question of how the internet and high technology actually facilitate learning at any level of education, whether remedial, elementary, or higher education. Technological development has outpaced research. (Gallick, 1998, p. 9)

The question of whether or not education conducted at a distance via electronic delivery is as effective as face-to-face instruction has formed the basis of a great number of studies. Despite the fact that much research focuses on comparisons between traditional and online courses, there is some doubt as to whether it is appropriate to compare these two formats at all. "The wrong kind of research is to compare the learning effectiveness of technology-based teaching with the learning effectiveness of classroom based teaching, *using the classroom based model as the baseline*" (Bates, 1997, sec. 12, par. 1). Rather, it might be more appropriate to look at online education alone—to look at what online education does well rather than to try to use it to reproduce what is done face-to-face. Some researchers question whether online education should be expected to replicate traditional delivery methods, or whether, instead, it should be used to provide education in completely new and different ways (Brace-Govan & Clulow, 2000).

Some researchers suggest that the comparison between distance and face-to-face formats is flawed because it assumes that the effectiveness of each medium is constant across all content and all students (Carnevale, 2001). They point out that assuming students learn equally in any format is false. In reality, even when format and content are the same, students learn differently (Sankaran, Sankaran, & Bui, 2000). Comparison research implies an oversimplification of what contributes to learning and suggests that you can blame or credit the media for learning rather than focusing on a variety of other variables that may be contributors, such as cognitive styles, learning styles, instructional strategies, or teaching methods (Carnevale, 2001). The real question, they say, should be whether they are learning what we intended them to learn—NOT whether they are learning the same as in traditional methods (Carnevale, 2001).

Despite these concerns, researchers continue to explore this question. To date, the results of these studies are unclear (Gallagher & McCormick, 1999). One major website is dedicated to the question, "What's the difference?" The *No Significant Difference Phenomenon* website compiles various articles, papers and research studies conducted on distance learning since the late 1920's and the overwhelming number of studies conclude that there is no significant difference in learning outcomes between traditional and distance courses (Russell, 1997, 1999). Many scholars have gone to the point of suggesting that no new research should address this question. It appears that instruction, not media, is the important factor (Klesius & Homan, 1997). "There is no longer any doubt that the technology used to deliver instruction will not impact the learning for better or for worse" (Russell, 1997, p. 45).

The research continues, however, and a few studies do point to some differences. For example, a recent study by Maki, Maki, Patterson and Whitaker (2000a) showed a small advantage in learning for online students over student learning in lecture sections of a psychology course. Their research indicated that online students learned more content during the class. However, these same students showed lower levels of satisfaction with the course than students in the lecture sections. Their conclusion: higher satisfaction does not mean more learning and vice versa.

Marchese (2000) argues that the no significant difference claim shows a "thinness" of thinking by using final exam grades as proof rather than what students have actually learned. Carey (2000) agrees, pointing out that most no significant difference studies are flawed in one or more ways, including, (a) they make no attempt to control for extraneous variables, so that no cause-effect relationship is demonstrated; (b) they do not make use of random selection; (c) they make use of instruments with questionable



validity and reliability; (d) they do not control for the feelings of students or teachers; (e) they report outcomes for single courses rather than entire programs; (f) they don't take student differences into account; (g) they do not explain or adjust for dropout rates; (h) they do not consider learning styles related to technology; and (i) they do not employ a theoretical or conceptual framework (Carey, 2000, par. 4).

Still, the no significant difference phenomenon receives significant support in the literature on online education.

### **Research exploring student characteristics**

Bates (1997) suggests that it is more important to conduct research about learners' perceptions of their experiences online than to research learning outcomes. Understanding the students who are served by online education can provide insights into their motivations, needs and expectations.

Pettrachi (2000) points out that it is important to understand student perceptions of their online experience because the more that is known about students, the better we will be able to influence the learning process.

While there is no such thing as a typical student (Tricker, Rangecroft, Long, & Gilroy, 2001), there may be patterns that can help provide an understanding of the requirements and expectations of students. It is important to know as much as possible about these in order to meet student needs. This is sometimes termed the "market research" element of planning and evaluating online education (Tricker et al., 2001).

In the present education landscape, working adults are showing more interest in distance learning options than traditional students do (Christensen et al., 2001). Online education tends to attract these mature students who have a variety of other demands on their time (Tricker et al.,

2001). One of the major reasons older students opt for the online format is that it enables them to manage work and school, and allows them to work at their own pace (Cooper, 2001).

Because of the need to coordinate varied life responsibilities, more mature students tend to be particularly discerning about classes, looking for courses that will allow them to avoid potential conflicts between a course and their profession or family life. And they are often paying for the courses themselves (Tricker et al., 2001), so value is particularly important.

Little is currently known about the impact of online education on student lives. It is not yet clear how students manage their lives and set priorities with the addition of an online world that must mesh with their professional and family worlds (Kazmer & Haythornthwaite, 2001). What is known, is that there is a great deal of variety in student circumstances. Learning in more mature populations is influenced by these individual differences, making it important to create environments that can accommodate differences and encourage autonomy (Chen, 1999; Cooper, 1996).

Self-directedness is a quality that has been considered desirable in traditional education, but it is essential for distance learning (Becker, 1995). A major difference that has been found between distance learners and traditional learners is their level of motivation (Simonson, Smaldino, Albright, & Zvacek, 2000). In a study by Leasure, Davis, and Thievon (2000), students reporting self-direction and the ability to work at their own pace were best suited to the Web environment. Other studies have also identified self-motivation and the ability to structure one's own learning as predictors of success and satisfaction in online courses (Roblyer, 1999; Simonson et al., 2000). Older, more mature students, those who gravitate

toward online education options, tend to have these higher levels of self-motivation and self-directedness.

Research has also been conducted to determine other student characteristics that may influence success in online courses; for example, whether achievement and satisfaction are influenced by instructional mode, learning style, academic major, or gender (Johnson, 1993). Russell (1997) has suggested that, "Individual differences in learning styles dictate that technology will facilitate learning for some, but will probably inhibit learning for others, while the remainder experience no significant difference" (p. 44). However, studies have not supported this conclusion. Johnson's (1993) study showed no gender influence and no learning style influence. In a study of the influence of learning styles on student attitudes about distance education, Chen (1999) found that variance in learning style made no difference in students' positive or negative attitudes toward distance education. Variables such as learning styles, ethnicity, background, and gender have shown limited effect on success in a number of studies (Klesius & Homan, 1997).

Student characteristics such as study habits, perceptions, motivation, and education level have also been studied but most show no statistically significant effect on achievement or success in distance education courses (Klesius & Homan, 1997). Student goal-centeredness, procrastination levels, and intrinsic motivation, however, have been indicated as significant determiners of persistence and success (Klesius & Homan, 1997).

Roblyer (1999) points to the trend for educational institutions to replace courses and entire degree programs with distance learning versions and suggests the need to examine the implications of removing choice by

offering distance learning options only. She notes that few studies deal with *why* students choose distance learning over traditional formats, and that most studies either focus on demographics or look at the characteristics of students who succeed in an online environment. In order to examine this issue in more depth, her research seeks answers to the following questions:

- What are the implications of removing choice from a distance learning option?
- What factors motivate students to choose distance learning or traditional formats?
- What are students' reasons for choosing distance learning?

In her study, seventy-five percent of the students interviewed indicated that they prefer face-to-face courses but would take distance courses for the control they offer over time schedules. Roblyer did not differentiate, however, between on-campus and off-campus students (Roblyer, 1999). It would seem likely that motivations for taking online courses would differ between these groups.

Other studies have reinforced the idea that students enroll in distance learning courses for convenience because they are either location-bound or time-bound (Galusha, 1998). For non-traditional students, convenience is the primary requirement (Phillips & Peters, 1999). A study by Klesius and Homan (1997) indicates that students accept and often prefer convenience of access over having face-to-face instruction. In a study comparing traditional and distance students, the online students identified cost, convenience and flexibility as their reasons for selecting the web-based format (Leasure et al., 2000).

Convenience and flexibility even seem to take preference over quality. Ponzurick, France, and Logar (2000) found that students considered

distance education to be the least effective and least satisfying option, but would select that format anyway, due to convenience. Reasons they identified for selecting the distance format included outside forces such as location, career, and family. In other words, convenience forces students to opt for the less-preferred delivery method (Ponzurick et al., 2000).

Becker and Gibson (1998) explored using the "Theory of Reasoned Action" (which proposes that behavior can be predicted from behavioral intentions, attitudes, and subjective social norm influences) to predict the choice to participate in distance education courses. Their findings showed that, of those variables, only attitude (measured with bipolar scales such as interesting-boring, useful-useless) played a consistent role in predicting participation (Becker & Gibson, 1998).

Student expectations about online courses have been shown by some studies to be lower than those about traditional courses. Students in a study by Leasure et al. (2000) had the perception that Internet courses would be associated with more difficulties. Concerns they noted included expectations for more busy work, a more time-consuming process, more assignments, poor test scores, and difficulty turning in assignments. Yellen (1997) also points to distance students as having lower expectations in terms of the educational experience (in virtually all criteria) than traditional students. He makes the somewhat perplexing conclusion that they are, therefore, less likely to be dissatisfied: "One can conclude from the above that distant learning students are less frustrated with the educational experience than are traditional students" (Yellen, 1997 - 98, p. 221).

Rangecroft, Gilroy, Long and Tricker (1999) have taken a somewhat unique approach to exploring student perceptions of their online experience.

Drawing on concepts from the service industry, they examine the possibility that the gap between student expectations and actual experience can inform design of online courses. Thus, they look at student perceptions as indicators of necessary design improvements. Their study attempts to identify generic factors that could be important across many situations (Rangecroft et al., 1999).

The goal of their research was to create an evaluation instrument to visually illustrate any gaps that might exist between student expectations and their perceptions of their online experience. The authors suggest that once gaps between students' course expectations and their experiences have been identified, they can be used to select elements for reconsideration (redesign), leading to an improved match, which will therefore improve the perceived quality of the course. Using this as a basis, they set out to create a template to identify and illustrate the gaps (Rangecroft et al., 1999).

### **Research exploring student satisfaction with online courses**

Another large body of research explores factors that affect satisfaction and persistence in online courses (Arbaugh, 2000, 2001; Becker, 1995; Bures, 1996; Carr, 2000; Davis & Hantula, 2001; Gallagher & McCormick, 1999; Inman, Kerwin & Mayes, 1999; Johnson, 1993; Lim, 2000; Long, Tricker, Rangecroft & Gilroy, 1999, 2000; Maki et al. 2000a; Mylona, 1999; Phillips & Peters, 1999; Rangecroft et al., 1999; Richards & Ridley, 1997; Tricker et al., 2001). One way to improve satisfaction is to identify the traits that students desire and tailor products to include those characteristics (Phillips & Peters, 1999). Research suggests a number of factors that appear to influence student satisfaction.

Some factors that have been indicated as influential in determining satisfaction with online courses include flexibility, technical problems,

student-student and student-teacher interaction, class load (Mylona, 1999), tutorial support, readability, logic of course structure, availability of texts, up-to-date content, support services, individual support (Tricker et al., 2001), expense (Bee & Usip, 1998), alienation and isolation (Galusha, 1998), clarity of expectations (Palloff & Pratt, 2001), and a variety of other things. They basically fall into two categories: factors related to course satisfaction and factors related to course dissatisfaction.

Another way to look at these factors is that they fall into categories of costs and benefits. Cost-benefit theory in economics states that when a person is confronted with several options that lead to several outcomes they should convert costs and benefits of all possible outcomes to a single scale and adjust it for probability that outcomes will occur (Larrick, Nisbett, & Morgan, 1993). Using this formula, individuals choose the action with greatest expected net benefit (Larrick et al., 1993). Factors identified by students as contributing to their assessment of satisfaction with online courses are the costs and benefits they assess in determining net benefit.

Recognition that students think in terms of costs and benefits is evident in much of the literature. An exploratory study by Petracchi (2000) uses open-ended questions and Likert-scale surveys to look at benefits and drawbacks of distance education. Results of the study identified more advantages than drawbacks (Petracchi, 2000). Another study explores the alleged benefits and costs associated with Web courses and reports that students indicate that the benefits exceeded associated costs (Bee & Usip, 1998). A study by Howell (2001) concludes that it is necessary to maximize benefits and minimize weaknesses of technology. Ponzurick et al. (2000) suggest that it is important to examine costs and benefits when creating distance courses and point to a tendency to reduce costs wherever possible, possibly leading

to decisions that focus on convenience and expediency at expense of course quality.

Several large categories of factors show up repeatedly in the literature and are discussed below. They include usefulness, flexibility, interaction, and ease-of-use.

### Usefulness

Arbaugh (2000) points to the limited research on Internet-based courses in management education and suggests we may be racing to adopt educational techniques without fully understanding them. In particular, he wonders what factors must be present to produce effective Internet-based courses. In a study designed to take an initial step toward answering this question, he examines factors related to student satisfaction and sets out to test the variables that have been developed in the information technology and distance education literature. Results of his study showed that perceived usefulness was associated with student satisfaction. This ties to concepts from expectancy theory suggesting that utility value—or how a task fits into future plans—is an important component of a person's estimation of the “value” associated with an activity (Husman & Lens, 1999; McMillan, Simonetta, & Singh 1994; Raynor, 1969; Wigfield & Eccles, 2000).

Findings from a study on student receptivity to online education suggest that older-than-average students may perceive distance learning to be a tool to help them reach a goal rather than a substitute for traditional studies. This may be why non-traditional students viewed online education more favorably than the researchers expected (Christensen et al., 2001). Other studies support this notion, and point to goal-centeredness as a significant



determiner of persistence and success (Klesius & Homan, 1997; Richards & Ridley, 1997).

Feedback from users indicate that they perceive online courses to be useful in a number of ways, including that it is a good method for obtaining information, that it is a necessary requisite for future learning, and that it is a valuable means of collecting data (Bee & Usip, 1998). Christensen et al. (2001) emphasize that technology-rich distance learning experiences must be coupled with a perception that the technology is useful in order to be seen as viable.

### Flexibility

A variety of studies have shown that a major reason students choose online courses over face-to-face is the flexibility it offers (Brace-Govan & Clulow, 2000; Carswell, Thomas, Petre, Price, & Richards, 2000; Cooper, 2001; Leasure et al., 2000; Rittschof, 1999; Roblyer, 1999; Smith, 1996; Tricker et al., 2001). Students in a study by Cooper (2001) pointed to the fact that the flexible time frame enabled them to manage both work and school, and to learn at a self-directed pace. Roblyer (1999) also found that control over pace and timing of learning was significant for distance learners.

Flexibility is important enough that it overrides other student concerns. For example, Arbaugh (2000) found that the flexibility of the medium and the ability to develop an interactive environment play a larger role in student satisfaction than ease of use or frequency with which the medium can be used. In a study by Klesius and Homan (1997), the convenience of distance education overshadowed the lack of teacher accessibility.

A study by Kazmer and Haythornthwaite (2001) suggests that students manage their multiple worlds—online, professional, family, social—by leveraging the benefits of the asynchronous portions on an online course, working at night or in small chunks. The flexibility of the online class provides the opportunity to meet responsibilities in each world.

Although the online format provides the flexibility that is so attractive to busy adults, that same flexibility can lead to procrastination (Scott-Fredericks, 1997). This is the major factor underlying the need for online students to be self-directed. A study by Maki and Maki (2000b) explored whether modifying students' allocation of online study time is possible, and if so, what effect it has on learning. Students in the classes they studied tended to defer the use of study aids until a few days before an exam (Maki & Maki, 2000b). The researchers found that they were able to change this pattern by providing mini-quizzes with value assigned to them. They suggest that course designers should carefully consider what value to assign to various online activities, and how that valuation will affect the allocation of students' time (Maki & Maki, 2000b).

### Interaction

One of the largest areas of research about online and distance education focuses on the role of interaction in learning and satisfaction. Interaction can be defined both as interaction between students and the course content, and as interaction between students and other students or the instructor. Simple user interaction that allows the user to control the pace of the presentation has been shown to have two important effects on learning. First, it reduces cognitive load (the amount of information one must hold in working memory at any one time), and second, it enables the learner to progressively build a coherent cognitive model (Mayer & Chandler, 2001).

Most of the research on interaction in online education focuses on interaction between individuals. Interaction is so widely considered important that it is generally assumed to be a basic need for learning to occur (Inman et al., 1999). But as Kearsley (1995) states, "... it is not clear from research or evaluation data that interaction improves the quality of learning in most distance education programs" (pg 366). Russell (1997) agrees, pointing to comparative research that shows that the value of interaction in online courses is suspect.

Still, interaction is being closely examined and a number of questions drive the research. Wilson and Whitelock (1998) look at the role of interaction in an online environment and are specifically interested in exploring whether or not computer-mediated communications can help remote students as their single mode of communications and can help urban students as one of many forms of communication. Becker (1995) explores the extent to which learning is dependent on instructor access, and the extent to which instructor access influences student frustration levels. Phillips and Peters (1999) try to answer the question of whether the remoteness of teacher and learner inhibits or enhances interaction.

A number of studies have shown positive relationships between interaction and motivation, satisfaction, or learning. Arbaugh (2000) found that instructors' emphasis on interaction was positively associated with student satisfaction while interaction difficulty was negatively associated. Christensen et al. (2001) points to research that indicates learning outcomes are maximized when student involvement and interaction are higher. A study by Phillips and Peters (1999) showed that students experiencing higher levels of interaction have more positive attitudes toward the learning process and techniques.

One function that interaction can serve in online courses is to bridge the distance, both physical and social, between students and instructors studying in different locations. Distance learners can now have almost the same instructional contact and interaction as students on campus (Galusha, 1998).

Lesniak and Hodes (2000) discuss "transactional distance," the unique patterns of communication that are inherent to distance learning.

Transactional distance has to do with learners' perception of the psychological and communication space between themselves and the instructor. This perception of closeness is affected by the relationship between dialogue, structure, and learner autonomy (Lesniak & Hodes, 2000). Lesniak and Hodes (2000) have found that those with more technology experience sense a closer transactional distance than those with less.

Online courses have a different social atmosphere than face-to-face classes. A common factor among distance learners is loneliness. They can miss the reassurances they receive from instructors in traditional courses, and mutual learning and sharing with other students (Goodwin, 1993). Still, many students report the development of close relationships in their online classes (Goodwin, 1993). "Students can easily connect with each other and their instructors through email and conferencing" (Kearsley, 2000, p. 5). Lesniak and Hodes (2000) point out that those students with a sense of belonging to a community had more positive experiences in their online classes.

While many researchers agree that distance learning requires a collaborative effort and personal contact between students and teachers

(Galusha, 1998; King & Doerfert, 1996), not all students feel the same need for interaction in their classes. Research by King and Doerfert (1996) suggests that perhaps students with high motivation, study skills, and discipline do not need as much interaction. Also, not all students value the same kinds of interaction. Different students have specific methods of interaction that they prefer, and it is important that online classes should recognize and accommodate this (Ravenscroft, 2001).

One source of frustration that is revealed in a number of studies is that of prompt feedback from instructors (Davis & Hantula, 2001; Galusha, 1998; Mylona, 1999; Rittschof, 1999). Participants in a study by Yellen (1997 - 98) identified this as an issue in traditional education as well. Students appear to find universal dissatisfaction in their ability to receive quick feedback (Yellen, 1997 - 98). It becomes a particular problem, however, in courses where there is no immediate contact between instructors and students.

Much of the interaction in online classes is in an asynchronous format. In other words, the communication occurs across the barriers of space and time, is generally in written format, and allows students to reply on their own time (Collison, Elbaum, Haavind, & Tinker, 2000). There are certain advantages to this form of interaction. Conversations can be archived and viewed, and old conversations can be brought back to life days or even months later (Collison et al., 2000). Scott-Fredericks (1997) describes this format as resulting in "planned discourse," where students have time to think out and edit responses. Nutter (2001) also found that the asynchronous qualities of communication led to deeper responses, as evidenced by the fact that students frequently cited sources to support their responses. They also took time to gather their thoughts and details,

researched their responses, actively solicited responses from other students, and probed more deeply into responses of others (Nutter, 2001).

Other researchers note a variety of problems that arise with the use of asynchronous interaction. The written format is sometimes found to be a barrier, particularly to asking questions online. Leasure et al. (2000) noted that students initially were unwilling to appear dumb to those from other campuses, but that this feeling of vulnerability decreased as the semester progressed. Scott-Fredericks (1997) also pointed out that students in her study felt more accountable for each of their comments due to the written format. In addition to the accountability students felt, they also found that the written format took more time and effort than verbal communication.

Online interaction also lacks the non-verbal component that is present in face-to-face communication. Scott-Fredericks (1997) describes these as "phatic functions," or the signs that communicators send back and forth to reassure each other when they understand, indicate misunderstanding, or signify the opening and closure of a conversation. The lack of these contextual elements created misunderstandings for her participants. They also felt somewhat paranoid that classmates would be overly critical due to the lack of non-verbal feedback (Scott-Fredericks, 1997). Arbaugh (2001) points out that while the nonverbal elements are limited online, verbal elements can still provide a sense of immediacy through the use of humor, discussion, and feedback.

The asynchronous nature of these online communications also raises the possibility that students will begin their participation at different times. Differing starting times in Scott-Frederick's (1997) study affected students' ability to develop and maintain meaningful interaction. Earlier participants

did not want to go back and revisit things they had already finished just because others were behind and needed feedback (Scott-Fredericks, 1997). She also found that ". . . the flow of the discussion was interrupted by students who joined the class discussion late for various reasons" (Scott-Fredericks, 1997, p. 105).

Bures (1996) found that some students were not adept at solving communication problems in asynchronous online discussions. She identifies six strategies that participants in her study failed to apply: (a) failure to withdraw gracefully; (b) failure to apply cognitive synchronicity; (c) not dealing well with non- and irregular participants, i.e. exerting undue pressure; (d) failure to resolve or even address conflict; (e) failure to respond to messages that demand reflection and quick response; (f) failure to negotiate a shared level of intimacy (pg. 62).

Scott-Fredericks (1997) also notes that her participants felt isolated and neglected when they were not acknowledged by their instructors as quickly as they were in traditional classrooms. Some instructors leave their students to conduct their online discussions on their own. "Unavoidably, a lot of this fellow-instruction may be ineffective or even incorrect. The fact that much of this collaborative support occurs out of sight doesn't mean that it doesn't exist" (Westera, 1999). Westera points out that a constructivist approach does not mean hands-off. He suggests that an authorized expert needs to mediate in order to avoid misconceptions or erroneous information passing between students. The educator must control the quality of learning (Westera, 1999). Instructors can influence student interaction by providing personal examples, adding a sense of humor about the content or the online experience, and encouraging students to seek feedback (Arbaugh, 2001).

### Ease of use

Another area of research looks at ease of use in online environments.

"When we talk about how potential adopters determine the VALUE of a particular innovation, we must factor in ease of use! . . . If it's too difficult to use, mainstreamers won't bother" (Gilbert, 1995). Not all studies confirm that this is an important aspect of online courses. Perceived ease of use was not significantly associated with student satisfaction in a study by Arbaugh (2000). Another study states, "Students are surprisingly tolerant of technical problems—as long as they are resolved" (Carswell et al., 2000, p. 44).

Other studies also point to the need to resolve technical difficulties quickly. "What is clear is that, unless technical difficulties and delays are minimized, it becomes difficult to satisfy students who must take a required course through this medium" (Gallagher & McCormick, 1999, p. 5). "It was vital to a positive learning experience, that technical difficulties be taken care of quickly before the student became too frustrated" (Scott-Fredericks, 1997, p. 140).

Technical self-efficacy is a strong indicator in students' choice of taking an online course (Mylona, 1999). A study by Lim (2000) showed that students with higher computer self-efficacy were more satisfied with web-based classes and more likely to take more web-based classes. Years of computer use, previous experience with the Internet in a class, and academic self-concept had positive relationships with satisfaction (Lim, 2000). Roblyer (1999) points out that, in general, students who do not voluntarily choose the distance learning format are much less likely to be tolerant of technical problems.



Galusha (1998) notes that using electronic media can inadvertently exclude students who lack computer or writing skills. Students in online courses are typically offered volumes of electronic-based information and using this information may be a problem for non-technical students. She concludes that for distance learning to be successful, technical barriers must be made a non-issue. Mylona (1999) hypothesizes that technical problems may be one reason for poor retention in the web-based section of the course she was studying.

One aspect of online courses that may detract from the effectiveness of online courses is download delay. Download delay occurs when large files such as graphics are used in course design. Design strategies that can reduce download delay include (a) distributing the data in advance via another method, (b) reducing the size of an image by removing extraneous data, and (c) adjusting the order of the delivery by cutting images into smaller pieces that are delivered individually, mixing image delivery with text, and providing a secondary presentation while an image is downloading (Lockee, Moore, Moore & Tech, 1999). Davis and Hantula (2001) found that download delay was actually beneficial if students used the time to further study materials. They suggest that it may not be the delay that matters, but how the time is used, and also point out that download delays more likely to be tolerated when graphics are useful in understanding the material. Therefore, designers should evaluate graphics carefully to ensure they enhance content, and if not, they should be excluded (Davis & Hantula, 2001).

#### Policies that address some of these issues

The Institute for Higher Education Policy, in collaboration with BlackBoard (an online courseware provider), studied a number of successful distance

education programs and developed a list of benchmarks for effective online courses. Many of the 24 benchmarks they identified address the issues discussed on the previous pages. The relevant ones are summarized below:

- interaction is essential and is facilitated in a number of ways;
- feedback is constructive and timely;
- students are advised to determine if they have commitment, self-motivation, and minimal technology requirements;
- supplemental materials are provided with objectives, concepts, learning outcomes;
- faculty and students agree on expectations for assignment completion and faculty response;
- students receive information on support programs such as admissions, tuition, books, technical support, etc.;
- students receive hands-on training;
- access to technical assistance is available throughout the course;
- questions to technical support are answered accurately and quickly through a structured system.

### **Issues in the literature base**

Due to the nature of online education, a number of issues arise in the literature relating to approaches to research, selection of samples, and biases in both the questions asked and the conclusions drawn. While these issues do not invalidate the studies, they do influence the degree to which findings can be generalized. Some of these issues are discussed below.

#### Identification of “important” factors

A common approach to research about online learning is to provide participants with a list of pre-determined questions or factors that they

answer or rate. This approach has the obvious disadvantage that the participants will only provide answers to questions that are asked (Tricker et al., 2001). For example, in a study by Yellen (1997 - 98) comparing online students with traditional students, a survey instrument was employed that offered only two possible options as reasons participants chose to take the course (degree or learning). Additionally, ten possible "important" features and the same ten "realized" features were presented on a Likert scale, and students rated them as to their importance (very important to very unimportant) and their realization (very realized to very unrealized). While a survey of this type might identify certain differences and similarities, it is bound to miss some significant issues. Since the author does not clarify how the ten variables were selected, there is no reason to believe they are the "right" questions to ask.

Asking participants to identify "important" factors may have some inherent risks. It is possible that this approach will miss items that do not make it to the "important" list, but cumulatively can have a major impact on satisfaction and persistence. A study by Rangecroft et al. (1999) exploring the "satisfaction gap" between expectations and experience avoided the predetermined question issue by asking participants to provide their own list of important factors. It is possible that even this approach will not accurately capture the gap between expectations and experience. Things other than important, or even perceived, factors could contribute to that gap.

Results of the Rangecroft et al. (1999) survey identified some differences between the subjects in the different courses, but they also revealed a generic list of factors important to all distance education students. The researchers were surprised, however, that important factors did not always match with what students talked about most during feedback sessions,

such as long coffee lines and inadequate bindings on teaching materials. They concluded that factors that inspired heavy discussion were those that were immediate and pressing, while important factors were deeper and more fundamental.

An alternative explanation might be that “important” does not necessarily define all factors that can be barriers or motivators. In fact, subjects might officially identify only those things that they considered to be directly related to the educational experience as important. It is unlikely that they would identify long coffee lines or good book bindings in advance. These factors only become issues when they cause problems. There was no attempt in this study to isolate small inconveniences or disruptions that can add up to big problems, because subjects were only focusing on “important” factors. Conversely, they did not look for small positive factors that could combine to become big motivators. Because they do not focus on these factors, they may have missed entire categories, such as ‘reliable computer interface’ or “emotionally uplifting.”

### Theory

Few studies have attempted to provide a theoretical basis for understanding how students experience online courses. Ravenscroft (2001) points out that most e-learning initiatives have been technology-driven rather than theory-led. While many studies are devoid of theory, several theories have been employed to explain certain phenomena. In the study mentioned above, Rangecroft et al. (1999) employed a theory from the service industry. They suggest that by identifying gaps between user expectations and actual experience, it may be possible to gauge overall student satisfaction levels and at the same time reveal areas where improvements can be made to course design in order to raise the level of satisfaction (Long et al., 1999;

Long, Tricker, Rangecroft & Gilroy, 2000; Rangecroft et al., 1999; Tricker et al., 2001).

Arbaugh (2000) draws from the theoretical perspectives of technology adaptation, incorporating ideas from the Technology Acceptance Model (TAM), which holds that beliefs and attitudes toward a technology are the primary determinants of whether a technology will be adopted, the two primary variables being perceived usefulness and perceived ease of use. Additionally, he draws on Flexibility theory, which posits that distance environments provide flexibility in both time and place, which may allow groups to reach levels of relational intimacy comparable to face-to-face groups, but over a longer period of time (Arbaugh, 2000). Hsu (1997) makes use of self-regulated learning theory in his evaluation of academic achievement in an online context.

Carey (2000) objects to the no-theory complaint, pointing to a growing body of literature that posits, tests and advances theory. However, he points out that research is still in its early stages. Theories that he has found represented in the literature include; (a) Instructional Systems Design, (b) Personalized System of Instruction, (c) Information Processing Model, (d) Adaptive Learning Style, (e) Field Dependence/Independence, (f) Hemisphericity, (g) Jungian Approach, (h) Rogers' Theory of Innovation, (i) Theory of Cognitive Speed, (j) Transactional Distance Model, (k) Holistic Model of Primary Factors, and (l) Engagement Theory (Carey, 2000). Still, it is clear that the majority of studies currently represented do not employ theory.

### Pedagogy

Although many studies look at comparisons between learning online and in traditional courses, very few look at pedagogical consequences of studying online (Brown, 2000). For technology to work, there must be effective pedagogy behind it. In other words, the curriculum should be designed first, and the technology developed to support it (Gilbert, 1995). Too often, however, it seems that technological convenience takes precedence over pedagogy (Firdywek, 1999).

Conclusions from Arbaugh's (2000) study indicate that the flexibility of the medium and the ability to develop an interactive environment play a larger role in student satisfaction than ease of use or frequency with which the medium can be used. This would indicate that pedagogical approaches may be more important than technology in determining effectiveness. The idea that pedagogy is more important than technology is supported by Russell (1999), who points out that the majority of studies done in the past have concluded that there is "no significant difference" in learning outcomes between distance and traditional formats. In other words, the medium itself is not responsible for successful learning outcomes (Arbaugh, 2000).

### Methodology

Another issue with the literature base as a whole is that there is little diversity in methodology. The typical study is quantitative, generally making use of a Likert scale survey, and focuses one to two intact classes that are conveniently available. Response is generally voluntary. For the most part, the studies ask very specific questions and offer a narrow range of options as answers to the questions. For example, many studies ask students to rate ten to fifteen factors from important to unimportant. The results are adequate but are not particularly rich and may be more representative of the researcher's thoughts than the subject's thoughts. While these are

necessary studies and ask questions that need answer, other types of studies are not represented well in the literature. Few studies offer opportunities for open-ended questions or in-depth interviews. In fact, few qualitative studies have been conducted.

The majority of studies rely on feedback collected at the end of a course. Tricker et al. (2001) point out that the remoteness of students often limits feedback to end of a course or module. Using this method, research is conducted after any issues would have been resolved, rather than capturing their impact at the point of occurrence. This raises the question, would responses be different during the midst of the course?

Additionally, findings may be inflated due to common method variance. Many studies in the research base use a single data collection method. Not only do many use a single method, but the majority rely on a Likert-like scale analysis of factors (Arbaugh, 2000; Bee & Usip, 1998; Petracchi, 2000; Teh, 1999). Arbaugh (2000) suggests the need for using multiple data collection methods, such as interviews and course grades, for future studies.

Because research is needed quickly, many resort to the convenience of studying intact classes. One particular problem that can arise from this is that it is difficult to separate out reactions to a specific course from reactions to the technology. Confounding variables could include an exceptionally good or bad teacher, difficult subject matter, and high or low quality materials. Because many studies looking at the effectiveness of online delivery use intact classes as the sample, it is difficult to generalize from much of the literature available.

Also typical in a large portion of the literature is use of a sample consisting of students enrolled in courses taught by the researcher. While this may not be a problem in itself, it is interesting that much of the literature is based upon reflection of self-taught courses, raising the question as to whether or not bias due to this is tipping the balance of the literature, and if so, in what ways. Carey (2000) questions this process because, when research is conducted by the instructors who teach the classes, there is a vested interest in showing positive outcomes.

Most studies of online courses rely upon volunteer participants. Because there are frequently no face-to-face meetings in online courses, it is difficult to achieve full participation in studies. When participation relies on voluntary responses in this way, and when response rates are low, there are significant issues with response bias. This, when combined with dropout rates that favor successful students, raises the question as to whether or not the literature is skewed toward an unrealistically favorable view of distance education.

This can become even more of an issue when comparing traditional with online classes. In a study by Yellen (1997 - 98), traditional students responded to the questionnaire during class time, resulting in a nearly 100% response rate. Distant students, on the other hand, voluntarily returned a mailed survey, which resulted in a 75% response rate. While the response rate for the distant course was quite respectable, it included only those students who voluntarily returned the questionnaires, which would indicate that there could be an issue with response bias. This bias, however, applied only to distant students, not the traditional ones, which further biases the study.



The issue of samples of convenience and studying intact classes is visible throughout the literature on student attitudes about online learning. While convenient samples may not be a problem in themselves, it is possible that the overall research base is limited due to this practice. What appears to be missing in the literature are studies that attempt to research large random samples, and also studies that make use of purposeful sample selection in order to use particularly informative participants (Merriam, 1998; Petracchi, 2000; Stake, 1995). In the online education literature, the subjects don't stand out as individuals and don't appear to be particularly noteworthy or unusually informative.

In qualitative studies, researchers frequently make use of purposeful sampling—in other words, they select samples that will maximize what they can learn (Stake, 1995). In case study research the “case” is generally selected first, and then the specific samples within the case are selected (Merriam, 1998). In studying students' experience in distance education courses, then, the case could be a specific course or program, and the sample would be selected from students within that course or program. “Random” selection in distance education research can lead to a biased study because the population is inherently biased due to being in the early stages of adoption, and therefore consisting of a disproportionate number of early adopters. By purposefully selecting the specific students (sample) that will provide the most information it might be possible to ensure representation of those portions of the population that are underrepresented in a random or convenience sampling.

Many studies cite dropout rates as a major difficulty in online delivery of courses (Roblyer, 1999). Research on the effectiveness of online delivery of higher education shows high rates of non-participation after registration and

low retention rates (Cooper, 1996). "There is no research yet to help institutions understand why online students drop out more frequently" (Palooff & Pratt, 2001, p. 47). Data on those who drop out is difficult to come by as students who drop out also fail to complete participation in research studies, which frequently conclude at the end of a course. This eliminates any input from students likely to articulate more negative aspects of the courses, and biases the results to reflect the attitudes of successful students (Roblyer, 1999). To compensate for this, more data needs to be collected from dropouts to determine if those who drop out differ systematically from successful students in their responses to online education (Roblyer, 1999).

#### Research question bias

Although a fair number of studies have been conducted that look at student experiences and satisfaction with online courses, certain concerns are apparent that may limit the widespread application of their findings. While two research studies may appear to explore the same phenomenon, hidden aspects of the research question can have a big impact on the overall study. Asking the question, "How do students perceive their online experience so *that we can encourage adoption and diffusion of distance learning technologies*," is vastly different from asking the question, "How do students perceive their online experience so *that we might better serve their needs*." The first question begins with an assumption that distance education technologies are the appropriate solution for a situation while the second question leaves open the option that a distance education solution should perhaps be reconsidered. In other words, in asking the first question, we limit the possible outcomes of the study. This is not necessarily a bad thing, but the majority of studies appear to be asking this question, while the second question goes largely unasked.

Another difference in these two questions is that they focus on different populations. Asking the first question requires looking at the population most likely to influence adoption and diffusion of the technology—the early adopters. Early adopters are not representative of “mainstream” users and provide a poor role model (Gilbert, 1995). While this is the appropriate population to study when asking the first question, it is not the right audience to research when the goal is to better serve the needs of the majority of distance education students. This, of course, creates a dilemma. Because the technology is relatively new, a disproportionate number of online students, particularly in courses where the online format is optional, are likely to have early adopter characteristics. This problem is exacerbated when we rely on convenience samples, and when we focus on those students who remain in an online course but do not follow up with those who drop out.

#### Adoption and diffusion

Wells and Anderson (1997) have suggested that the use of the computer for the delivery of education is an innovation and is therefore subject to the patterns of adoption and diffusion of an innovation. They propose that “. . . direct attention to the application of adoption and diffusion mechanisms is necessary when seeking to encourage meaningful integration of new technological innovations into the field of education” (p. 83). Specifically, they point to five factors from the adoption and diffusion literature that they believe distance educators should be aware of:

- (a) the relative advantage of the innovation to the adopter;
- (b) the compatibility of the innovation with the adopter's existing values, previous experiences, and current needs;
- (c) the level of complexity in using of the innovation;

(d) the ability of the innovation to be tested; and

(e) the direct observation of the results of the innovation (p. 83).

These factors, they state, will significantly affect the decision process for adoption and diffusion of the new technologies (Wells & Anderson, 1997).

Further, they point out that judgment on these factors by the early adopters of the technology will significantly affect the rate of adoption and eventual diffusion. Early adopters act as a filter to new technologies introduced to educators as a whole, and their perceptions ultimately determine the decision to accept or reject an innovation. They identify characteristics of early adopters as:

- (1) higher levels of education;
- (2) greater familiarity and use of mass media materials;
- (3) positive attitudes toward change;
- (4) broad range of communication skills;
- (5) high degree of innovation seeking (Wells & Anderson, 1997).

They suggest that understanding the characteristics of early adopters and how they value the new technology of interest, will more effectively bring about acceptance and adoption. Consequently, they focus their study on perceptions of students enrolled in a graduate-level Internet-based telecommunications in education course—students they identified as possible early adopters (Wells & Anderson, 1997).

This approach is not atypical of the literature on student perceptions of online experiences. In the early stages of a new technology, such as online education, a disproportionate number of students will hold early-adopter characteristics. However, there are some inherent disadvantages to this focus. There is a monumental difference between early adopters and the

mainstream population. While the mainstream are focused on content, early adopters are focused on tools—they enjoy playing with technology. Early adopters tend to be “techies” who experiment with everything that comes their way, and they envision technology as something to use as a breakthrough in teaching and learning (Gilbert, 1995).

Because of the differences between early adopters and the general public, early adopters may be poor role models. Their success can set up inappropriately high expectations and may cause a focus on technological solutions rather than pedagogical ones (Gilbert, 1995). While focusing on understanding early adopters may enhance and accelerate the adoption and diffusion process, using this knowledge to inform the design of courses may leave the needs of the mainstream population unmet.

### Implications

Another shortcoming in the literature is a solid base of concrete implications from the findings to improve the design of online courses. Many studies simply describe the findings, benefits, and drawbacks of online education, for example, without suggesting implications. But, as Dewey (1933) expressed in his book, *The Way We Think*, “Ideas . . . are not genuine ideas unless they are tools with which to search for material to solve a problem”(p. 133). Long et al. (1999) suggest that “another way of expressing these drawbacks is to locate them within the design features of the course” (p. 776). In other words, benefits and drawbacks identified by students about online courses can inform us about how to effectively design a course. Few studies take the last step to suggest how this might occur.

**Significance of this study**

Where does this leave us in terms of identifying a niche in the research field for new studies? Several have pointed to qualitative research and case study as a possible direction for research in distance education. Elliot Eisner (1997) suggests that qualitative research can be an important step in identifying issues that need further study. ". . . what qualitative research yields is a set of observations or images that facilitate the search and discovery process when examining other situations, including other classrooms and schools" (p. 264).

To understand what roles online education might best fulfill, we need to understand the students we are serving. It is important now to conduct research about learners' perceptions of their experiences online and their responses to working with technology (Bates, 1997). We also need to understand the context within which students are studying.

What sort of background knowledge do students need in order to locate appropriate courses and providers? When students take courses at their desk or at home, how does the immediate environment affect the learning process? How do the temporal structures of distance learning differ from the temporal structures of classroom learning, and do the differences matter? Unless we understand the context of distance learning, we are unlikely to understand how the technologies can be optimally used. (Barley, 1999, p. 58)

Another important next step is to develop theory based on multi-course studies. Arbaugh (2000) points out that single-course studies are no longer sufficient for advancing knowledge about Internet-based courses. This is supported by a review of the literature, which indicates that the vast majority of studies are focused on single courses and intact classes.

The literature base for online instruction is just in its beginning stages. Essential to this early stage will be a variety of exploratory studies to

identify issues and questions that need further study. This study can find its niche in the literature as a qualitative, exploratory, theory-based study that examines the student experience in a variety of online courses, from the students' perspective, in order to describe the context of online education and identify areas for further study.

This exploration of students and their online experience is significant in that it provides a wealth of information about these students and their responses to classes that is not currently available in the literature. It reveals numerous questions for further research while, at the same time, providing valuable data to designers enabling them to tailor online courses to the specific needs of this audience.

## THEORETICAL BASIS

### Introduction

Few studies have attempted to provide a theoretical basis for understanding how students experience online courses. Theory is a way of making sense of the world, and also allows predictions to be made (Morine-Dershimer, 1987). By employing a theory to explain how students respond to courses, it is possible to make predictions about how students will respond to certain aspects of online courses and their design, which, in turn, can provide insights for making design decisions.

### A theoretical framework

Researchers have noted that the distance education literature as a whole does not incorporate a theoretical or conceptual framework (Merisotis & Phipps, 1999). While some studies attempt to build basic theories to explain student online learning (Scott-Fredericks, 1997; Arbaugh, 2000; Long et al., 1999; Wells & Anderson, 1997), few use accepted theories from education or psychology as a framework for studying online education. This study explored the idea that expectancy-value theory can provide a possible framework for understanding how learners choose to become involved and stay involved in an online course.

### Hedonism

Expectancy-value theory finds its roots in the doctrine of hedonism, dating back to the ancient Greeks (Seward, 1939). By the early 20<sup>th</sup> century, hedonism was almost universally accepted (English, 1921) forming the basis of many psychological theories (Seward, 1939) and it continues to influence the field today. That it has lived so long is a testament to both the importance and the elusiveness of this theory (Duncker, 1941).



Hedonistic theory explains human motivation as entirely determined by the desire for pleasure and the aversion from pain (English, 1921). Behaviors, therefore, are always self-interested, the acts of searching for pleasure or avoiding pain (Seward, 1939). Pleasure and pain cannot be absolutely defined. They are not distinct elements of experience, nor are they specific feelings. In fact, many different feelings might be considered pleasurable or painful to a person at a given time (Feldman, 1997).

For many years, pleasure and pain were accepted as actual motives, but it was thought that the driving force behind them was biological, that they came from instincts (English, 1921). This view was heavily debated, however, as theorists pointed out that the concepts of pleasure and pain clearly must come from conscious experience, the terms themselves implying a subjective point of view (Young, 1952). Other views held that these affective responses were the result of dynamic interactions between organisms and their environment (Seward, 1939).

Also under debate was the hedonistic thesis that pleasures are intrinsically good (Feldman, 1997). If this were to hold true, it could be assumed that a pleasant experience, such as tasting chocolate, would be pleasurable in all situations and to all individuals, because the pleasantness is intrinsic to the chocolate flavor. This, however, cannot be true, since many individuals do not like chocolate, and in some situations, chocolate does not appeal even to those who like it. Many argued, then, that pleasures cannot be intrinsic and context-free, but must be extrinsically influenced (Duncker, 1941; Feldman, 1997; Lewin, 1936; McAllister, 1953; Seward, 1939).

Those who do not believe in the validity of hedonism, with its notion of intrinsic goodness or badness, are hormists. Hormism is not an anti-

hedonistic view, but rather a belief that only a small portion of deliberate behavior could be due to hedonistic processes (Duncker, 1941). In this view, pleasure occurs when action toward a goal is successful, and pain occurs when it is frustrated. Enjoyment, then, can be a side effect of an action and can be a non-sensory experience (Duncker, 1941).

Additionally, a person can have coexisting and mixed feelings (Duncker, 1941). It is possible for an individual to experience both pleasing feelings and displeasing feelings at the same time. If the displeasing feeling is strong enough it can be said that the overall feeling is displeasure (Feldman, 1997). Thus, the overall feeling is determined by the strength and relationship of the component feelings.

Several problems have been cited with the theory of hedonism. Many believe that while some of motivation can be explained by hedonistic processes, other factors also must be involved and a broader theory of motivation is needed (English, 1921).

But a larger reason that hedonism has lost some of the acceptance it once enjoyed is that, while the theory does a good job of explaining motivation, it does not do well at predicting the behaviors of individuals. This is due to the fact that there is no clear cut specification about what someone will consider pleasurable or painful. As a result, it is not a testable theory (Lawler, 1971). Attempts to solve this problem have led to a variety of more complex theories that expand upon the basic concepts of hedonism.

### Field theory

Lewin (1936) was one of the earlier theorists to propose a more complex way of looking at motivation. He suggested that to explore such psychological concepts as will, needs, and personality, it was necessary to

look at the whole person, including his or her personal characteristics, momentary state, and psychological environment (Lewin, 1936). He argued that a system of concepts was required that was broad enough to deal with emotions, thought processes, values, and social relationships, and that these concepts must not be represented as isolated facts, but must be expressions of a concrete situation, a definite person, and a definite condition (Lewin, 1936).

Lewin insisted that every event depends on the total situation, including both the person and the environment (Lewin, 1936), and that the cause of any event is located in the relationship between the object and its environment. Any theory must, therefore, represent the interrelationships of these conditions (Lewin, 1936).

Lewin describes this total situation as the sum total of all that has effects on the person of consideration. "What is real is what has effects" (Lewin, 1936, p. 19). The total situation is a person's lifespace, which is divided into fields representing the way the person organizes this lifespace conceptually. A lifespace can include such components as location; objects of importance at the moment; relationships to others, their position, and personalities; one's own place in society, or vocation; longings and ambitions; fears; ideals; etc. (Lewin, 1936).

Lewin suggests that behavior depends on the state of the environment as well as the state of the person. In Lewin's model, behavior is directed and is represented as locomotion toward or away from activities in the life space. Fields in the lifespace are associated with a positive or negative attractiveness, or valence, and behavior is a result of moving toward fields with a positive valence and away from those with a negative valence (Lewin, 1936).

As with hedonism, Lewin's theory has met with arguments in regard to the testability of the model. "How is the investigator to know what the momentary goals, valences, and potencies will be for a given subject in a given situation?" (Atkinson, 1964, p. 104). Atkinson points out that while the constructs are defined in Lewin's model, observable events that are represented by these constructs have not been precisely identified. Therefore, the theory cannot be tested (Atkinson, 1964).

### Purposive behavior

Hedonism enjoyed nearly universal acceptance during a time when psychological research was dominated by theories that placed the control of behaviors in the biological realm, a result of unconscious physiological responses (Bindra, 1974; Mowrer, 1947; Pavlov, 1960; Skinner, 1938). This view was challenged by Tolman (1932), who argued that properties of behavior cannot be deduced from properties of underlying physical and physiological processes (mere muscle twitches, as he called them). Therefore, he focused his research on molar behavior, or large, intact, meaningful behavior patterns (Tolman, 1932). While Tolman's work focused on rats, he was able to show that the rodents behaved with a goal-orientation, in a purposeful way, and that, through experience, the organisms learned to respond only to those things they knew were related to the goal object (Tolman, 1932).

Furthermore, he suggested that, through experience, organisms develop a picture of the environment, and this "cognitive map" indicates routes, paths, and environmental relationships that help the organism determine how to behave (Tolman, 1948). Final cognitions are the organism's final understanding of the lay of the land and the behaviors that will produce the

desired end-results. Thus, Tolman provided one of the earliest references to purposive, or goal-oriented behavior.

### Expectancy

Bandura (1986), proposed a model of self-efficacy that suggests that humans are rational, deliberate individuals who weigh options carefully before making behavior decisions. This is in opposition to earlier models that suggested behaviors were unconscious and automatic responses to stimuli (Bindra, 1974; Mowrer, 1947; Pavlov, 1960; Skinner, 1938). Bandura (1991) defined a person's perceived self-efficacy as judgments or beliefs about their own capabilities in regards to executing designated performances. He suggested that people motivate themselves based on setting goals and estimating the amount of effort required to reach each goal. Another way to look at self-efficacy, then, is that it is an evaluation of values (i.e., those things toward which one strives or sets goals) and expectancies (i.e., an assessment of the likelihood that goals can be reached). It has been shown that self-efficacy, as well as other beliefs and attitudes about learning that an individual holds are strong indicators of academic performance (McMillan et al., 1994).

According to Bandura (1991, 1997, 2002), expectancy can be broken into two categories: 1) efficacy expectations, which refer to an individual's belief that he or she can accomplish a task, and 2) outcome expectancies, or the belief that a given action will lead to a given outcome. Efficacy expectancies, or ability beliefs, focus on current ability, while outcome expectancies focus on the future (Wigfield & Eccles, 2000). Taking these two types of expectancies into account, Bandura's explanation of motivation then is that people form beliefs about what they are capable of, anticipate the likely outcomes, and plan a course of action (Bandura, 1997, 2002).

Lawler (1971) suggests another view of expectancy, pointing out that some people “regard the perceived relationship between putting effort into performing well and receiving outcomes like pay as an expectancy” (p. 91).

### Expectancy-value theory

These two constructs, expectancies and values, form the basis of a family of theories known as expectancy-value theories. One of the earliest of these was introduced by Vroom (1964) and took the view that all outcomes can be assigned a valence, a positive or negative value based on anticipated satisfaction with that outcome. In Vroom’s definition, value differs from valence in that value refers to actual satisfaction from an outcome while valence refers to anticipated satisfaction. Vroom’s model of motivation suggests that the amount of effort one puts into a task, or the force, is equal to the expectancy that the act will lead to a specific outcome multiplied by the valence attached to that outcome (Vroom, 1964). In simplified form, this reads:

$$\text{Force} = \text{Expectancy} \times \text{Valence}$$

Furthermore, force increases as a function of the product of the valences of all outcomes, not a single outcome—a recognition that often outcomes lead to other outcomes (Vroom, 1964).

Building on these concepts, a theory of achievement motivation was introduced by John Atkinson (1978) and took into account both motives to seek success, and motives to avoid failure. His basic formula reads:

$$TA_A = (M_{ss} \times I_s \times P_s) - (M_{AF} \times I_F \times P_F)$$

The variables are defined as:

- $TA_A$  = tendency to achieve
- $M_{ss}$  = motive to seek success
- $I_s$  = incentive value of success

- $P_s$  = probability of success
- $M_{AF}$  = motive to avoid failure
- $I_F$  = incentive value of failure
- $P_F$  = probability of failure (Atkinson, 1964)

Atkinson's theory was not designed to be used in isolation. Even when the results of this formula indicate a high tendency to achieve, a variety of other interests will compete for a person's time (Atkinson, 1974). Therefore, actual choice to achieve will depend on the strength of the tendency to achieve relative to the strength of tendency toward other options.

It should be noted that the results of applying an expectancy-value formula such as this are dependent on the definition of terms. Although application of the formula can lead to some precise mathematical results, the components of the model are abstract and therefore susceptible to numerous interpretations. Researchers disagree on how to define and how to measure the constructs (Van Eerde & Thierry, 1996). Variations in components and their definitions have led to a number of interpretations of this model.

Raynor (1969, 1974) has suggested that not all values are equal, and that those which have future implications tend to outweigh others in importance. For example, according to this theory, taking an online course because it will lead to a new and valued career has more weight than taking an online course because it is fun.

Rea (2000) includes a separate variable, *affect*, in his model for achievement motivation, based on a basic expectancy-value model. In the literature, affect is conceptualized by a pleasant vs. unpleasant state, a

negative vs. positive mood, or a specific level of arousal and satisfaction.

Thus his new model reads:

$$\text{Achievement Motivation} = \text{Expectancy} \times \text{Value} \times \text{Affect}$$

"According to this model, the effort that students are willing to expend at a task is a product of their expectancy of success at the task, the value they place on the task, and their emotional reaction to the task" (Rea, 2000, p. 190). The multiplicative effect of this model means that a total absence or extreme negative value of any one component can cancel out the contributions of the other two components. Also, deficits in any one of the components will result in sub-optimal conditions for motivation (Rea, 2000). Rea's work focuses on optimal motivation for talent development, and his emphasis on affect suggests that optimal motivation occurs when a balanced interaction exists between "telic" work and "paratelic" play. Telic is defined as serious-minded, goal oriented, anxiety-avoiding activity, while paratelic refers to playful, spontaneous, excitement-seeking activity. Rea defines this balance as "serious fun," or play with a purpose (Rea, 2000). Early adopters tend to consider working with computers serious fun.

Wigfield and Eccles (2000) have divided the value construct into four categories: attainment value (the importance of doing well on a given task); intrinsic value (the enjoyment one gains from doing the task); utility value or usefulness (how a task fits into an individual's future plans); and cost (lost opportunities, energy expenditure, and emotional costs). Subsequent studies by these researchers focus on the first three categories, but they have done no work to explore or support the cost category. Anderson (2000) noted this omission in an unpublished study examining perceived costs as a separate and independent variable within expectancy-value theory. Anderson established that cost is a readily identifiable factor in



participants' thinking about their decision to attend an AERA conference (Anderson, 2000). While this study was limited in its scope, it does point to a frequently overlooked aspect of decision-making in achievement situations.

Vroom (1964) takes cost into account with his use of the construct of valence. Valence is defined as the positive or negative value that a person places on each outcome, and includes such affective orientations as importance, desirability, and attractiveness (Van Eerde & Thierry, 1996). When valence has a negative value, it can be considered a cost.

Feather (1992) includes both values and needs in his definition of valence. He suggests that core values held by an individual influence the valence they attach to any action. These values are stable and long-lasting. At the same time, needs influence valence. Needs can be stable, such as the need to achieve, or they can be momentary states, such as the immediate need for food. Feather also recognizes that factors beyond values or needs can influence the valence an individual attaches to an action. These might include objective characteristics of outcomes or events such as task difficulty, expected consequences, amount of personal control, or moods (Feather, 1988, 1992).

It becomes clear, then, in evaluating just a few of the many examples from the expectancy-value family of theories, that each defines the constructs of expectancy and value in unique terms.

### **Expectancy-value theory and online education**

To date, no research has tied expectancy-value theory to motivation in the online environment, however, a cursory look at the formula in relation to

participation and persistence in online courses suggests several factors that might influence perceived values. Examples include: need for the course in order to reach a further goal (e.g., a degree, or new job); joy of learning; acquisition of new skills; interest in subject matter; increased computer skills; pride in a job well-done; positive feedback; completion of a difficult task; a good grade; a fun interface; flexible time frame; ability to work from home; etc. Any of these positive factors could also be a negative factor, depending on both the individual and on course-specific differences. For example, some students might receive negative feedback, resulting in a negative incentive. Some courses might present information in a boring manner, resulting in a negative incentive.

Expectations may also be influenced by several factors. Examples of this include: past experience with computers (positive or negative); amount of technical assistance available; difficulty of subject matter; past successes with subject matter; ease of navigation through the course; current computer skills; time management problems; computer glitches; amount of guidance; etc. Currently, it appears that many people have low expectations of success online (Yellen, 1997 - 98), perhaps due to the fact that many people have no previous experience to rely upon, and that many people are still uncomfortable with new technologies.

Expectancy-value theory might provide an insightful framework for understanding the student experience in online courses, but in order to test the effectiveness of the theory in explaining participation and persistence in online courses, the constructs need to be defined in concrete terms. As an initial step, exploratory studies are necessary to document the factors students identify as playing a role in their online experience, and contributing to their assessment of "valence" including both positive

"benefits" and negative "costs." Input from online students will help to define the variables in expectancy-value theory, enabling this theory to be used as a tool for prediction of student motivation to participate and persist in online courses.

## STATEMENT OF PURPOSE

Research about online learning is currently in its early stages. Researchers are calling for high quality descriptive studies that can map out the landscape and provide an understanding of the context-related characteristics that will influence teaching and learning in the online environment (McCabe, 1997). This research study was designed to meet such a need. Rather than testing hypotheses, the study explored the broad field of student perceptions of their online experience, in order to identify factors of importance to students.

The question that has guided this study is, "does it help us understand online course design to look at the phenomenon of student experience in terms of expectancy-value theory?" Answering this question requires defining the constructs in this theory as they apply to online coursework. For purposes of this study, a basic expectancy-value model was used as a starting point:

$$\text{Motivation} = \text{Expectancy} \times \text{Value}$$

where value is defined as encompassing the positive and negative values of both the outcomes and the experience of participating in an online course.

There is currently no clear understanding of the factors students weigh when choosing to take and persist in an online course, in other words, those factors that help to determine value for them. Defining the constructs in the expectancy-value theory, in specific relation to online education, may enable later research to test the model for its effectiveness in predicting participation and persistence in online courses.

In most expectancy-value research, outcomes are selected by the researcher and presented to the participant for rating. This has certain inherent risks. Some of the outcomes presented may be irrelevant to participants, and some relevant outcomes may be omitted. Only rarely are participants given the opportunity to name their own perceived outcomes (Van Eerde & Thierry, 1996), and to provide their own identification of factors that influence their perception of value and expectancy.

The study reported in this document attempted to avoid these risks by allowing students to provide their own perceptions of their motivations for taking online courses as well as positive and negative experiences *during* their courses. The purpose of this case study was to describe the experience of students enrolled in online courses at two western universities in order to determine the following things:

1. What do students value in terms of an outcome? In other words, what are their motivations for taking an online course?
2. What do students value in terms of an online experience? In other words, what provides them with satisfaction, enjoyment, stimulation, security, comfort, pride, etc.
3. What factors do students consider costs in terms of the online experience. In other words, what causes them frustration, irritation, anger, boredom, anxiety, insecurity, discomfort, expense, etc.

In order to keep the research focused, this study did not attempt to explore student expectancies in relation to online courses, but rather maintained a focus on defining the value construct in expectancy-value theory as it pertains to participation and persistence in online courses.

## **RESEARCHER BIAS**

### **Introduction**

Any study is necessarily influenced by the underlying assumptions and biases of the researcher. In qualitative research, these biases are assumed to play a large role in the interpretation of data collected. Therefore, it is important that the researcher's worldviews be disclosed so that readers may take into account these biases in their own interpretations of the results presented (Merriam, 1998).

### **Researcher background**

My background, as a researcher in this study, provides the context for understanding the worldviews and assumptions described at the end of this chapter. The previous chapters reviewing the literature in both online education and theory provide a piece of the lens through which I view the world. Other researchers may consider different theories to be informative, or may even believe that theory, in general, is not a relevant framework for viewing student experiences. The theories I chose to explore are those that speak to me, directly, as a result of my life experiences.

Over the past 25 years, I have been involved in a career as an interpretive planner, planning and designing information systems for visitors in a leisure setting. In this setting, educational information is optional (Ham, 1992).

Participation cannot be required, and when visitors become bored or overwhelmed, they have the option of leaving with no negative consequences (Ham, 1992). Often, however, the messages presented in the educational brochures and on signs play an integral role in maintaining the integrity of the resource (Fazio & Gilbert, 1981; Ham, 1992; Lewis, 1981; Sharpe, 1976). Therefore, encouraging visitors to read and

understand the information is a high priority. Since visitors cannot be forced to participate, it becomes necessary to look at the service we are providing and ask, "How can we design this information so that it is valuable and accessible to the audience?"

Answering this question, of course, requires understanding the audience—not simply identifying the demographics, but really understanding the factors visitors are weighing when they ask themselves, "Is this worth my time and effort?" When visitors fail to participate or succeed, it leads to the questions, "How can we do this differently? What do we know about our audience that will help us refine the design of the information?"

Because information in leisure settings is addressed to the general public, a broad range of individuals are included in the population. Each has a different background and different understandings when they enter the setting. They have different interests, needs, and abilities. It would appear that an infinite number of factors could be influencing their choice to participate in the information opportunities provided.

Through many years of audience research, it became clear to me that, although each individual valued different aspects of his or her experience, and each person had unique wishes and interests in terms of available information, patterns occurred across populations. Certain aspects about the kind of information that was offered, and the ways information was presented seemed to earn universal approval. And other aspects received negative responses across the board. By making changes to the information addressing feedback from visitors, it was possible to increase the number of visitors who chose to participate and persist in reading the information offered.

From this experience as an interpretive planner and researcher, I have come to embrace a view of the world that acknowledges wide differences in individual perceptions of the world due to differing background experiences, interests, and abilities. At the same time, I accept that certain patterns exist that reflect the values of the majority of individuals across a population in a given setting.

The study described in this document reflects the following assumptions, which are rooted in my experiences as a researcher and planner.

### **Assumptions**

1. At least in the natural world, there exists an objective reality. As humans, however, we are limited in our ability to understand it. Our understanding cannot go any deeper than what we, as biological creatures, are able to perceive through our senses. We develop technology and scientific method to enhance our ability to perceive, but we are still limited in the types of things we can perceive and the ways in which we can perceive them. Within our box of humanness, we are destined to a limited understanding of reality.
2. All initial information comes to us through our senses. From this sensory information we build models of our understanding of things and events. We build what have been termed "cognitive models" (Hammitt, 1981), "cognitive maps" (Tolman, 1948), "schemata" (Anderson, Spiro & Anderson, 1978). The terminology is not essential at this point, nor is a description of exactly how these structures are created and stored. As defined here, however, they are multi-sensory models of our understandings. We use these as the basis for understanding new concepts. In Piaget's (1970) terms, as new information is received, we



assimilate it into our current model or we change our model to accommodate the new information. Each time we experience something new, we modify our model somewhat—either adding additional detail to it, or changing it in some significant way. If something does not make sense, we must change our entire understanding.

3. Research in the social sciences is confounded by two things: 1) our limited perceptions, and 2) the fact that no two people hold the same understandings, due to their different knowledge structures. However, there is an objective reality in terms of the physical being of humanness. Human brains work in a consistent manner because they are biologically similar. *How* we use our minds is unique to our background. What we pay attention to and care about is influenced by the culture we grew up in, our family and social relationships, our prior experiences, and much more. In this way, each individual is unique.

This research, therefore, is influenced by the tenets of both cognitivism and constructivism.

4. From cognitive sciences, this research accepts that: (1) there are predictable patterns in the way human beings sense the world, through their five senses; (2) there are similarities in the ways individual humans perceive these sensations; (3) humans have a long-term memory with essentially unlimited capacity (Waugh & Norman, 1965; Atkinson & Shiffrin, 1968) in which they store knowledge in relational structures (Anderson, 1978); and (4) humans have a very limited working memory (Miller, 1956). It accepts that these, and other, physical characteristics of humans influence the ways in which humans are able to take in and process information.

5. From constructivism, this research accepts that all knowledge is built on past experience and therefore, no two "realities" are the same. It does not assume that all understandings of reality are equally valid, but that some patterns represent a better "fit" than others (Von Glasersfeld, 1984).
6. This research, then, is a search for patterns in human behavior. It assumes that, since human brains function similarly, there may be patterns in processes even if not in outcomes. These patterns may not be "provable" but may be shown to have a good "fit." Von Glasersfeld (1984) suggests that we should be looking for explanations that "fit" reality, rather than "match" reality. Thus, there may be many explanations that "fit," and those that do not fit, reality, as we know it.

... we consider ideas, theories, and "laws of nature" as structures that are constantly exposed to our experiential world (from which we derived them), and either they hold up or they do not. Any cognitive structure that serves its purpose in our time, therefore, proves no more or less than just that—namely, given the circumstances we have experienced (and determined by experiencing them) has done what is expected of it (Von Glasersfeld, 1984, p. 24).

Although we may never truly "know" reality, we can identify patterns and explanations that fit the circumstances and help us to understand.

7. This research makes the assumption that a study of the experience of online students will reveal patterns that may help provide an understanding of the online experience, and that may allow certain predictions in a broad sense, if not specific for individuals. While it is anticipated that each student's online experience will be unique, it is also expected that patterns will emerge demonstrating certain

similarities in the experience. Further, it assumes that these patterns may be addressed, in part, through the design of the online course. In other words, certain problems identified by participants can be reduced through course design, and certain values identified by participants can be enhanced through design, in such a manner that the majority of students benefit from the design changes.

8. Furthermore, because it accepts that no two humans perceive experiences identically, this research also accepts that the interpretations I make represent my own understanding and that other researchers may come to different conclusions. Therefore, many quotes are provided as exemplars within this document to allow the readers to follow the lines of evidence to determine for themselves whether or not they agree with the interpretations presented.

## METHODOLOGY

### **Introduction**

The study was conducted over two college terms and involved two separate procedures. During fall term, 2001, a pilot study was conducted at a four-year university using focus groups to explore the student experience in two online courses. During winter term, 2002, data were collected from students in online classes at two universities via interviews and anecdotal records.

### **Part one: Pilot study**

The purpose of the pilot study was to explore the experience of online students in order to develop appropriate framing questions for the in-depth interviews to be conducted the following winter term in a separate study with a different sample. Three focus groups were held with students participating in online courses at a western university to allow them to describe their personal experiences and to express anxieties, concerns, and questions about the online experience. Participants included students in two separate intact classes. In addition, the researcher collected data from online discussions (described on page 63) that were a part of one of the classes.

### **Focus groups**

The first focus group included all twenty members of an "Internet for Educators" class and took place at their first of two face-to-face meetings, before any course materials had been introduced. Prior to the discussion, students were informed that their participation was voluntary, and listened to a description of the study, including methods for insuring confidentiality (described on the Informed Consent forms in Appendix A). Following this discussion, they filled out Informed Consent forms (see Appendix A). Each

student also filled out a short questionnaire with items about previous experience, motivation, age, and gender (see Appendix B). The purpose of this tool was not to provide data for analysis, but to provide information to ensure diversity of participants in the event that any members of the focus groups chose to volunteer for the in-depth study the following term. This is described more fully under Part Two, Research with Individual Students—Selection of Participants for Interviews, on page 66.

The majority of students in the focus group described themselves as experienced or competent and comfortable with computers, however, two students considered themselves novices and two described themselves as experts. Only two had taken an online course previously. Their feelings in anticipation of this online course were overwhelmingly positive, although one participant identified his general feelings as negative. Only two students indicated that they would have preferred a face-to-face format. For a variety of reasons, including distance, family commitments, and time conflicts, all but one of the students could not have taken a face-to-face version if it had been offered. Only one student was under the age of 25. All had completed their undergraduate education. Gender was nearly evenly split, with females out-numbering males by two.

This was the first course in an online MAT (Master of Arts in Teaching) teacher preparation program that is conducted almost entirely online. The 45-minute discussion explored the students' expectations and concerns, based on advertising and entrance interviews only and was captured via videotape.

Framing questions that guided the initial focus group discussion were as follows:

1. What was your initial reaction when you realized that these courses would be online rather than face-to-face?
2. Currently, how would you define your feelings in anticipation of this online program? (positive, negative, indifferent). Please elaborate.
3. What anxieties do you have about the courses being online? What are your concerns?
4. What are your expectations from an online program? (What assumptions are you making about the type and quality of experience you will have?)
5. What is most important to you in this program and are you confident that the online format to be able to accommodate that?
6. What motivated you to take a program that is mostly online?

A second focus group was conducted at the final face-to-face meeting near the end of the term to determine whether or not expressed expectations and concerns actually materialized. The discussion also explored other issues that arose for students during their online experience but were not anticipated prior to it. Four members of the original group participated in this discussion on a volunteer basis. Framing questions for the second focus group were as follows.

1. What has been the most frustrating thing for you?
2. What has been the most rewarding aspect of working online?
3. You indicated confusion about not knowing all the expectations up front. Has that continued to be a problem?
4. Would you categorize your biggest issues as technical or as logistical, or something else?
5. What suggestions do you have for making this class better—or for making the online environment itself more effective?
6. Is it worth it? At what point would it cease to be worth it?

A third focus group was conducted with five members of a research class. This was one of the last classes taken by students in the online MAT teacher preparation program and students in the class were just completing two years of online classes. Framing questions for this focus group were the same as for the second focus group, but students were expected to draw upon their experiences in all of the online classes they had taken.

During all of the focus groups, discussions evolved and developed naturally, with the researcher acting as a moderator, rather than an interviewer (Valentine, 1993). After a short introduction of the topic, the researcher let the participants discuss amongst themselves and refrained from joining in unless the discussion stalled or got off-track. When necessary, framing questions were introduced to encourage movement of the discussion in the intended direction. This form of discussion helped to reveal consensus views, and identified language used by participants that could help to frame questions (Wilson, 1997) for the one-on-one interviews to be conducted with a different sample the following term.

### Online discussions

All students in the Internet for Educators course participated in online discussions. These discussions were built into the course and students explored various issues each week. The format was an asynchronous, threaded discussion. Asynchronous refers to fact that the discussions do not occur in real-time. Rather, students both write and respond to questions at times suitable to them (Collison et al., 2000). Threaded discussion refers to the idea that the conversation follows a series of threads or topics. Generally a topic, or prompt, is introduced by the instructor and students read the prompt, then respond to it. As students respond, the replies are displayed beneath the original prompt and the instructor and classmates

can read all postings and respond to other students' ideas, as well as to the original prompt. In this way, a conversation is built over time. Figures 1 and 2 illustrate a sample threaded discussion.

The researcher monitored the discussions in the Internet for Educators class for references to the student experience online. In addition, a discussion thread added near the end of the term posed the questions, "How has your online experience matched with your expectations of it? What aspects of the online environment work well for you? What aspects of the online environment cause you difficulty?" Students responded to the initial question, read responses posted by others, and responded to issues raised by other students.

This is your only assignment for the next two weeks. You will use the threaded discussion format to present your personal positions and to plan how your group will proceed with the final assignment, described in Unit 3.

**+ Respond**

☒ **Expand All**    ☒ **Show Options**    sort by: [response](#) | [author](#) | [date](#) | [read](#) | [unread](#)

Responses	Author	Date & Time
<input checked="" type="checkbox"/> <u>Hi guys. So I had a great oppo</u>	<input checked="" type="checkbox"/> Christine	19 Oct 02 9:13 PM MST
<input checked="" type="checkbox"/> <u>Christy. I think that is a gr</u>	<input checked="" type="checkbox"/> Deborah	19 Oct 02 10:20 PM MST
<input checked="" type="checkbox"/> <u>Okay. I've done some beginnin</u>	<input checked="" type="checkbox"/> Deborah	19 Oct 02 10:24 PM MST
<input checked="" type="checkbox"/> <u>I'm anxious to get going on th</u>	<input checked="" type="checkbox"/> Jerry	20 Oct 02 1:21 PM MST
<input checked="" type="checkbox"/> <u>Hi Jerry. Good Pros and Cons.</u>	<input checked="" type="checkbox"/> Deborah	24 Oct 02 12:39 PM MST
<input checked="" type="checkbox"/> <u>Sure. no problem!</u>	<input checked="" type="checkbox"/> Jerry	26 Oct 02 1:01 AM MST
<input checked="" type="checkbox"/> <u>Me again. Excellent starts. y</u>	<input checked="" type="checkbox"/> Christine	22 Oct 02 3:30 PM MST
<input checked="" type="checkbox"/> <u>Hi Christy. Yes. I fear I am</u>	<input checked="" type="checkbox"/> Deborah	24 Oct 02 12:45 PM MST

Figure 1: Threaded discussion showing only identifying labels.



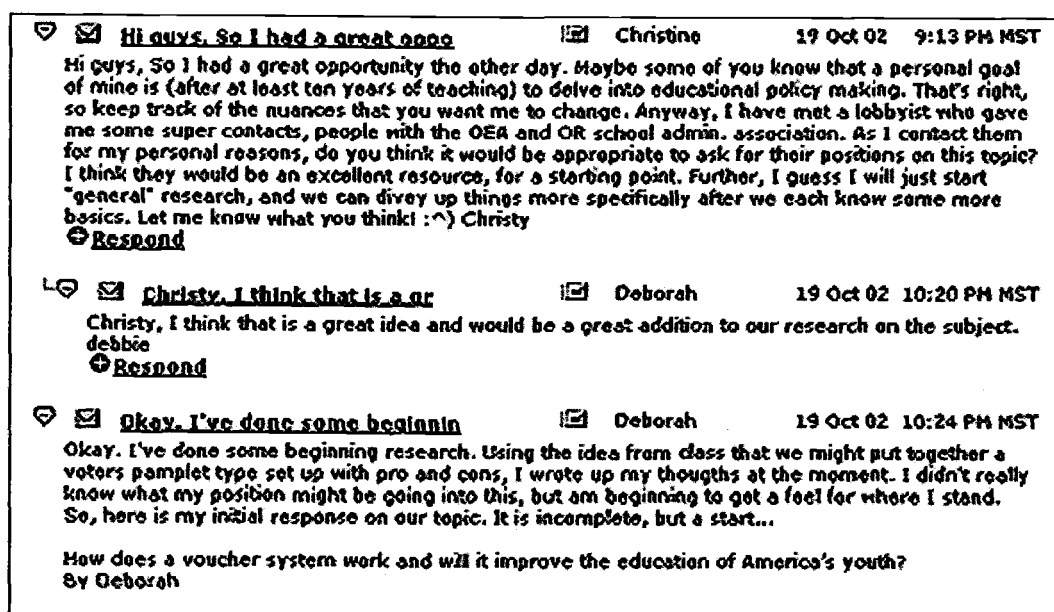


Figure 2: Threaded discussion with responses expanded to show detail.

## Analysis

Discussions recorded during the pilot study focus groups were transcribed and analyzed looking for patterns. Tables were created identifying wishes, expectations, emotions, concerns and suggestions (see Appendix C). This information provided input into developing framing questions for the individual interviews to be conducted the following term. In addition, information collected during the pilot study was pooled with that collected during the second phase of the study and is presented in the findings section of this paper. See page 72 for a full explanation of the analysis process.

## Part two: Research with individual students

During winter term of 2002, research was conducted with individual students in online classes at two western universities. Ten students participated in in-depth interviews and provided information via anecdotal

records (see Appendix D). Another five students filled out only the anecdotal records, which recorded incidents of frustration and incidents of pleasure during the online course.

#### Selection of participants for interviews

Potential participants were identified with assistance from staff in the continuing studies departments from the two universities, who provided information about online courses being taught during winter term, 2002. Letters were sent to the instructors describing the research and asking them to announce a volunteer opportunity in their classes (see Appendix E). Interested instructors sent letters to the students on their roster telling them to contact the researcher if they were interested in participating (see Appendix F). Interested students were requested to send an e-mail directly to the researcher. Additionally, an invitation to participate in in-depth interviews was distributed to all students in the online classes that had participated in the focus groups (see Appendix G).

Twenty-two students representing twenty-two different courses responded expressing interest. Some courses had more than one potential participant enrolled since many students were taking multiple online courses. Interested students were sent an e-mail describing the study, and asking for information on their age, online course experience, and comfort with computers (see Appendix H). An Informed Consent document and an anecdotal record form were attached for their information. Students who remained interested after reading details of the study returned the signed Informed Consent document, answered the demographic questions, and expressed their continuing interest.

Within the one-term time-frame of the courses, it was not possible to conduct in-depth interviews with all the volunteers. Selection of participants to interview from the pool of volunteers was purposeful, with participants chosen carefully based on their ability to provide insights and a rich source of information (Stake, 1995). To provide information for purposeful selection, all interested students were asked the following questions:

What is your age range: 20-29; 30-39; 40-49; 50+

How many previous online courses have you taken?

Describe your comfort level with new technologies.

To be certain to hear the breadth of values people assess, it was important to select for diversity. Therefore, an attempt was made to have the following categories represented:

- first-time participant in an online course;
- returning student (has taken one or more courses online);
- on-campus student (available to take face-to-face courses if offered);
- distant student (physically unable to attend face-to-face classes);
- “early-adopter” (someone who thrives on technology);
- student with minimal computer skills;
- graduate student;
- undergraduate;
- older-than-average student;
- male;
- female.

A participant could possess several of these characteristics. The intent was that the participants, when taken together, would represent all of the above categories.

Using these criteria, ten students were selected for interviewing. The other volunteers were offered the opportunity to fill out anecdotal records without interviewing and five more students chose to do that. By the conclusion of the research, one of the original interviewees had failed to participate, and one participant originally assigned only to do anecdotal records was added to the interview list, resulting in ten students interviewing and filling out anecdotal records, and five students doing only the anecdotal records. Eighteen courses were represented including classes in history, English, writing, education, rangeland management, fish and wildlife, agriculture, atmospheric science, economics, psychology and women's studies. Four courses were lower division, eleven were upper division, and three were graduate level. Most of the classes were represented by only one participant, but a few had two, three or four participants enrolled.

Participating students were sent a packet of information, including a cover letter (see Appendix I), copies of the anecdotal record forms, instructions for completing the forms (see Appendix J), and three self-addressed, stamped envelopes for returning the completed forms.

### Methods

This research involved a qualitative, instrumental, collective case study. A qualitative study was appropriate because the research was seeking to understand human experience rather than to identify a cause and effect relationship. The study was instrumental in that the cases were studied in order to gain an understanding of the online experience, rather than to understand the cases themselves (Stake, 1995). Case study was chosen because it allowed the study of online education within its real life context (Yin, 1989). Case study allowed exploration of "how" and "why" questions with the intent of revealing unique knowledge about online education and

student experiences that we might not otherwise have access to (Merriam, 1998).

The primary method for collecting data for this study involved participant interviews. Each student was interviewed one or two times. Six participants were interviewed once near the beginning of the course and once at the end. Three students interviewed within the first month but were unable to schedule a second interview. One student interviewed only at the end of the term, but submitted detailed anecdotal records for the earlier part of the term. Most of the interviews were face-to-face, lasting approximately one hour. Interviews with four students were conducted via telephone, due to their remote location or scheduling convenience, and one student was interviewed via e-mail due to her location in South Korea and the resulting time differences. All oral interviews were audio-taped and subsequently transcribed for analysis purposes. Near the end of the study, participants were sent copies of all portions of the document (participant descriptions and findings) that contained a reference to them or their views and were given the opportunity to comment on, correct, or clarify their quotes or the interpretations of the researcher. Their feedback was incorporated into the final document.

This qualitative approach expected each interviewee to have a unique perspective and special stories to tell. Therefore, questioning for each was unique. Interviews were woven around a short list of issue-related questions, but the questions were modified as the interview progressed (Stake, 1995). Participants were encouraged to follow individual lines of thought.

The initial interview attempted to establish the context within which the student was working. Framing questions were:

1. What motivates you to participate in an on-line course, e.g., location, family responsibilities, work opportunities, early adopter?
2. What might influence your satisfaction with or dissatisfaction with on-line instruction, e.g., computer experience and comfort with technology, educational background, work situation?

As the interview progressed, new directions were encouraged using the following probes when appropriate:

- How much prior computer experience do you have?
- Describe your comfort level with technology.
- What is your educational background?
- Describe your work situation, and how this course fits in with it.
- Describe your family situation, and how this course fit in with it.
- Why are you motivated to take this online course?
- Currently, how would you define your feelings in anticipation of this online program?
- What are your expectations for your experience in this course?
- What do you expect to achieve by taking this online course?
- What concerns or anxieties do you have about the course being online?

Subsequent interviews looked in depth at the current online experience, beginning with the following framing questions:

1. What are you finding to influence your satisfaction with or dissatisfaction with on-line instruction, e.g., computer experience and comfort with technology, educational background, work situation?

2. What about this particular on-line course facilitates or hinders learning, e.g., technology, scope and sequence, instructional methods, responsiveness to individual differences?

As the interview progressed, new directions were encouraged with one or more of the following probes:

- What, if anything, is causing frustration for you?
- What are you finding to be the most rewarding aspects of working online?
- What are you finding to be the least rewarding aspects of working online?
- What are your biggest issues with this online course?
- Do you consider yourself to be successful in this course? Why or why not? How do you define success?
- What suggestions do you have for making this class better?
- What suggestions do you have for making the online environment itself more effective?
- What might cause you to decide it is not worth your time to take this course online?
- If you were asked to design an online course today, what features would you be sure to include?
- If you were asked to design an online course today, what would you avoid doing at all costs?

Interviews were also allowed to take new directions following the lead of the participant, resulting in the introduction of ideas beyond those anticipated in the framing questions. It was expected that issues might be modified or even replaced mid-study as new issues became apparent or earlier questions appeared less relevant, thus progressively focusing the research.

According to Stake (1995), the course of a study cannot not be charted in advance without representing the researcher's views rather than the participants' views. This study tried to leave the course of interviews as open as possible by allowing the participants to control the direction of discussions and introducing new probes only when the conversation had come to a halt. However, it is recognized that even the initial interview questions represent the researcher's biases.

Participants were encouraged to communicate with the researcher via e-mail any time they had the desire to share an insight or expand on their interviews, and to maintain an anecdotal record documenting events that caused them frustration or satisfaction.

#### Anecdotal records

All participants maintained anecdotal records throughout their classes. These were simple forms to be kept near their computers, and had two columns—one for recording incidents that caused pleasure, and one for recording incidents that caused frustration (see Appendix D). The intent was to capture reactions to the course as they happened, and students were encouraged to record both major and minor events.

Students were given addressed, stamped envelopes and were prompted to return their completed forms three times during the term, approximately three weeks apart. The first submittal was three weeks into the term. The final submittal was at the close of finals week.

#### **Data analysis**

During the pilot study, focus group tapes were transcribed and hand-coded into categories. Since the initial focus group met before their first online



class, the categories identified were expectations, wishes, emotional reactions, and concerns, representing the participants' perceptions in anticipation of the class. A chart was created summarizing the comments so that the contents of each category could be viewed easily (see Appendix C). Focus groups at the end of the online classes looked back on the actual experience, and comments from these discussions could be categorized into positive aspects, negative aspects, emotional reactions, and suggestions. A second chart was created summarizing these categories (see Appendix C). For the pilot study, categories were not broken down any further than this. The charts were used to provide broad categories of issues that could be further explored in the second study and were developed into a list of framing questions. Transcripts from the pilot study were pooled with transcripts from individual interviews for more in-depth analysis during the second study.

Transcripts of each interview, transcripts of the focus group discussions, and the anecdotal records were all entered into QSR Nud\*ist (qualitative research software), where they were coded for analysis. Initial coding categories for values and costs were established and subcategories were created as the data were analyzed and patterns emerged (Stake, 1995). A number of additional categories, not related to values and costs, also emerged through the coding process. As the data were coded, the categories were gradually refined by combining some and separating out others.

This resulted in the extensive outline below, with each comment from the transcripts coded in one or more categories.

- I. Instructor Characteristics
- II. Student Characteristics
- III. Course characteristics
- IV. Proctors
- V. Things that work well
- VI. Study setting
- VII. Online vs. FTF
  - A. Online Harder
  - B. FTF Harder
  - C. Learn more online
  - D. Learn more FTF

### Index Tree Root

- I. Data Documentation
  - A. Lifestyle
    - 1. Busy
    - 2. Calm
    - 3. Family
    - 4. Single
    - 5. Full-time job
    - 6. Part-time or no job
  - B. Course Names
  - C. Previous Experience
    - 1. Little
    - 2. Lots
- II. Expectations
  - A. Wishes
  - B. General Expectations
  - C. Emotions

- D. Concerns
- E. Expectation for success

### III. Values

- A. Emotions
- B. Flexibility
- C. Time
- D. Interaction
  - 1. Student-Student
  - 2. Student-Teacher
- E. Miscellaneous
- F. Good course design
- G. Valuable content or ideas
- H. Location
- I. Right learning style
- J. Fits lifestyle
- K. Fun-Enjoyable
- L. Good program design
- M. Content relevant to life
- N. Good Tech support
- O. Convenience
- P. Interesting
- Q. Meets needs
- R. Easy
- S. Comfortable
- T. Self-improvement
- U. Learning a lot
- V. Clear Expectations
- W. Helpful people
- X. Pride

Y. Things worked smoothly

Z. Finished things

#### IV. Costs

A. Emotions

B. Time

C. Technical Difficulties

1. Technical skills

2. Poor technical support

D. Isolation

E. Interaction

1. Student-Student

2. Student-Teacher

a) Poor feedback

F. No Value

G. Miscellaneous

H. Flexibility

I. Poor course design

1. Confusion

2. Poor navigation

J. Wrong learning style

K. Poor Instructions

L. Limited Options

M. Difficulty coordinating with family or life

N. Poor program design

O. Poor Orientation Information

P. Unclear expectations

Q. Misinformation

R. Information not updated

## V. Suggestions

- A. Organization
- B. Communication
  - 1. Interaction
  - 2. Instructions
  - 3. Miscellaneous
- C. For students

## VI. Motivation

- A. Fulfills a requirement
- B. Helps toward a goal
- C. Miscellaneous
- D. Financial

## VII. Course Design Perceptions

- A. Most important characteristics
- B. Things to avoid

## VIII. Choice

- A. Prefer FTF
- B. Prefer online

## IX. Orientation Information

- A. Done Well
- B. Done poorly

## X. Learning Environment

While this allowed the viewing of all related comments from participants, it was cumbersome and difficult to see additional relationships or to create meaning from the patterns. As a result, it was necessary to organize the information in another format.

Next, two flowcharts were created from the data contained within this outline to allow all main ideas to be seen at one time (see Appendix K). The first chart showed the values identified by participants, and the second showed the costs. This format allowed the broad picture to be viewed and revealed new relationships but did not offer a practical, easy-to-understand way to present the findings. Two more weeks of looking at the data and thinking about the categories from different angles suggested a variety of potential ways to organize the data and the relationships. In the end, the approach that offered the most usable view was to organize the data into a new table representing categories related to course design. Those categories included orientation, content, delivery, student-student interaction, student-teacher interaction, course interface, navigation, flexibility, hardware/software issues, support systems, and context (see Appendix L). This format provided a good fit for the data. Findings are presented in this document using these categories as a basis for organization.

To allow the participants to tell their own stories, to the extent possible, much of the data reported in the findings is presented in the form of quotations. I made minimal modifications to the quotes in order to make them easier to read and to maintain the integrity of the participants. Specific changes include the following:

- a. Removed "ums," "uhs," and other verbal pauses.
  - b. Removed duplicate words (where the speaker stopped and started again).
  - c. Corrected grossly incorrect grammar.
  - d. Removed "like," "you know," and "well" when it disrupted the flow.
  - e. Changed references to specific people into generic references.
- Substituted words are shown in brackets.

- f. Removed short phrases if they were not relevant to the meaning and disrupted the flow. These were often lead in comments such as, "So, what I mean to say by that is..." These locations are indicated with ellipses.

### **Validity and reliability**

Internal validity in qualitative research refers to "consequential validity" of measurements. In other words, a researcher must be responsible for the consequences of using specific measurements (Stake, 1995). Internal validity was established through triangulation, member checks and by clarifying researcher bias (Merriam, 1998). Triangulation was accomplished by using several methods of data collection, including interviews, anecdotal records, and e-mail messages. Member checks were accomplished by asking the participants to review the transcripts and interpretations for their accuracy and palatability (Stake, 1995).

Internal validity is also enhanced by extended and deep interaction with the participants. Interviews attempted to explore, in depth, participant's understandings of, and feelings about, the experience of being an online student. Questions were presented as probes, rather than as simple "yes/no" queries. Participants were encouraged to carry the conversation in directions of relevance to their personal situation.

External validity refers to the extent to which findings can be generalized to other similar situations. As a rule, qualitative research does not lend itself to generalizing. However, certain aspects of the way results are presented can allow the reader to generalize if it seems appropriate. To enhance external validity, this document provides a large amount of raw data, and presents findings in the participants' own voice, to the extent possible. This should

allow readers to compare the context to their own situation and decide if generalizing is appropriate in their case (Stake, 1995).

Reliability in qualitative research asks the question, "Are the results consistent with the data collected?" (Merriam, 1998). In a case study, it may be more appropriate to ask, "Is the construction of reality presented by the researcher plausible?" This notion of "trustworthiness" (Denzin & Lincoln, 1998) takes into account the idea that the researcher's construction is personal, and represents her interpretation of the data collected. While others may interpret the same data differently, the way the researcher interpreted it is plausible in light of the researcher's view of the world. In order to allow others to determine the trustworthiness of the data, researcher assumptions and theories have been stated, triangulation has been provided, and an audit trail given, in the form of actual quotes, so that other researchers can follow a trail of evidence (Merriam, 1998).



## FINDINGS AND DISCUSSION

### Introduction

I begin by introducing the participants who shared their stories with me. As you will read, most of the participants are non-traditional students. I define "non-traditional" as a student who is not pursuing the typical course of earning a bachelor's degree through a four- to five-year, on-campus, college program shortly after high-school graduation. A typical student falls in the 18-25 year-old category. Participants in this study were, for the most part, older than this.

### Interviewing participants

Ten students participated in in-depth interviews with me at the beginning and end of their courses. Each represents a unique background and life situation. Their brief stories appear below.

#### Don

I met with Don in his office where he is in charge of information technology for his department. On the walls are diagrams showing the locations of all the computer systems under his watch. His office is spacious, with a conference table near the entrance and a large desk with a newer model computer behind. It looked the perfect place for studying, but Don does most of his schoolwork at home in the evenings and on weekends.

... occasionally I get some time at lunch, I spend a half hour and I really need to do some reading or go back and review some notes or something, but this job around here's not very conducive to doing anything except this job, so it's usually, if I'm sitting here somebody pops in with some problem.

Studying at home works out well, however, since his wife is a special education teacher and frequently works at home in the evenings also.

In the fifty-plus age range, Don is looking to retire soon. His grown son is working on a PhD in marine biology, and Don is interested in natural resources as well, a field in which he hopes to find a second career or possibly volunteer work. He believes that some coursework can give him a working knowledge of the language and issues in the field, but his job is demanding, and it is hard to fit scheduled, out-of-town classes into his day. Fortunately, a nearby university offers a minor in natural resources online. During this study, he was enrolled in an upper-division rangeland resources online class.

Don is not a newcomer to education. He already holds two master's degrees, though it has been many years since they were completed. He likes working at home where his age is not visible to other students.

I don't know about other people, but I would not be terribly comfortable at my particular age going sitting in a classroom with a bunch of 16-18 year-olds, or 20-year olds, and everybody looking at—what's this old geezer doing here? So there's sort of that comfort of doing it from your den at home.

Don knows how to study and is a motivated student, often working ahead of schedule in order to accommodate his work-related travel. He has enjoyed his online classes, though he notes that most courses do not take advantage of the technologies available.

I think the real challenge, I think what will eventually help—the next step that will really help the students is using more of the interactive piece, even if it's 12 hours out of sync, but being able to get students talking to each other, share some ideas, and experiences, and I think that's part of the education process.

### Emma

Emma, a vibrant, active woman in her mid-40s, is currently enrolled in an educational law class. I met with her one afternoon in a local bakery where

our one-hour interview stretched into four hours. This is Emma's first online class, and she is delighted with the way it fits into her busy schedule. She is currently taking 21 hours of coursework, though this is the only one in an online format. At the same time, she has a family with five children—two still living at home—and does some consulting work. As this course was underway, she was chairperson for an upcoming future teacher's conference.

Though Emma has not yet earned her bachelor's degree (she is finishing it up in order to enter the MAT program) she started and ran a successful non-profit business for several years, working as a child advocate. Within the context of that business, she conducted a study with students in the public schools. She is anxious to finish her schooling and spend three or four years duplicating that study in order to market her results.

Emma is expecting to enter the MAT program in August on a fast track in order to complete her degree within nine months—half the time most of the students will be taking. Though money does not appear to be an issue for her family, she feels a need to work through her schooling quickly and move from spending money to earning it.

I do this thing about spending money when I should be earning money right now—it's that output/input thing and, given my children need to go to college, and ... But I needed a life career change so this was a good time to do it.

Emma seems to fast-track most things. When I met with her, she had just spent the first weekend of the course reading and taking tests on all of the chapters—completing the entire class in two days. She was now enthusiastically monitoring all of the discussions and found them to be lively and stimulating. She had only good things to say about the course and the instructor.

Gail

I met Gail on a winter Saturday at a ski lodge near her home. She was there to ski for the day, as she often did, and our conversation was punctuated with a frequent "Hello" and "How's it going?" as she cheerfully greeted fellow skiers—both kids and adults. She seemed to know everyone.

From being up here. You know, a lot them are from my town, but just from ... it's like family being here. Kids all grew up together. It's a small enough mountain that if you lose somebody on one run you'll catch them the next run round.

Gail is an energetic, cheerful woman of 41 with a husband and a 21-year-old son. Although her son no longer lives at home, he had returned during this term to nurse a knee injury. With a full house again, she appreciates the online format of her coursework that allows her to put a pot of stew on the stove and sit down to study as it cooks, interrupt her work to eat with the family, and then sit back down to study.

Gail's choice to live in the mountains put her in the place she loves, but made it difficult to finish the undergraduate degree she had started many years earlier. Instead, she married, built a log cabin, raised her family, skied, and worked full time at a veterinary clinic nearby. When a new branch of a state university opened only 25 miles away, she jumped at the opportunity to finish the bachelor's degree she had started so long ago. As it turned out, many of the requirements for her liberal arts degree were offered online. By the time I interviewed her, she already had eight or nine online courses under her belt, and was enrolled in another three: a history class, a fish and wildlife class, and an agriculture course. Online classes suit her well. Her work at the veterinary clinic has given her plenty of experience with computers and she feels comfortable that she can troubleshoot most problems. She also thinks her personality is well-suited to the format. "Oh, I'm sort of an A-type personality. I really like to get on it

and get things done and, if I can get through it and just check it off my list—ok this class is done, you know ...”

### Janet

I first met with Janet at the university library, where she had arrived via bicycle shortly before. Living within biking distance meant that it would have been easy to take her educational law course face-to-face and as she told me, “I would prefer to, but it was only offered online.” At age 35, Janet already holds a bachelor’s degree in sociology and is now planning to return to school in an MAT program to secure her teaching license. This course is required for entrance into the program and is her first experience with an online class.

Janet does not have a family, though she lives with her boyfriend, who is also a student, in a small duplex across town from campus. The space is small but pleasant, with plenty of light filtering through large windows. Unfortunately, she cannot study there because she owns no computer, it being out of her price range. This means she must bike to campus two or three days each week, where she uses the library computers to access her online class. She is taking one other class on campus, face-to-face. This is working out well because Janet does not currently have a job, and with only the two classes it is not difficult to schedule her time.

Janet has been working steadily through her online course, reading a chapter and taking a test each week. She follows the online discussions to a certain extent, though she only reads three or four posts for each chapter and rarely responds to other students’ comments. She finds the discussions to be a bit superficial and one-way. Her general feeling is that the class would be richer in a face-to-face setting where there would be more input

from the instructor and where conversations with students would be more interactive. On the whole, however, she has found the course to be satisfying, the instructor well-organized, and the content interesting.

### Jill

Jill, 40, currently works a 40-hour week as a police officer but is only eight years away from retirement. At her young age, she has plenty of time for a second career and has headed back to school to prepare herself for a complete change of direction. She is focusing on natural resources in hopes of working part-time or seasonally for the Forest Service. Living in California, she was unable to find the courses she needed in her community.

The only reason I'm at (this university) taking the on-line program is because I have the ability to get a complete degree through that. If I was just taking a couple of classes here and there it would be a waste of my money, 'cause I wanted the degree. So that was really why I'm in the program is because that degree is not available at the universities down in Southern California.

At the time of this study, she was enrolled in a rangeland resources class online and a natural resources law class via video. She has been taking two of her required courses at a distance each term while also filling in some missing coursework from local community colleges. I spoke with her by telephone at the beginning and end of the term.

Jill is single, but has a busy lifestyle with her work commitments. Face-to-face courses would be difficult to schedule. She also takes her vacations overseas, most recently trekking in Patagonia. She does not like to take coursework with her as she travels, and likes the flexibility that online courses give her to work her study schedule around her trips. As far as Jill is concerned, the more flexible the course, the better it fits her needs. She

frequently accesses course materials before the class begins in order to get started on reading ahead of time. She is highly motivated and disciplined, and managing her own schedule is the ideal way for her to study. Jill is very excited about the potential for distance education and was anxious to add her input to this study.

### John

John is another extremely busy, non-traditional student. In his early 30's, he is just starting his family, with one 14-month-old child and another on the way. He teaches full-time in the high school, both art and PE, and coaches the baseball team. In addition, he runs his own art business, selling his wildlife art at shows around the country. His wife is also embarking on an online program as John works on his. We met in a local coffee shop to talk about his experience.

John is part of an MAT cohort and has just one year left to acquire his teaching license. He is currently teaching on a transitional license.

I need to continue working to support my family, so I can't take the leave of absence to get my degree in the one year deal. We can't do that, so family's the main motivation there.

In order to keep his job, he needs to complete the degree before the year ends. In order to care for his family, he needs to keep the job. During his first term in the program he was so overwhelmed by the amount of work and the difficulty of coordinating it with his other responsibilities that he cut back his work hours, giving himself the early morning hours to study before his workday begins. During his second term, it was feeling more manageable, although we spoke before baseball season had begun, and he was worried about how he would fit the class in around that.

John's interest was not so much in the content, particularly because he found much of it repetitive since he had already been teaching for some time. His interest was, rather, the degree. The online option was the only one that would fit around his tight schedule.

### Marie

Marie wrote to volunteer for this study a few weeks into the term, and I was no longer looking for another participant for interviewing in her age range. I asked her to fill out anecdotal records for me, which she cheerfully agreed to do. When Marie's first notes came in to me, it was clear that she had much to offer. Her notes were detailed and insightful, with a short reference to a disability led me to believe she might have a unique story to tell—one that I would not capture with the participants I was currently interviewing. I sent a note asking if she would still be interested in interviewing, and she wrote back, "No problem."

I spoke to Marie by phone near the end of the term—a long and informative conversation. She is in her mid-30's, with two young children, ages five and seven. With her husband, who works the graveyard shift at the Post Office, she home schools her children in a schoolroom converted from their garage. The children sit at desks, Marie or her husband sit at a teacher's desk, and they follow a very scheduled routine. Confined to a wheelchair due to cerebral palsy, Marie lets nothing keep her from accomplishing what she wants to accomplish. "I couldn't walk 'til I was 14 years old. If I knew how to quit I wouldn't know how to stand up. I just don't know how to quit." As she pointed out to me, "If you want something bad enough, you'll find a way."



Marie wants an education. She currently holds an associates degree from a California community college, which she earned attending face-to-face classes. Maneuvering around campus was nearly impossible—she was not in a wheelchair at the time, although she needed one—and she dropped out of school without the bachelor's degree she wants. Now online classes are giving her the opportunity she needs. The degree will help her feel more secure in her ability to support herself, should it become necessary, and is also an opportunity to model for her children the persistence that is so important to her.

...it was really a big motivating factor for me to be able to show my children that you don't just lay down and die when something goes difficult in your life. So that was kind of my main reason for wanting to finish no matter what. No matter where it leads. No matter where it leads me and if it hung on the wall just for my children to have a mom that graduated from college—that was important to me.

It is not easy for her. She generally studies from midnight to 4:00 a.m., then sleeps until about 8:30 when she greets her husband as he returns from work. He handles the early schooling duties, and she takes over later in the day. She is currently taking three upper division classes in history, English and psychology.

Although it has not been easy, there are big rewards for Marie. She no longer has to worry about mobility problems since she can work at home, and she can take breaks if she becomes tired. She is proactive online and makes it a point to get to know the other students. She enjoys interacting with others without her disability influencing the impression she makes. She finds that this also allows her to be a student on more even footing with everyone else. She thinks online education could provide opportunities for many students with disabilities.

... because it would take away that wonder—okay, I know I probably earned a B but they thought I was so courageous that they gave me the A-. Truthfully, I know I got some grades like that. And while I was glad, there wasn't the same kind of pride—and being online and not having to divulge, necessarily, the situation. There's more integrity for me that way.

Marie has set the bar high. She is earning straight A's and knows now that she is doing it based on her own intelligence and work ethic. It gives her a sense of pride that was never possible in face-to-face classes.

### Shelly

Shelly is a busy, non-traditional student, over 50, with adult children living at home and a full-time job teaching in the high school on a conditional use permit. She earned her teaching license in 1982 and is currently working toward a Master's degree, which she is required to finish within another two years. Because of her busy schedule, Shelly finds regularly scheduled classes too difficult to coordinate. From her location, attending classes would require a 30-minute commute each way, which feels like too much to face after a full day of teaching.

With this in mind, she chose a program in a nearby university that provides most of the required courses for her degree in an online format. Face-to-face meetings are required two to three times each term, which infuriates Shelly. She feels that a course that is advertised as online should be entirely online. She does not want to give up the two or three days each term to travel to the university and does not feel there is any real benefit in doing so.

She joined an intact cohort of students near the tail end of their degree program, and next year will migrate to an incoming cohort to finish up. Shelly likes the support that the cohort provides, and has enjoyed getting to know other students working toward the same goal. She describes herself as motivated and excited to go back to working on her degree, which will set her up on the pay scale as well as adding two more endorsements to her license.

I talked with Shelly by phone several weeks into the term. At the time, she was taking a writing course online. This was her second online course and was turning out to be a pleasant change from the first course, which she had taken the previous term. Her first experience had been unsatisfying, with a professor whose expectations were unclear, and whose feedback was always negative. This term, she was welcomed into the class before the term started by an enthusiastic instructor whose positive attitude showed in the first e-mail, and continued with loving and supportive feedback throughout the course.

Studying online was working well for Shelly. She was comfortable with technology and had purchased a brand new computer system that exceeded the requirements for the course. She enjoyed the independence and privacy the format provided, and enjoyed setting her own schedule and working at her own pace.

### Theresa

Theresa teaches first grade in a private English immersion school in Seoul, South Korea. She hopes to enter the MAT program in August and is short a few credits to qualify for entrance. Fortunately, the courses are all available online, allowing her to finish her requirements from overseas. During this

study, she was taking an upper-division education course and an upper-division psychology course via the Internet. She currently holds a bachelor's degree in French, and is nine credits shy of another bachelor's in anthropology.

I spoke with Theresa several times over the course of the term via e-mail. In her early 30's, Theresa lives alone with her dog. She had expected to complete her four years of college in the traditional manner after high school, but the world called and instead she did two years of school, then went overseas for two years. She returned to the U.S. for another two years of schooling and is now abroad for another two-year stint. When her courses started during the term I was studying, she was on vacation from her teaching position and enjoying doing something productive with her free time.

Theresa has found that, in addition to allowing her to study from abroad, online courses give her the anonymity to feel comfortable studying as an older student in undergraduate classes.

That's another beauty about on-line courses. I don't have to bury my head in shame as I walk into class. Last time I was at school I was two years older than my in-line skating instructor. That's just not right!

Theresa had several concerns as she embarked on her online classes.

That it won't be as effective as if it were on campus. Without the spoon-fed guidance from the profs, I'm afraid I'll misunderstand the writing assignment and get a really bad grade. I'm nervous that I won't do as well on an on-line course and that I'll lose my GPA. There's also a concern that someone's going to look at your transcript and see that you took on-line courses and think you're a lazy, anti-social freak.

She has found, however, that she enjoys the online format. She loves to read and thinks that perhaps she is learning even more than she would in a face-to-face setting.

So far I think it's quite effective to do so much writing and analyzing as I have been. I am almost wondering if, because I am spending more time carefully reading the text and placing less importance on taking notes during a lecture, I am absorbing more information.

### Vanessa

Vanessa is a young stay-at-home mom in her mid-20's. Her husband is in the military working long hours, and also attends classes half-time. Daycare is not an option for her, and the nearest four-year university is three hours away. Online courses are her only solution for finishing her bachelor's degree. Although she already has about five years of coursework under her belt, a switch in fields from physical therapy to environmental sciences means it will be another two and a half years before she is finished. To stay on schedule, she is trying to maintain a full load, and during this study she was enrolled in 13 hours of online courses, included classes in rangeland management, atmospheric sciences, economics and fish and wildlife.

Vanessa's biggest challenge is coordinating study time with the other responsibilities in her life. Her two-year-old daughter has been wonderful about entertaining herself as her mother studies, but other things needing to be done around the house tug on Vanessa's attention.

Well, the biggest problem I have, I think, is that I can't study here at home because there's so many things that need to be done here, but yet I have difficulty getting out of the house to study. So, I'm having trouble finding enough, or sufficient, study time. But that's my little problem, I'm somehow gonna get figured out.

During our first phone interview, Vanessa explained that she really prefers live classes because she likes the support she gets from her peers. By our second interview at the end of the term, she had discovered some unexpected advantages to the option. The format allowed her to visit family in Missouri for two weeks, studying from their home, and even take a spur-of-the-moment, week-long vacation in Cancun—all without disrupting her coursework.

### **Non-interviewing participants**

In addition to the interviewing students, five students kept anecdotal records as they worked on their courses. Their comments are woven into the findings, along with those of the interviewees. They are briefly introduced below.

#### Hannah

Hannah is a 25-year old student who has taken six previous online courses. She feels comfortable with new technologies, and during this study was enrolled in four more online classes.

#### Jesse

Jesse is in his mid-40s and is working on a graduate degree while also holding down a full-time job and raising a family. He was feeling stressed and overwhelmed during this study, and summarized his anecdotal records at the end of the course rather than keeping up with them as things occurred.

#### Karen

Karen is an enthusiastic student in her early 50s. She had taken one online course prior to the study, and during the time I was conducting

research, she was enrolled in another two upper division online courses. While she is a novice with technology, she loves playing with it and reports a “reasonable” level of comfort with it.

### Melissa

Melissa is in her mid-30s and working full-time as she tries to complete her graduate degree. She was feeling overwhelmed during the study, trying to juggle work, school and family.

### Ryan

Ryan is in his mid-30s and enrolled in upper division, undergraduate courses. While the two courses he was enrolled in during this study were his first fully online courses, several earlier courses had an online component. He felt fairly comfortable using new technologies.

### Veronica

Originally, Veronica expressed interest in interviewing with me during this study. I was anxious to hear her input, as the youngest volunteer at 21 years of age. As it turned out, however, she struggled to fit the course into her busy schedule and was unable to make any interviews. She did share some concerns with me via e-mail, and her comments appear in the following sections.

## **Motivation**

To summarize the introduction to the participants in this study, I have developed a table of the variety of motivations participants had for enrolling in online courses. Knowledge of a student’s motivation can provide a context for understanding their comments because these motivations reflect an expectation for the kind of outcome or

experience that will result from selecting an online course. Negative aspects that participants identify may be the result of an expectation that is not met. By the same token, positive aspects that participants point out may be the result of expectations that are met or exceeded. Table 1, on the following page, summarizes these motivations for the ten students who shared their stories through in-depth interviews.



	<b>Why in school?</b>	<b>Why <i>this</i> class?</b>	<b>Why online?</b>
<b>Don</b>	Preparing for second career	Gives him working knowledge of issues in field	Fits schedule No travel
<b>Emma</b>	Wants teaching certificate	Required to enter program	Fits schedule
<b>Gail</b>	Wants to finish Bachelor's degree	Satisfies elective requirements and available online	No travel
<b>Janet</b>	Wants teaching certificate	Required to enter program	Only way offered
<b>Jill</b>	Preparing for second career	Required for degree	Not available locally
<b>John</b>	To keep job—needs Teaching Certificate and Master's	Required for degree—Part of a set program	Fits schedule
<b>Marie</b>	Wants to finish Bachelor's degree	Satisfies requirements and available online	Fits schedule Avoids mobility issue
<b>Shelly</b>	To keep job—need Master's	Required for degree—Part of a set program	No travel
<b>Theresa</b>	Wants teaching certificate	Required to enter program	Only option for location
<b>Vanessa</b>	Wants to finish Bachelor's degree in Environmental Science	Satisfies requirements and available online	Only option for location and life situation

Table 1: Motivational factors for interviewing students

## **Orientation**

When people find themselves in an unfamiliar environment, the first thing they look for is orientation information to help them make sense of their surroundings. A study of visitor orientation and circulation at the Arizona-Sonora Desert Museum in 1987 found that when visitors were not given orientation information they expressed confusion about which way to go, walked through some exhibits the wrong way, and were concerned that they would miss something (Shettlel-Neuber & O'Reilly, 1987).

Online courses take place in an unfamiliar environment, at least for first-time students. Each new class a student takes has unfamiliar components. Orientation information can help students create an image in their minds of the layout of the course (Cohen & Winkel, 1977), can clarify expectations, and can orient them to the key concepts they will be encountering.

Participants in this study indicated that feeling properly oriented was very important to them, and, like the participants in the museum study, when this need was not attended to they felt disoriented, confused, anxious and frustrated. Orientation needs fell into several categories, as described below.

### Program orientation: Pre-planning information

The participants all described themselves as highly motivated, and this trait was visible in my conversations with them. Even before they were enrolled in courses, they were planning their lives and arranging their schedules to accommodate the workload involved in classes. It was important to them to have information available that would allow this planning to take place. Jill, for example, looks ahead several terms to create a schedule that will mesh with her commitments at work.

I try to sequence the courses, and [this university] puts out (at least they've been semi-good about putting out) their course schedules two semesters in advance, or three semesters in advance. So that I know what the schedule's going to be like and I can plan this course.

Focus group participants echoed this need for preplanning information.

Their lives are complicated, and fitting classes into them requires planning ahead, as these comments indicate:

Student 1: Well, I'm taking this class because it fits into my life. I can fit it into pockets and I can either do it in the class when I have quiet time, or at home, or whatever, but like she's saying, you have to be able to budget your class time appropriately ... in terms of my class work time for assignments. I mean, that's the major reason I took this class—because it fits in. But you have to have notice to be able to plan ... schedule what is it that's ahead, so that I'm thinking ahead so that I'm successful within the framework of the program.

Student 2: I would like to have the syllabus at the beginning of the class. I mean, my team will have competitions. We're gone for the whole weekend. It's difficult to get on the computer during the week—I have kids who need the computer during the week and if I'm gone for a weekend I'd like to have work done ahead and turned in before I was gone.

Student 3: I've taken several different classes, and the ones that are easy to take, they're the ones that the instructor, up front, lets you know everything that they're requiring. Because I've had some where you have to go on every other day for online discussions, and some where you go on once a month for online discussions, but if I know that up front, and I can schedule my time, then that makes it easier. When the instructor throws things at you week by week it's really hard. I've had classes where it's Wednesday, where you get the assignment Wednesday and it's due on Saturday and it just doesn't work—because, I need the weekend. If you don't have a whole week, it's not fair. If the assignment is due on one day, I think I should have the whole week to do it. Last minute notification is just too hard with young kids and jobs and ...

Student 4: It almost sounds like all these things we're asking are just one sheet of FAQ's [Frequently Asked Questions].

Planning sometimes involved more than simply organizing schedules.

Ryan, an older-than-average student enrolled in two online courses, was well into the second week of classes when he learned that Word was required for one class. "It would have been nice if that was mentioned in the schedule or catalog." Hannah, a 25-year old student in another course, also discovered after the first week that she was learning of things she needed to know about earlier, and she expressed a similar frustration. "I wish everything needed for the term was posted on BlackBoard prior to the term starting."

Other students expressed gratitude that the courses they were taking provided the information they needed early on. Jill found, in exploring the syllabus for a class she planned to take in the summer, that there were several exercises online that would allow her to test out her computer to ensure that it would be able to handle the class assignments. "At least they were letting you know in advance what the requirements were."

Don was pleased to find that the courses he was taking had been improved over previous classes, making it easier to plan ahead.

They've got this now—the online course packet. This is what they used to mail to you before the class, and it would have the syllabus and all that stuff. And now they've got it online, so you can go here and you can learn how to access web courses and print your syllabus, and contact your instructors, and so all this stuff that normally came in this packet you can go online now and get it.

### Orientation to the hardware/software system: Training

Once students had made their plans, enrolled, and were ready to start their courses they felt a need for orientation to the online system they would be using. This need was more pronounced when students were involved in their first online course within a particular program, when they were unfamiliar with the courseware. Don describes his confusion during his first course.

For the first couple weeks of that first class, just trying to figure out, how does this thing work? And, their version of BlackBoard, I stumbled through that trying to figure out how that worked 'cause, although it was very well documented, in fact, it took some stumbling through. The BlackBoard system was not totally obvious when I first got onto it.

Several other students felt that training on the courseware was insufficient. When I asked Gail to describe the training she was given to prepare for the class, she laughed and said, somewhat sarcastically, "Yeah, they give you a piece of paper and say, 'Here it is.' That's the training... Right. Follow these steps." Although the instructions were available, following them was not straightforward and self-explanatory for all students. Marie had a similar reaction to the written instructions provided for her class. "I mean, they have this website and it says, 'if you need help, click this link, this link, this link, this link or this link,' but yet, nobody actually guides you through it."

Confusion with the workings of the system went beyond the courseware and included unfamiliarity with peripheral software such as that used by the university library. Living in another state, Jill was not aware of the services that the university provided.

I wasn't given any information on the availability and use of Lexus-Nexus through the university library. Yet assignments suggested I use it for case briefs. I stumbled upon the fact that it is available for university students through researching the

syllabus for another class I was interested in taking. Access information should have been included in course materials.

Marie also was frustrated trying to use the library system at first.

I have confusion on ILL Interlibrary Loan. This is a big weakness: Though materials were sent and using ILL became a pleasurable experience—no one teaches students how to use ILL!! I received a sheet that said \$21. I had ordered many items. I thought I was going to be charged \$21 each. It took five phone calls and three emails to figure out the workings of the system.

This frustration was echoed by other participants as they described how they were expected to know how to do things, such as using PowerPoint or downloading pictures from the Internet, without being given any training.

#### Orientation to the online environment: Wayfinding

The physical layout of online classes differs from course to course, and participants in this study had a great deal to say about what they liked and did not like about the way their courses were set up. Nearly all expressed some confusion and frustration with their ability to find their way around the website, and navigation issues will be discussed more fully in a later chapter. Here, I discuss only the initial orientation to the online environment, and whether or not students felt that they had received enough of an introduction to feel confident that they would be able to find everything easily. Comments fell into two camps: those that focused on the need to be able to see on the first webpage exactly where everything was, and those that focused on the need for a printed version of directions for using the site.

Janet had difficulty right from the beginning because the syllabus did not have information she felt she needed.

There was nothing on the syllabus that gave the class website. And...his e-mail was not on the syllabus I printed off—so I had to, the first couple times, go on the [university] webpage and look around for the BlackBoard and then I had to be sure I wrote down the website for the BlackBoard, write down his e-mail, and then with my notes I don't go back and make these errors and get all frustrated.

Shelly was enrolled in her second online class during this study, and was surprised at how different the layout was between this course and her previous one.

The first one was a lot simpler. . . because you just log on, and everything's right there, and you just click once and you see it all. With [the one this term] I feel like I'm on a treasure hunt .... I couldn't quite figure out the layout of the course line, that when you log onto it, you turn it on, it isn't real self-explanatory—it's kind of hard to explain ...

The desire to have the layout be self-explanatory was reiterated by several participants. They did not want to hunt through various links to find their assignments, but to be able to see the location of everything immediately upon entering the site. Don was frustrated that the reading assignments in his class were not visible.

For each module of the class he had several readings that you needed to access and some of the times those were confusing as to, in particular, which ones you needed to pull off. You could eventually figure it out. ... They were by topic and then weeks within it. On the website I think there were four topic areas and then there were several readings under each topic area and he might require one reading in this topic area for Week 2 and one in this topic area for Week 2 and, so you had to sort of go through and find those .....

A participant in the focus group had a similar complaint.

...it's just the navigation for it, to figure out what assignments were due. On the left you had a threaded discussion—like you had five or six different things, and there might have been assignments in three of them, and so you had to click here

and read this, and make a note of, like, this is one of the assignments. Even if they pointed to a website and said, "here's the assignments" and then maybe a link to descriptions of them, rather than the navigation where you have, maybe on the left hand side of the left frame, you have maybe seven or eight different things and there might be assignments in three of them or four of them—finding them, then keeping track of which ones you've done, and which ones you haven't done.

For Don, parts of his class were less confusing because the syllabus gave directions.

They did a good job. The syllabus was there and the assignments were laid out well, so he had a good path so you knew where you were going and when you needed to get there.

Other participants also felt that printed information was helpful in orienting them to the online environment, and locating assignments and readings. Gail was frustrated that more information was not provided in a printed form, and found it useful to print things out herself and keep them in a notebook for reference.

I need to print things out because you often need to refer to things as you're working. And on BlackBoard it's hard to find things. Let's see, was that under Assignments or Course Materials, and then did I look under this or this? I'd much rather just have a packet with everything in it right at the beginning.

Most of the participants agreed that, whatever the format, it was important to them to be able to see the whole picture, including all assignments, from the first day of class.

#### Orientation to the course requirements: Clear expectations

Perhaps the biggest issue for the participants in the study revolved around the need for having clear expectations articulated by their professors. Only



two of the students interviewed failed to mention problems understanding expectations in their comments, and interestingly, both students were enrolled in the same course. This could be because expectations were clear in this class. As Emma put it, "He did a really nice job of putting it together ... I really understand why he needed what he wanted and what we needed to get across."

Most participants seemed to feel that expectations were not clear in online courses and that perhaps in this environment it was even more important than in face-to-face classes because students were working on their own. For Shelly, this was a frustrating experience.

Well, I think the number one thing is knowing that I have clear, laid down, concise expectations from the instructor. Because that was what frustrated me with [my last professor]. I never knew for sure, because he wasn't giving me any feedback, am I doing this right? And you get that scratching your head kind of feeling, like, "gee whiz, am I doing this right, or am I really screwing up here?"

When I asked Theresa what sorts of things might influence her satisfaction or dissatisfaction with an online course, she also pointed to course expectations.

Most definitely confusion with what is expected of me out of the course. I was originally registered for three courses. I wanted to take MTH 211 also, but there is no web site for the course or information provided. I had absolutely no clue what was expected of me or where to begin. I only had a text book with no syllabus. One of my courses involves a lot of writing, and I'm not quite sure if the instructor wants a summary or a personal reaction. I THINK it's optional. So, I've done both just to be safe... probably extra work.

This lack of clear expectations gave her an uncomfortable feeling. "I find myself asking a lot of, 'Is this what they're looking for?' I feel a bit paranoid."

Several students felt that the way the course was designed had an influence on how clearly expectations were understood. In general, they seemed to think that the simpler the course design, the more confident they were that they understood the expectations. Participants in the focus group were enrolled in a course that involved a variety of complex assignments that required using technology in ways that they had not in the past, for example, they were building WebQuests, doing online scavenger hunts, and creating electronic portfolios. The students were frequently confused, not only about how to complete the assignment, but also about what exactly was expected of them. They breathed a sigh of relief when more straightforward assignments were given.

I think for me the assignments that worked best were, like read and respond and then respond to others. Things that were really straight forward, clean, and with really clear expectations and really clear deadlines.

The students did express their awareness that course content, in part, drives the mode of delivery, pointing out that, ironically, their technology-rich Internet for Educators course was more difficult to understand in the online format than their philosophy course. "The paradox . . . I mean, the online class is harder online."

The design of Janet's class, on the other hand, was quite simple, using no advanced features such as virtual chat, streaming video or even images. Students were simply expected to read chapters in a textbook, take online tests, and participate in a threaded discussion. While she wondered if some different strategies might have added interest to the course, she noted that the simple design made expectations very clear. "I mean, in some ways, having it very straight forward and simple was nice because it was so predictable. I knew exactly what I need to go do – there's no tricks."

### Thematic orientation: Making meaning of content

Closely related to expectations about course requirements were expectations about course content – in other words, what were they expected to learn? Don felt that the initial orientation piece, the introduction to the course that typically happens in a face-to-face class, somehow gets overlooked in online courses.

I think what is missing in a lot of the distance learning courses that are more web-based is, what are we trying to accomplish out of this thing? What's our path to get there? You know, sort of the old I'm going to tell you what I'm going to tell you, tell you, and then tell you what I told you ...even if you sent out a CD with some kind of a video thing where the first half-hour of the course is talking about, "here's our topic, here's why it's important, and here's what we're going to talk about over the next ten weeks," and sort of pull it together before you launch into it. I think that would help. You get that with the video courses.

Don felt that without this introduction, he was somewhat lost as he worked through the course, not entirely sure that he was focusing on the really important things, or even recognizing them. He had a hard time narrowing down the large body of information presented in the textbooks and related readings to make sense of it.

Like I say, it was so broad and there's so much material, and you say, "ok, what's really important?" .... somehow I think you need to funnel the lecture or funnel the teachings towards, what are the key elements you really need to know about?

Vanessa had the same problem with her online course. She noted that in a lecture class, you are able to pick out what a professor wants you to focus on by what they are enthusiastic about, what they emphasize in their lectures, their body language and more.

The big challenge that I see with the web courses is, with lecture it's pretty obvious from the get-go where an instructor

is going to focus on the test—because you have his lecture to go off of. But, with this it seems to be a little more difficult.

Gail met with frustration when she scored lower than expected on a midterm test after studying thoroughly the first half of the 600-pages of material for her distance course. She talked with her professor afterward, expressing her frustration. “Well, I didn’t really know what to study so I studied everything.” Her professor responded by providing her with a study guide. This frustrated Gail further as she realized that the study guide could have been available all along if she had just known to ask for it. “I just paid for this 600-page course packet. Don’t you think you could’ve included a study guide with those?”

Other students expressed satisfaction that their courses provided information to help them focus their attention. While Vanessa had a hard time making sense of the abundance of material in one class, she was taking another class that was easier for her to work with. “...my other instructor, for the final, bridged that gap by supplying a very in-depth study guide. That was very nice.”

The idea of a study guide, study notes or study questions came up in several interviews. While Gail was frustrated in one class where the professor gave her the study notes *after* the midterm exam, she had another class with study questions provided in advance.

That’s the one thing I like about that class is he gives you all the questions in the syllabus—these are the questions we’re going to be asking over the term. Here’s the book to read. This is the question you’re going to need to answer when you finish reading this book.

Jill also found that study questions were valuable in working through the information in her course.

.... by the time you answer all the study questions you know all the answers to his test, so by the time you answer the study questions you have just pulled all of the important information out of the book. And you've made it into a nice, easy-to-study format. You've basically, essentially taken notes for your exams.

### Discussion

Overall, participants felt that it was essential to be fully informed about their courses, including content, expectations, schedules, and software requirements beginning with their initial contact with the course. Other researchers have heard similar stories. In a study comparing online classes with traditional courses, Cooper (2001) explained declining withdrawal rates as due, in part, to improved orientation information focusing on course expectations and requirements. Participants in his study found course schedules useful, and he suggested this was likely to be because they did not receive frequent oral reminders in online courses as they would in traditional classrooms (Cooper, 2001). This finding was supported by another study of expectations of online students, which found that students felt a need for paper-based references to provide them with quick and easy access to information (Brace-Govan & Clulow, 2000). This desire was mirrored in a study by Leasure et al. (2000) where prospective students indicated they would prefer to purchase a printed course packet than to download it. They felt that this represented a safety net, providing assurance they would not miss valuable information or assignments (Leasure et al., 2000).

Distance from their instructors and from the frequent reminders that they would have received in a classroom setting may have been, in large part, responsible for the feelings of anxiety the participants in the current study expressed. While some of their criticism focused on a lack of orientation

information that they clearly needed in order to function, much of it was focused on the sense of insecurity they felt because they were unsure that they had understood things correctly, seen what they needed to see, or completed what needed to be done. A study (Cohen & Winkel, 1977) looking at orientation information in the unfamiliar environment of museums found that visitors continued to feel insecure even when orientation devices were in place. They found that even though the devices were effective in reducing every index of disorientation, the visitors still felt a need for more assistance. "It appears visitors have an insatiable demand for orientation information; they do not really *need* it, but apparently they feel more secure if there is redundancy in the information system" (Cohen & Winkel, 1977). This may be true in the online environment as well—the more orientation information there is, the more confident students feel.

Timing and placement of orientation information may also be an issue. Participants indicated a need for pre-planning information prior to the start of the class, but at the same time suggested that additional orientation information might be needed within the course in the form of confirmation when things are done correctly, directional information from within links, written information for reference, etc. Research on the museum environment suggests that, since people can hold a limited amount of information in memory, orientation must provide for memory lapses through the use of redundant cues at major decision points (Cohen & Winkel, 1977). This suggestion might prove important in online courses as well. Providing orientation cues each time a decision must be made in an online course, such as which link to click, could reduce confusion and anxiety.

Participants in this study were highly motivated and indicated a desire for all materials and assignments to be available from the beginning of the course. Some previous studies (Coldeway, 1986; Galusha, 1998) have indicated that doing so could result in higher non-completion rates. They have suggested that pacing materials presented to students appears to have a positive effect on completion rates. This study did not support that idea. All participants completed their coursework, and when materials were available in advance, most students worked ahead rather than procrastinating.

When orientation information was provided, participants indicated that they felt secure and comfortable with the course. When orientation information was lacking, they reported feelings of disorientation, insecurity, confusion and anxiety. Certain specific aspects of their courses led to these feelings, whether positive or negative. The chart on the following page (Table 2) summarizes factors involved in course orientation that participants found to be valuable, as well as those they considered to be negative factors, or costs.

<b>Course Orientation</b>	
<b>Values/Benefits</b>	<b>Costs</b>
Good orientation system	No orientation information
Pre-planning information	Last-minute notification
Complete schedule at start of course	Assignments introduced weekly
Printed orientation information	No information in printed form
Intro to hardware/software requirements	Late notification of software requirements
Training in use of software	Insufficient training on courseware
Introduction to, and training in, peripheral services	No information on services such as the library
Clear goals and objectives	Unclear purpose
Clear expectations	Unclear expectations Unclear instructions
Introduction and overview	No introduction to the content No thematic orientation
Simple design	Complex assignments
Easy access to information—few clicks	Assignments hidden under layers of links
Layout where everything is visible	Layout feels like a treasure hunt
Study guides	Confusion deciding where to focus
Confirmation of correct actions	No feedback
Confidence in knowledge of locations of all information/assignments	Anxiety about missing something— not finding things

Table 2: Factors affecting satisfaction with course orientation



## **Content**

Comments from students referring to the content in their online classes fell into three categories. First is what I would call, "access to the content." As was mentioned in the discussion of orientation information, many times, although content was available online, students didn't feel that they could process it properly—they weren't sure how to make sense of it and therefore it felt inaccessible to them. The second category of comments revolved around the relevance and usefulness of the content, and the third category focused on the interest or stimulation that the content generated in the student.

### Content accessibility

A common complaint from the participants was that the course content was broad and the signals for determining what was most important, which are normally visible in a face-to-face class, were missing in the online environment. Don was entering a new field of study, hoping to start a second career in a completely different content area from the career he had been employed in for his entire adult life. Although he was anticipating involvement in volunteer work, he felt it necessary to obtain a degree in order to familiarize himself with the terminology and key issues in the new field. He did not already have a framework for understanding this field and found it difficult to know where to focus his attention.

We didn't really know what he was asking for. And the topic area was so broad that, gosh, you could study for six weeks and, depending on what was really important. ... I think there would have been an opportunity for either online lecture or some type of other mechanism for delivering what he really felt was important out of the readings that you should be getting out of that particular part of the class, which would have really helped.

Vanessa had the same problem in reading her text—though her concern had to do with securing a good grade as well as understanding the content.

It's kind of difficult to know what to study for, per se. I mean, in theory, you study—read the whole textbook and go from there. But with the time constraints it's hard to know where they're going with what they're going to focus on.

Sometimes the problem revolves around a very broad field of study, and other times it is a problem of many viewpoints on the same specific topic. Theresa found that without an instructor physically present to answer questions and discuss the various views, it was difficult to evaluate the merits of each.

The only real frustration I feel is with my one textbook. It just presents too many theories without actually specifying one that is "recommended." It's a bit too vague.

Frequently courses use several sources of information, perhaps supplementing the text with online lecture as well as links to related websites. When this happens, there are sometimes conflicts in the information presented, leaving students confused, as Jill was in her rangeland class.

That was one of the problems we ran into in the ...class I was taking this term; the book was giving specific information and then the website was contradicting it and giving different information, or giving more information. And it was actually confusing for me. That was especially on the [classification] types, and the book was dividing it up one way and the Web information was dividing it up another way and the whole thing was a mess.

Issues such as this could have been solved in a face-to-face class with some simple questions, but students had a harder time resolving the conflicts when the instructors were not present. Janet missed the question and answer sessions one has in a classroom, not only in terms of having

her own questions answered, but also in terms of hearing the questions and discussions raised by other students.

I think what hindered the class for me was not having an instructor right there that could answer questions and I could ask questions and listen to answers he gave to other students' questions.

While this function could occur online via threaded discussion or virtual chat, many of the participants noted that this did not happen, or it was not as effective as it could have been.

### Content relevance

Another aspect of course content that participants identified as important was the relevance of the subject matter to their lives and careers. Theresa has been teaching first grade in South Korea and anticipates that the information she learns in her online classes will help her be a better teacher.

I hope that what I'm learning now (especially in my Ed class) will directly benefit my role as a teacher in the classroom... I'm extremely interested in what I'm studying, and it's immediately applicable to my work... It's fun to try new ideas out on my students as I go... I really enjoy reading the material for my education class because I can apply it directly. I am excited for my class to begin again.

Emma also finds the content of her course rewarding due to its relevance to her future career as a teacher. She recognizes the content as something that provides her with necessary knowledge that she may have to use in the future.

I will keep the book that he gave, there's no doubt. There'd be something that, if I was to remain a teacher, I would have with me all the time as something to refer back to. It's also something I can tell you, from working in the schools—because I used to teach at the schools on a consulting basis

and, a lot of the things that are in there, the schools don't follow and they don't know what they're supposed to do.

Emma tends to see the practical aspects of everything she learns and applies things in a variety of ways. As soon as she learns something new in a class, from cooking to law, she heads home or to work to try it out in her own context. Emma recognizes that she is more likely to do this than other people might, and wonders if this is due to her personality or her experience.

One of the things they always are impressed with what I do is that I apply the knowledge right away and I do, because it's like—"oh, I didn't know this—well let me see." But, again, that might be personality, but it also might truly be just because I'm older—I don't know. Just maybe a little bit of both.

While personality might be, in part, what causes Emma to immediately try out what she has learned, the other participants are also tuned in to the applicability of the material they are studying and are thinking in terms of using the new ideas in their work. All of the participants are older-than-average students with a wealth of experience to provide a context for thinking about content.

Sometimes, even though the content is not specifically relevant to a career, there is material online that students simply appreciate for its usefulness. Ryan was pleased that his course offered content that would help him out within the context of the course itself, noting that they provided "good online tools for help with citations and research, and a good library site."

Just as participants were pleased when content was relevant and useful, they became frustrated when they were asked to do work that provided nothing that they considered valuable. Often times they described this as "busy work." Gail was expected to create a homepage for her course with

information about herself and it seemed to her an unnecessary use of her time. "It was just a matter of filling out information on a page. I thought it was a waste of time."

John felt that way about a number of the assignments in one of his online classes. "I was, like, 'whoa—no way!' You know. And some of it truly is just time-consuming and you don't really get much out of it." He was pleased when his instructor was flexible enough to allow the students to omit certain assignments if they felt they would learn nothing of value from them.

Other students felt that some of the threaded discussions for their classes were void of any valuable content. Although Marie found the online interaction to be one of the most rewarding parts of her course, she was discouraged that so many people were involved in each discussion. She felt that the content would have been more meaningful if the class had been divided into smaller groups for discussion. "That would have been a lot of help, because, at least 90 of those posts a week for my benefit were useless. Because they were just regurgitations to me." When students were not adding new ideas to the discussion, the content ceased to offer anything for her.

One focus group member pointed out that the way the threaded discussion was used by the professor made a big difference in determining whether or not the content was valuable for the students.

Some professors use the threaded discussion just to turn in assignments. And they don't discuss. But then it's just busy work. Everyone reads the same thing and then responds. Responses can all be the same—I might skim through them, but that's all.

Other times students felt that their time was wasted because, although the content might be relevant, it was superficial and added nothing to their knowledge base. This was often the case with PowerPoint presentations, as was noted by members of one of the focus groups. "PowerPoint gives you an overview. There's no meat—just the stuff that's in a book." This was particularly frustrating to participants because downloading the slide show was time-consuming and, they felt, not worth the wait. Vanessa had the same type of reaction to PowerPoint slides as they were used in her course.

I didn't think they were all that beneficial, really. They were basically just pictures, really, of different clouds. Stuff that was in the book also, so I think that was nice because the people that couldn't access [the slides] just could go to the book and scan the same information.

Sometimes content was simply irrelevant. This seemed to happen most often when courses were transferred from an earlier online course and were not properly updated, or when they were transferred from an existing face-to-face course and information not relevant to online students was not removed. Hannah noted that the video lectures that supplemented her class were taped in a face-to-face classroom and forwarded to the online students unedited. "I wish they would edit some of the non-important, or doesn't relate to distance education students, information out of the tape lectures."

Occasionally, participants were given assignments that were potentially valuable, but that had no long-term benefit simply because of the way they were handled within the course. Focus group members were required to submit website addresses to their online class to create a "webliography" for the course. This had potential for being highly useful in the future, but accommodations were not made for distributing the final list.

Like the webliography. You can't get back to it after the class ends. It just sits there. We all do it to get our little points—but maybe you just browse it once or twice. It has no long-term benefit. It's just busy work.

Shelly had a similar complaint about the WebQuests students created in her class. While the assignment was relevant, she felt that its real value came in the sharing of work that all the students had done.

We made these WebQuests, and we never got to see them ... and I was so mad. Because I thought, "Oh I want to see how everybody else did," and then—boom, it was off. And it was such an abrupt ending, I felt, I never got to see it.

This was particularly disturbing to her because the professor had promised to post all of the final products for students to view, and then failed to follow through.

### Content interest

The final category of comments had to do with whether or not the participants found the content interesting or stimulating. Participants found some of the content provided in their classes valuable for the simple reason that it interested them. Emma was pleased with the content in her educational law class because she had worked with the court system previously and was interested in hearing the perspective of her instructor, who was an attorney.

That's why it's kind of interesting to get his perspective, because before I started being a student I did a lot with the court systems, so I wanted to get his opinion outside of .... And so it's really nice

Theresa found the act of learning itself to be stimulating. When I spoke to her she was between terms of teaching and had a fair amount of time to be studying and thinking about content.

But since I enjoy learning, and since I have a lot of down time while I'm over here, I find it's very stimulating. Plus, I feel like I'm doing something productive with myself during vacation.

Several of the students also noted that the online discussions with the instructor and other students in the class were stimulating. None of the courses in this study made use of real-time chat, but several had threaded discussions in varying formats. On occasion, these could become quite animated, and students often felt that the ideas being discussed brought new perspectives and added interest to the course.

John noted that listening to other teachers discuss the content allowed him to think in ways that he might not if he did not have that interaction.

It was real saturated—good stuff. You know, good, good opinions, and good different types of opinions to read from, and real mind-opening types of opinions, because you're stuck in your own classroom and you're just doing things your own way and then you get into that type of openness with a group of people and it's just like, "wow, that's going on there," okay. And so, that type of stuff's real rich and there's a real high learning curve going on there.

Emma found that when the content has potential for controversy, discussions can become quite interesting.

I think this class is really open to debate—and how he's taken care of that is he's put it on the Internet and so we have discussion boards – and they can get very, very interesting very, very quickly. ...

This made the class very stimulating for her, and although she had finished her reading and tests in the first two weeks of the course, she looked forward to logging on each morning to see where the conversations had led.

I remember the first chapter because I had to come up with something to say about it and why, and somebody else replied almost immediately and then somebody else



commented and then I replied back and then pretty soon the professor comes on and he goes, "Wow, this is getting exciting already—this usually doesn't happen." And I think it was maybe something about older students, you know, and that could well be, because we're more invested—not always, but usually—in opinion, and they have opinions because they've been out in the world or something, so, that's why it's been fun—because I get to go on there and I .... Wow, this must be what chat lines are all about ...so I like it...I really do.

Although Emma found the ideas in the discussion stimulating, Janet, who was enrolled in the same class, responded differently. While she found the discussions interesting, she was not compelled to read all of the posts and did not go back frequently to respond to the posts of others.

There were no arguments—no big controversy. People seemed to think all the same. Maybe it's because we're all education majors going into teaching. I don't know, but people seemed to think the same.

The question of whether or not content was interesting was very personal. What was interesting to some students was boring to others. Emma was interested in law due to her previous interactions with the court system, but Jill was entirely uninterested in it, surprisingly for a similar reason.

I didn't care for the content and I just didn't get into legal briefs. I work in the legal profession, so I was just tired ... I do that for a living, so I didn't want to deal with any more law classes.

As she pointed out, her reasons for taking the class had nothing to do with an interest in the subject matter. "[The class] is boring, but it is a required course. I have no interest in the topic so I'll just plow through the course."

John was working toward a Master of Teaching degree in order to maintain his teaching license, which was currently transitional. He found that much of the content offered to him was not stimulating because it was information

that he was already familiar with, for the most part, because he had been teaching for some time already.

I think my biggest concern is that since we're already teaching, and a lot of people have a number of years, maybe it should be handled a little differently. A little less work, because I find myself skimming through the readings because it's like, "Oh yeah, I've dealt with that. Ok, got that, got that." Yeah, I can almost just go straight through the questions and fire off an answer.

### Discussion

Course content is an important factor students consider. In a study of student expectations and satisfaction with online courses, course content received the highest ranking of factors affecting students' decisions to take a program (Tricker et al., 2001). However, although they might initially expect the content to be personally valuable, a number of factors can cause an increase or decrease in the actual value students perceive. Participants in this study identified access, relevance, and interest as important factors in determining whether content actually was valuable.

Although course content is more public in an online course, the learning process is more private (Jarvis, 1997). Students are isolated and working on their own. The signals that communicators send one another as reassurance of understanding or misunderstanding are not available online. A lack of non-verbal cues from the instructor can lead to a sense of ambiguity (Scott-Fredericks, 1997). Students in this study pointed to ambiguity as an important factor in making content appear inaccessible. They were often unable to discern what the instructor considered to be key issues, and believed this was, in part, due to the fact that they were not in direct contact with the instructor.

Students also felt that content was more valuable when it was directly relevant and usable. When they were faced with busy work and irrelevant content, they became frustrated that their expectations were not met. Although most of the students were taking required courses, they were still intolerant of busy-work. Usefulness of content has been identified in expectancy-value theory as a component of value and is referred to as "utility value." Utility value is defined as how a task fits into an individual's future plans (Wigfield & Eccles, 2000).

Raynor (1969) has suggested that not all values are equal, and that those which have future implications tend to outweigh others in importance. This would indicate that content that is perceived as useful could play a key role in students' determination that an online course is valuable.

Participants also identified interest and stimulation as important in evaluating course content. Interest in the topic of study has been significantly correlated with involvement, enjoyment, concentration, and activation (Schiefele, 1991). In an online course, students do not have the benefit of face-to-face meetings where an instructor's enthusiasm might encourage interest in a topic. A study of student satisfaction and learning online found that students perceived psychology as more interesting when they took the lecture format than the online option (Maki et al., 2000a). The researchers suggested that this might be because the online sections did not have lectures presented by an enthusiastic teacher.

Schramm's Fraction of Selection states that the expectation of reward divided by the expectation of effort is equal to the probability of selection. In this ratio, he suggests that the upper term (reward) has mostly to do with content and how likely it is to satisfy needs and the lower term (effort) has mostly to do with availability and ease of using pathways (Schramm, 1973).

This would be supported by the Tricker et al. (2001) finding that students ranked course content as the most important factor in their decision to take a course. Findings in the current study would indicate that students' determination of the actual (as opposed to expected) value of course content includes an evaluation of both the content's ability to satisfy needs and the ease of access to that content.

The chart on the following page (Table 3) summarizes factors involved in course content that participants found to be valuable, as well as those they considered to be negative factors, or costs.

<b>Course Content</b>	
<b>Values/Benefit</b>	<b>Costs</b>
Key concepts are identified	Key ideas are not clarified
Content is focused	Too many theories—too vague Content has no framework
Content is relevant	Content is irrelevant
Content has future applicability Content will aid in career	No long-term benefit
Content is useful Content is immediately applicable	Content has no meat—superficial Content contains nothing of value Content is unnecessary Assignments feel like busy-work
Content is interesting Content is stimulating	Content is boring
Content provides new perspectives	Content is redundant
Content is mind-opening	Content is remedial
(no suggestions offered)	No system to ask for clarification
(no suggestions offered)	Sources contradict one another Content is incorrect Content is not up-to-date Content is confusing

Table 3: Factors affecting satisfaction with course content.

### **Student-student interaction**

Participants had mixed reactions to the interactions they had with students online. For several, interacting with other students was not a high priority, in large part because they had established lives including their own social circles. Their choices to take classes had more to do with earning degrees or reaching goals than with meeting people and making friends. When I asked Gail if she missed the social interaction she might have had in a face-to-face class she replied, "I don't, because I have plenty of other social stuff in my life. So I'm not really secluded." Jill had the same reaction, having been involved in a career and life in California for many years. "You know, interaction is not really that big of an issue to me."

Don felt that the need for interaction was a function of the subject matter he was studying online. "Depending on the class—I think a class like this one, which is primarily data and fact-based—the interaction isn't that important to me."

For Marie, interaction with other students was central to her online experience. When I asked her what she would avoid if she were designing her own course to teach, she responded,

Having no contact at all with other students like one of my courses does. I don't like the fact that I see all these names up there but I've never had a dialog with any of them. It feels like a complete correspondence course. So why do I have to take any of it online? Why don't I just read it, write it, and mail it in?

Many of the classes students took online offered no opportunities for students to interact with one another. Sometimes, as in one of Marie's classes, students posted information that others could read, but they didn't have the opportunity to respond to one another. "In my psychology class we

have no mutual interaction. We just posted journals and reaction logs, so I never had any interaction with any other student." In Don's class there was even less interaction. "I don't know if I was the only student, or there were others, or how it was even run, so ..."

### Getting to know people online

Unlike some of the participants, Marie placed a high value on interaction with other students. In the online environment, she was able to interact with people and to establish an identity separate from her disability. Rather than coming across as the "handicapped person," she could put herself into the world as the "caring person," which was an important piece of her personality.

To me, if I can influence somebody's life that way, that's part of my reason for being there too, because it isn't just about what you learn, it's about who you are as a person and I'd rather be known as the person everybody thought was decent and caring than just the "brain" or something. And so I try to be that for people, and I think that is one thing that lacks with the distance ed is that they all feel like they're out there in cyberspace and nobody's listening. And if one or two people can make those kind of overtures it really helps pull the whole class along.

Marie went out of her way to establish a rapport with fellow students, and believed that it made the entire class run more smoothly. Occasionally she would even look up home phone numbers and call students directly.

... this is Marie from your English class and I just wanted you to feel like somebody cared about what you said." ... And I can't tell you how excited people get—when you get that kind of rapport, and so I make lots of friends and I've even got three people taking other classes with me next term because I've done that.

When she put effort out in this way, she found that students responded positively, and it made the interaction very rewarding for her.

Even if I didn't like what they said, I always try to give them some encouragement. You know, "Hey that was a really great thought that you put. Maybe we could consider this other option too," kind of thing. And that way, I don't alienate anybody and that seems to have won me a lot of friendships, because I've gotten a lot of private e-mails from classmates that either want my help or want to build a friendship, or just want to have more dialog about what's going on in the classroom—so that's been rather rewarding, too.

Other participants did not find it easy to get to know people online. Janet felt that the online conversations were too one-sided. When I asked her if she had gotten to know any of the students through the threaded discussion, she replied:

No. Not at all. Not one bit. I recognized a couple of names from friends, from other students I've taken some classes with, and I'd go back and read their discussions, and that ... that was it.

Marie believed, however, that this did not have to be the case if a student was willing to put out the effort.

I think you can have relationships online, but you have to be proactive about creating them – they're not just going to fall on your lap. And I think some of those relationships will depend on whether you gain the respect of the people you're talking to.

While Emma did not get to know students in her class personally, she did learn some things about them. "You just know their opinions. You don't know them ... it'd be kind of fun to get to know them in that sense ... that'd be fun."

Gail agreed pointing out that the way people write and the opinions they voice give personality to the students in the class.

Some people in the discussion board show insight and intelligence and others show ignorance, bias and bigotry. I



have never met them in person, but I've formed impressions by their communication skills.

Vanessa also appreciated this aspect of the threaded discussion.

With the required discussion board for one of my classes it makes it very easy to find out the background and different perspectives that the other students have. That's very nice.

She felt that she would have been unlikely to get to know other students if the discussion board had not been in place. "The discussion board made it a lot easier to interact with the students. In the class that did not have that, I was tentative about initiating it."

Several of the participants noted that they appreciated hearing the different perspectives of other students, particularly since in online courses students frequently come from very different walks of life and different geographic locations. Gail liked the introductions they did at the beginning of her class so that she could get a feel for the different perspectives represented.

They encourage people online—"Introduce yourself. Who are you? Where are you from?" We have one lady who's in Germany taking this class. He said, ok, you win the prize for having the longest distance. This is really distance. And she's from Virginia but she's living in Germany now, and she wanted to take a class and she's never been to the Pacific Northwest, and so she wants to learn about it, and she's taking the class from Germany. And she's in the classroom with everyone else and it's really nice.

Although Gail valued the introductions, Marie did not. She found it difficult to introduce herself without mentioning her disability, which compromised her ability to feel that she was participating on a level playing field.

I don't really like that part of it. But that's because quite honestly, I like to have people kind of just figure that out over the course of time. And I do have a bias because how do I talk about me without talking about some of the things that have

shaped who I am? Because I do have very strong opinions and they come from very difficult, life-changing experiences...

### Enhancing content through interaction

One aspect participants appreciated about being able to interact with other students was that the content became more interesting as different views were represented. Don found that the threaded discussion was a good substitute for face-to-face classroom discussions.

[My class] as an on-campus course is set up as a seminar course. So, they used the threaded discussion as a substitute for the seminar setting. And it was fairly successful. I think we had some good discussions going back and forth ... probably not as good as you would have in a classroom setting. But again, when you're scattered all over the country and communicating, you hit a better sharing of ideas than when you just sit here and every four weeks go over to [the community college]...

Gail also felt that hearing from a variety of personalities added interest to the class.

First you have to respond to the question. Then, you have to respond to the comments that the other students made. So, then you actually get to pick out personalities from the other students. You know, you get the hot head. You get the one that wants to talk about religion. You get the one that's very defensive about the ones that .... And it gets kind of interesting because you get to know certain personalities—it's like a chat room. And you pick up different things by what the people say, or how they say them... so that's pretty interesting.

She really liked the threaded discussions and noted that they were valuable because they caused her to think about the material before discussing it with others.

Don found that the content became more interesting as different perspectives were represented and some controversy entered into the discussions.

It was set up as a seminar and you did have more interaction with other students because you would pose something and get some banter back and forth with other people agreeing with you or disagreeing with you or you agreed with them or disagreed with them, so that was a little more interesting.

Marie was proactive in her online discussions, just as she had been in forming relationships with other students. She found that when she gave detailed and well-thought-out answers, other students would follow her style and the general level of discussion would deepen.

For instance, if I used a quote from the text to support what I said, two or three people the very next post were using quotes. And you could see, because you could tell they were getting better grades and that we were feeding off each other and the bar was set and everybody was trying to raise it to the bar.

She had to be careful, however, not to lead off every discussion or she would find that some students would simply rewrite what she had already said without necessarily thinking out their own unique response.

I was careful to not [be the first to respond]. Even though I might have known the answer I didn't go on the first day and put it because when I would do that I would have all these people just regurgitating what I said... Because otherwise I would see too many other people who wouldn't say, "I agree," but they were basically regurgitating me. ... making out-in-left-field comparisons.

Janet, on the other hand, found that it was valuable to read over other students' posts before she formulated her own response.

What it did was that I would go ahead and read what a lot of these people had written ahead of me and that would, of course, in a way that would influence me—what I was going to write too. I didn't copy, of course, but I would think, wow,

that's a really good point—I'll try to incorporate that into what I'm going to write, too. I wasn't copying down what they wrote but at the same time I think what they wrote did influence my way of thinking, especially if there were a bunch of people who had completely had the same opinion, I would tend to follow that.

It was apparent, then, that in online discussions, as in face-to-face ones, different personality styles influenced the way students approached a task.

### Support

One thing about interaction with other students that the participants found to be valuable was the support system that they could provide for one another. This was particularly helpful in classes where there was little communication with the instructor.

He wouldn't let you talk to any other students because he wouldn't put the discussion board up so that you couldn't even have access to any of the other students. And so, when I finally got access, I started e-mailing the other students, because their e-mail's on there .... and I went around behind him and said, "Are you having the same difficulty...? And they said "Yes! He never answers my e-mails. He never answers my questions."

In some classes, the discussion board was used as a sort of forum for discussing questions that arose during the course of the class. Although Jill did not feel the need for social interaction, she did find it useful to share questions and answers with other students.

We had the Discussion Board and we could use that for questions. If you had particular questions—if any of the students had questions, and there weren't assignments or anything on there we had to do. It was more for us if we wanted to talk to each other. If we wanted to ask him a question—he asked that we did it on the BlackBoard so that everybody would hear the question and everybody could have the answer, because that same question may have been asked by others. Other people may have wanted to know that,

too. So every so often I'd just log on, like once a week, and just check the discussion board and see if there's anything exciting on that.

Students in the focus group also found it helpful to have contact with one another. One student tried posting a question about a confusing assignment on the discussion board and was surprised at the response. "Well I did that for the ... one assignment, I wasn't sure what we were supposed to do for today. And I probably got ten responses, so ..."

Shelly was part of a cohort of approximately 20 students working toward the same degree. They began the program together, took their classes together, and met occasionally face-to-face. They found that they got to know one another quite well, which provided a much needed support system for everyone. When I asked her if she received enough training initially to feel comfortable getting started, she pointed to her cohort.

Well, I don't, no, not really. Because it was all mostly self-taught, but I gleaned a lot of information from my friends because we were all in the boat. And I have some really nice, nice people that I've been in this cohort with and they're just really open about their problems, and we just all shared and talked to each other about it, and they weren't all that competitive. We all wanted to help each other, so I don't think, if it weren't for them I probably would have really been a lot more frustrated.

In one of the focus groups, students talked for some time about various problems they had understanding and completing several projects. One member expressed concern that there was no system in place for asking other students for help.

I feel kind of bad hearing these comments because, for me, I've been doing these web pages. I've done lots of those so it's easy for me. I didn't read a lot of help [questions]. I don't know how I could have helped because I didn't hear any requests for help... so I don't know if the course lends itself ...

Others agreed that a system would be helpful and suggested several ideas.

I think when you don't have the one-on-one of the direct interaction to clarify, I think having a phone tree, or a phone buddy system, might have been helpful, or maybe going just like a "Hey, I don't really get this", or I'm sure sometimes we could have called each other.

Karen was taking an English class that required the reading of several books. She appreciated hearing from other students who provided her moral support. "Encouragement from the fellow online students is a huge help through a difficult book."

Not everyone felt that the online environment provided the kind of support that a face-to-face class offers. Vanessa missed the interaction she had with classmates on campus.

I actually prefer live lecture classes. I get a lot of feedback and a lot of support from that environment, so I'm struggling in this quite a bit, but I'm determined to get through, one way or another.

### Communicating online

Several participants commented that they felt the online, threaded discussions might accommodate students who are less likely to speak up in the classroom. Gail described her different experiences in both face-to-face and online classes.

I've taken regular classroom, and the experience that I've had in a regular classroom, and it was just my personal experience, is that a lot of the students are intimidated to speak out or state their opinions and so sometimes you go through a whole class and there's a student who's maybe never said anything. And you have no idea who this person is or what their interests are...

Janet found that she felt more comfortable expressing herself online, in what she considered to be a safe environment.

In some ways it's satisfying to take a course online because you can state your opinion and read other people's opinion, and you don't feel like you could be put down.

She felt hesitant in a classroom setting, knowing that she could be put down immediately for her views.

...because when you're typing stuff over the web you're more likely to type what you really feel and think. At least you can. You have the opportunity. Whereas, when you're sitting in a class you feel kind of intimidated, like, "Ooh, should I speak up about this? Are people going to think I'm weird?"

One focus group member recalled a class she had taken where both online and face-to-face discussions were required. She felt that the online discussions had more depth than those in the classroom.

I had a college course when I was an undergrad just taking regular courses, but one of the professor's set up a bulletin board you had to go to . . . those discussions were much better than the 8:00 am discussions we had in class. And there are also people who, in a group like this, may not be very good at jumping in or disagreeing with someone in person just because of their personality. But when you're, not necessarily anonymous, but when you're sitting behind a computer and you can write out what you want, I think you get more of people's ideas without them having to worry about people jumping on them or saying no, you're wrong, or . . . So, it was a much better discussion than anything we ever had in class. Of course, it was an 8:00 am class, so that . . .

While some discussions might be better because students feel less intimidated online, certain problems also arise. Early in one of her courses, Marie found that one of her posts was misinterpreted by another student, who was quick to put her down online.

She made some comment about, "Well I know some people who have referred to spirituality but all they do is stand on

their soapbox, and if that's what you're gonna do during this course I'd rather not listen to it."

Marie felt that the attack was unwarranted, and would likely not have happened in the face-to-face setting.

There's a little lacking to be said for the fact that you're not getting the verbal eye contact and the mannerisms where you can see—for instance, if I typed something and I said something, if it was off-base I would shut up before I got to the second sentence because I could look around the room and see that people were kind of wincing. But if I type it I don't know that. So that's a little bit scary.

Don found that the way he communicated online was different from the way he communicated in the classroom, and was perhaps a little deeper.

I think it makes you stop and do a little thinking once in awhile before you hit send. At least it does me. Before you embarrass yourself to the world. But, I think it makes you do some thinking and maybe stop and say, "Well why did they say that?" and "Ok I can see their point of view," and things like that.

Vanessa, on the other hand, struggled with her online contributions for the same reason—that she had to work with them so much before putting them online for the world to see. "It seems to me when I type things, I edit and rough draft everything so much that I don't get very much said."

### Participation

Although most of the participants expressed appreciation for the threaded discussion that many classes used, they found that participation was less than optimal. Don was frustrated that what started out as an interesting discussion died away when the professor ceased to introduce new prompts.

The discussion board is the only thing used here... The first week he had this set up and then he set it up for the next three weeks and had 70 responses out there and then he never put anything else out there again.



Other times the discussion failed to develop because students simply did not offer comments. Theresa was frustrated that nothing was developing in her class even though a discussion topic had been introduced.

In my class there's supposed to be a discussion board going on, but so far I'm the only one who's offered a topic. It counts for our grade, so I hope others quickly offer something else to discuss. It's an interesting idea...the discussion board, although I think the discussion topic provided by the teacher might not get people fired up enough to express an opinion. I thought it was interesting, though.

Janet felt that students did not respond to one another enough to call it a real two-way conversation and that this made the discussions shallow and less meaningful.

I think the discussions are pretty much one-way on the web. There wasn't a lot of going back and forth. And so I think there was a little bit lacking. It wasn't as in-depth as it could have been.

Her perception was that most students were simply responding to the prompts and never going back to see what other students had written.

It seems like there's very few responses that come back and it seems like that's true with the other students, too, because the discussion web page shows you people who've gone back and responded and such. And it doesn't seem like a lot of students are going back. A few are—there's a few. I don't know how many people are in the class—it seems there's 30 or 40. But it doesn't seem like many students are going back.

She readily acknowledged that she was as likely as others in the class to pass on the opportunity to discuss other students' ideas. "The technology was there to where we could easily go back and respond. I know that I never did. And nobody responded to mine."

It is interesting to note, however, that Emma, who was enrolled in the same class, found the discussion board to be the most stimulating part of the

course and indicated that there was a good amount of interaction. Perceptions of online interaction appeared to be very personal.

On the flip side of the coin, several participants complained about too *much* participation in their discussions. A comment placed in the "Frustration" category of Gail's anecdotal record claimed, "This is a huge class! Quite chatty. Over 100 messages to read!" She reiterated this later in her interview with me.

Well, it kind of gives me a chuckle—this is the first class I've seen where everybody really wants to be involved in chat – and has an opinion—something to say, and sometimes you get a little bit off-task.

Marie also commented that the size of the class influences the effectiveness of an online discussion.

Oh, it was effective. Yeah, it was pretty effective. If you don't have too many students. I've been in others where you've got 30-plus students and you've got those threads—they're so long you can't keep track of what's going on, but that class size was 15-20 so it wasn't too bad to keep up with.

Jesse was pleased that his professor recognized that the size of the class might make the discussion difficult, and she broke them up into smaller groups for their conversations on the discussion board.

It was a smart idea for [the teacher] to break the discussion forums into small groups of three. It's a much more intimate type of conversation, and you don't run into situations where you feel everything has been said already as often. The downside is when you have people (like me sometimes) that get behind, it's hard to have conversations.

### Group work

Most of the participants found group work online to be difficult, although they noted that face-to-face it has some of the same problems. Don has experienced group work in classrooms, as well as online, and finds that there are similar issues.

I didn't find it any harder online than it was back in days when I had to work with groups. There were always one or two that you're trying to pull along. Sometimes it's easier online 'cause you can be a little more direct.

Some of the issues, however, were unique to the online environment. Students in this study were busy people, most of them with work and families to juggle. One focus group member pointed out that scheduling group work can be difficult when everyone has different schedules.

Especially with group projects. Everyone's going to have a different day of the week, or two days of the week, when they can work on things. I like a deadline so if I'm doing an online project with three different people in four different towns there's a day like Wednesday when you all have to have this thing done. Because it's too hard to work ... I've had groups where nobody else even got on and did anything. And then that's my grade, too.

Others in the group agreed. "I think a group project of any more than maybe two or three people is too hard to coordinate."

The students in this study were also highly motivated and felt that group work, online or not, held them back. Jill objected to having other people determine the speed with which she could complete assignments.

I hate group work to begin with, so I'm glad. I hated it in the local colleges, and I hated it in school. 'Cause in group work, you always have somebody that doesn't pull their share of the load. And I hate working in groups for that reason, and you're also dependant on other people's schedules, and other people's commitments and unfortunately I work 40 hours a

week. I have other things going on in my life and I don't have time to play with other people. I'm not a procrastinator. I want to get things done and out of the way, and I don't want somebody else pulling me down. And that's what has a tendency to happen when you do group work.

She found this to be enough of a detriment that it could actually determine whether or not she would enroll in a course.

To be honest with you, I wouldn't even take a course like that. And if [this university's] program was structured that way, I wouldn't even take it. That's just how against I am about group work.

### Time issues

Another issue involved in online communication is the time involved in a discussion. Members of one focus group expressed their frustration with the time lag between asking a question or posting a comment and hearing a response. "You know, we were encouraged to contact each other, but I still felt that, well, you know, you email somebody and then read their email the next day." Ryan made a similar comment on his anecdotal record.

"Discussion of key or troublesome concepts in [this class] is a slow process with the discussion board. Help or answers come too slowly."

He also felt that conversations weakened when responses to comments were slow in coming.

I find discussion boards to be lacking compared to live classroom discussions. You miss the flow of conversation and ideas. It seems to me to be disjointed. I really do not like them. A person is unable to defend their posts in real time—so the level of debate is limited.

Karen pointed out that the different schedules people held meant that some students finished reading and responding to comments before other students had even had a chance to join the conversation.

Many people seem to enter the discussions midweek. If we post comments later in the week, or on a weekend, no one much is there to discuss—kind of lonely for those of us who work all week and have to use the “off” time to post.

Janet, too, found that she was often left behind as others in her class worked ahead of schedule. “I find that I post something and everybody's already beyond me.”

Jesse was frustrated with the time it took to log on and search for discussion posts. He would have preferred to simply receive the comments as they were posted, in more of a listserv style than an online bulletin board.

I wish it could be more of a “push” model. In other words, when someone submits a posting to the threaded discussion, I would prefer it if it were sent to my e-mail automatically, rather than me having to dial up, logon, select the course, select the week, select the threaded link for that course, then do the same for the other course.

### Flexibility issues

Most of the participants in this study expressed that a major reason for choosing an online course had to do with the flexibility it offered them.

Vanessa found that the online discussions provided her with enough flexibility to organize her schedule around them with ease.

Actually, it worked real easy. I just had to log in once a week and check one time in the span of the week what the discussion was and put my input. Then I would check a couple times in the rest of the week and see if somebody responded to what I had said or if I wanted to respond to something somebody else had said.

On the other hand, Jill found that when posts had to be made on a regular schedule it tied her down too much. She wanted the flexibility to be able to work ahead and take a week off now and again.

Well the one thing I don't like about—it depends on how structured—one of the classes it was a specific date that you had to have your comment in. For me, the classes that work the best are the classes that have complete flexibility so they have all their assignments up front, what you need to do, and then you can turn them in at your flexibility.

She wanted to work entirely on her own, and had the motivation and determination to get things done in that manner.

To be honest with you, I prefer just doing everything on my own. When you get into those threaded discussions, a lot of times you're on a particular time-frame—they're more formatted. You had to have a response by such and such a date.

### Discussion

Interaction is so widely considered important it is assumed to be a basic need for learning to occur (Inman et al., 1999). This assumption has not, however, been supported with research. "[I]t is not clear from research or evaluation data that interaction improves the quality of learning in most distance education programs" (Kearsley, 1995). Participants in the current study indicated a desire for interaction with other students because of the support it provided, for social reasons, and for the varied viewpoints it represented, but not necessarily because they believed it was required in order to learn. They were highly motivated students and most thought they could work through the material effectively on their own. They did indicate, however, that good interaction with other students enhanced their learning and made the subject matter more interesting. It has been suggested that the most important form of interaction occurs in the mind of the learner (Berge, 1999), not simply in the act of interacting with others. Students in this study felt that interaction with other students could help them think more deeply about the content.

Kearsley (2000) has suggested that: "Students can easily connect with each other and their instructors through email and conferencing" (pg. 5). Participants in this study pointed out that this was only true if the infrastructure was in place and if there was full participation from the other students. In many instances, however, this was not the case and interaction with other students was not possible.

Participants also pointed to time-related issues that affected interaction online. McCabe (1997) noted that online courses are not free of time constraints. "Synchronicity, not time is abandoned in this environment" (pg. 291). As was noted by participants in this study, the asynchronous nature of the discussions meant that not all students were involved in a conversation at the same time. Effective group discussions can be difficult to coordinate because people can be at different points in the dialogue at any one time (McCabe, 1997). Different starting times can affect the ability to develop and maintain meaningful interaction because participants do not want to go back and revisit things they finished earlier to accommodate others who are behind and need feedback (Scott-Fredericks, 1997). On the reverse side, this was also frustrating for students who, due to responsibilities outside of class, had to join discussions near the end rather than at the beginning.

There were mixed reactions in this study as to the quality and depth of discussion on the discussion board. Vanessa felt that she spent so much time editing that her content suffered. A study of graduate students in online classes had similar reactions, that students felt accountable for every comment due to the written format (Scott-Fredericks, 1997). Others, such as Don, found that the extra time for thinking before responding led to more thoughtful responses. A study of online student expectations identified time for reflective thought as one advantage of online learning (Brace-Govan &

Clulow, 2000). A study of interaction in online classes (Nutter, 2001) found that the quality of responses in an asynchronous discussion was high, as evidenced by the number of responses and the depth of responses. There were 259 instances of students citing sources to support responses and more than one hundred active solicitations for responses from other students. The study found that students used their time to gather thoughts and details, researched their responses, and probed deeply into the responses of others (Nutter, 2001).

A variety of factors influenced participants' determination of the value of interaction between students in their courses. The chart below (Table 4) summarizes these factors, including those that participants found to be valuable, as well as those they considered to be negative factors, or costs.

<b>Student-student Interaction</b>	
<b>Values/Benefit</b>	<b>Cost</b>
Ability to show only what one desires	Having to divulge too much No visual feedback
Making friends Moral support Support with content / assignments Support with assignments Support with technology	Feeling isolated due to no interaction Being out-of-synch and isolated
Easy interaction with others Interaction with people in far places	No responses Poor participation Misunderstandings Long threads—can't keep track Group members not pulling weight

Table 4: Factors affecting satisfaction with student-student interaction.



<b>Student-student Interaction (continued)</b>	
<b>Values/Benefit</b>	<b>Cost</b>
Hearing other viewpoints Seeing personalities emerge	One-sided conversations
New perspectives	No new content
Stimulating discussions Thought-provoking	Superficial discussions Uninspiring prompts
Thinking more deeply about content	Discussion getting off-task
Getting ideas from others Feeding off one another	People copying ideas
Easier to speak your mind Less intimidating than face-to-face	Put-downs
Time to think before responding	Having to edit—make perfect Time lag Slow responses Disjointed conversations
Small group sizes	Too many messages Scheduling group work Being held back by others
Forum for asking questions	No mechanism for asking questions
(no suggestions offered)	Time spent checking discussion
(no suggestions offered)	Scheduled post times

Table 4 (continued): Factors affecting satisfaction with student-student interaction.

**Student-teacher interaction**

Participants in this study placed high value on interaction with their instructors, however, their focus was not on the need for high levels of interaction so much as on having professors available when they were needed. Students were happy to work on their own but wanted reassurance that they were doing the correct things, wanted answers when they were confused, wanted to hear back from instructors when work was submitted, and wanted feedback on the quality of their work.

**Acknowledging communication**

In some of the courses, students were pleased with the contact they had with their professors. Don had taken other online courses prior to the one he was enrolled in during the study, and he reported that in one of those classes the instructor was very responsible about staying in contact with students.

The instructor there was very prompt in acknowledging when you sent him something, be it an assignment or question or something—at least acknowledging he got it. So you knew that at least you had connected electronically. Not sitting there, wondering.

This was not the case, however, in the course he was currently taking. “This chap in [the university town], I sent him an assignment on Sunday and I haven’t heard anything back. I’m saying, ‘Hey now—did it get through? Did you get it?’” Eventually Don gave up on hearing from the instructor, and set up his e-mail to automatically inform him when his assignments had been opened. “And this chap never did that, and I’d have to send e-mails with a ‘send receipt’ when he opened it up so I’d at least know he got it.”

This was a common complaint among participants. They would send work in and it would disappear into cyberspace, leaving them worried that

perhaps they had not actually submitted it properly. Gail was frustrated after this had happened several times. "One problem is that professors need to get back to students. Just a message that says, 'Hey, I got this' so you know that what you sent got through." She had one assignment that she turned in several weeks ahead of time and never heard from the instructor.

I kept e-mailing. Finally I picked up the phone and called. My first question was, "Hey, are you alright?" Because if you don't hear anything that's what you wonder. And there's also no way to know if things went through right if the professor doesn't acknowledge their receipt.

On anecdotal records, this would show up in the "Incident of Frustration" column. Hannah commented on it during the first two weeks of class. "I hope the assignment made it. I wish there was a received notice on e-mails." And Vanessa worried about it for several days. On February 24 she noted, "I'm worried that the instructor did not receive a midterm," and by the 28<sup>th</sup> she had still not heard. "I'm still trying to find out if my instructor has received my test."

#### Instructor responsiveness

Participants also wanted to hear back from their professors in a timely manner when they contacted them by e-mail or phone with questions. When instructors were good about this, students noticed and pointed out that it made them feel more confident. Gail had one professor who was particularly good about this.

[One instructor] I've found, is the best one, and he will answer your questions within 24 hours....every day. Weekends, holidays. He always checks his e-mail and responds back, and he gives encouragement, and he gives instructive criticism without making you feel slammed.

On one of her anecdotal records, she noted, "[My instructor] answered my emails *twice* last night. We must be on at the same time!"

Marie also was pleased enough about this to note it on her anecdotal record. "The instructor responds quickly—grading discussion posts. Replies to e-mail within about 12 hours. I love this. He doesn't leave me floating in cyberspace."

Jill felt so strongly about this that she considers it to be a defining difference between a satisfactory course and one that is not. "The only other thing that really made a difference on the satisfaction is how good the instructor is at responding to emails."

Janet was satisfied with the way her instructor responded to her questions. "He's very ... very fast. And I think that's one of the things that makes the course satisfactory—is because he responds to his emails very quickly."

Emma, speaking of the same professor, agreed.

Always. Same day. Usually the same day or the next day at the very latest. Always does. He's very good about it—he really is. So he's on top of it, he's vested in what he's doing and you know that just by when he interrupts in the discussion board from time to time, too, so he is monitoring it.....

Despite the fact that Theresa was studying from overseas, she never felt out of touch with her professors. "My instructors are both timely and super-supportive in their email replies. I keep sending them messages, 'Is this what you want?' and they're both great!"

Shelly was pleased with her new instructor, because the previous term she had encountered a great many problems communicating with her professor.

I'm so happy with this one because she's very communicative, and I don't want a lot ... I just want an answer back. If I sent an e-mail it's nice to get an answer back. ....she always responds, and she has a good sense of humor and it's been a lot of fun."

Unfortunately, this kind of responsiveness could not be taken for granted. There were many times that participants were frustrated with the lack of response they got from instructors. Gail was disappointed that she could not count on a response in one of the online classes she was enrolled in during the study.

Well, that particular instructor I really did have a difficult time with .... I complained several times—he didn't respond to my e-mails; he wasn't responsive to my questions; he wasn't responsive to other students....

For example, they had a CD sent to them that *never* worked. She emailed for help six times with no response. In the end, she called and the professor told her to just take the midterm without doing the exercises on the CD.

Members of one focus group, after participating in several online courses, pointed out that “on campus, you can go to the professor, but online sometimes they don't get back to you. Some professors never answer their emails.” Don had this experience in his class during the study. “No, in fact, right at the start of the class I asked two questions via e-mail and never did get answers back on them.”

Sometimes students would receive responses, but only after a long delay. Ryan found this to be particularly frustrating, as he noted on his anecdotal record. “Slow responses from instructors to my e-mails. Requested one to call—never did. Increases anxiety.” Jesse had this problem as well. “I sent a note to [the instructor] about a week ago and haven't received any response. That's big time frustration.”

Gail was frustrated with the slow responses from her instructor. "When he finally does get back to you a week or two later, it's always....this instructor was very frustrating."

Students felt lost and unable to move forward when their questions went unanswered. Vanessa had trouble scheduling tests because of her inability to communicate with her professor. "Actually I have a question about one of them that I'm trying to find out—I was supposed to take a test this week and I haven't heard back what's going on with it—so I'm kind of up in the air about that."

When I asked Don what one thing he would avoid doing if he were designing an online course himself, his response was, "Well, I'd avoid ignoring my students. I would acknowledge that they exist, and if they asked a question, get back to them. Or if they sent something in, I would send an, 'I got it.'" Clearly, lack of instructor responsiveness was a major frustration for Don.

### Feedback

Another category of teacher interaction that participants were concerned with was that of feedback. They wanted to know if the quality of their work was satisfactory, and if not, what they needed to do to improve it. If feedback was not provided, students felt unsure of themselves and the work they were doing. This made Jill feel uncomfortable. "That's the only thing online is, I don't know what I'm doing and how it compares to other students."

In classes where instructors did provide feedback, as in one of Marie's classes, they had the comfort of knowing just where they stood.

My history teacher was wonderful about giving prompt feedback, and when he had discussions, weekly discussions,

he gave you a weekly grade ... the possible score was a 5, so that you knew that you had a 5 out of 5 or a 4 out of 5 or whatever. So that gave you a basis for where you were at.

It was very important to Marie to know where she stood, in part because this was the first time she had taken courses where she felt certain that her grade was based on the quality of her work, rather than being simply a "mercy grade" due to her handicap. Feedback from the instructors reassured her that indeed her work was of top quality. "So that was really good because I always knew where I stood in that class, and then, you know, what I needed to do to stay where I wanted to be."

As Marie pointed out, feedback did not always need to be extensive to satisfy the needs of the student. "He wrote two sentences. 'Splendid Marie. Thank you for your detail.' That's all I needed. Just, 'okay.' He thinks it's okay." Sometimes, however, additional comments were helpful, as she noted on her anecdotal record. "Received essay (hard copy) back from the instructor with comments. Tangible feedback is rewarding."

When essays were turned in electronically, they were sometimes not returned with comments as they would have been in a classroom situation. Ryan found this to be disturbing.

When getting my grade results from essays or papers I have e-filed I find I'm not getting the hard copy with comments from instructors. I need positive reinforcement. No comments leaves me feeling like I'm not doing well.

There were several ways instructors could provide feedback that satisfied the needs of students. In Don's class, feedback was planned into the design of the course as well as given one-on-one.

The class that was run as a sort of online seminar kind of class, there were just two ways. One, the instructor inserted

comments into the string of conversation, occasionally. And then also, at the end of an exercise when everybody had been commenting on a particular concept, he would personally provide you with some feedback as to were you on track, were you off track, "good thoughts here—did you consider this?" So it was sort of like having a one-on-one critique after the whole thing was over, so you get some real-time feedback...

In Jill's class, feedback on tests went to the entire class. "When he gives a test, after the tests are over he gives, which is really a great idea, is he gives a page explaining the ones that most people got wrong—what the correct answer was."

Janet liked the online exams that her instructor gave because the computer provided immediate feedback on how she had done.

That was very nice because BlackBoard corrected the test immediately, posted all our grades from previous tests, posted our average—immediately. So that was really nice. And also let us know what was the correct answer if we got one wrong, so we could go back and look. So I felt that was really nice. I thought that was very well set up.

Although this took the burden off the instructor for providing feedback to students individually, this particular instructor chose to remain in close contact with students through discussion and via e-mail. Students in this class were particularly pleased with the level of interaction provided.

Some instructors provided no feedback at all, and students found this to be disconcerting. Although Marie had one class with a great deal of prompt, helpful feedback, she had another that left her hanging in uncertainty. Because she was not in a face-to-face classroom, she felt she had no way of discerning how her comments on the discussion board were being taken.

But it's still the principle. 'Cause I'd never done these before and I'm used to doing assignments and getting grades in



return and at least this is where not being able to read the look on his face—if we had been in a classroom and we had been giving input I could tell by the grimace or the grin or the nod or the looks the other direction what he thought about what I said – but this particular instructor was not in the chat room with us. So I didn't have any idea.

This professor was not a participant in the online discussions and provided no feedback on the work she turned in.

I asked my teacher. Seven weeks went by and I never got any response how I was doing in his class until I got my midterm grade. And that's very disconcerting – you want to know how you're doing.

What Marie discovered, eventually, was that no feedback meant that she was doing fine in the class. The professor would only contact her if there were a problem.

And in the class where I got no feedback, it wasn't until I met the professor and I turned in my paper to him, and I said, well, I'm really grateful that you've met me and this is so wonderful, but I have to ask you one question. "Why has it been so long and I've got no response from you?" And he goes, "Marie, I thought you knew you'd met the standard."

This was not an unusual approach for instructors. No feedback is the equivalent of "you're doing fine." But for the students, that was not the message that came through. For students, the result was uncertainty and a feeling that everything they were doing was wrong. Ryan struggled with this throughout his course. "The only feedback you get is negative. I fear opening emails." This lack of positive feedback made it difficult to concentrate on and enjoy his online class.

I really do not like the lack of positive reinforcement. I have a negative feeling all the time—either real or imagined. It is distracting. This is a feeling that I haven't experienced in my first three years of school through my A.A. to now.

Hearing only the negative feedback also made it difficult to get to know the instructor, and to understand what kinds of things the professor considered in evaluating work. "You never get positive reinforcement. You get no clue to the instructor's idiosyncrasies—I have no clue how to read them."

Shelly also ran into this problem in the class she had taken the previous term. "You know the few times he did communicate it was usually negative comments." Even when the professor joined into the threaded discussion, the comments focused on what the students were doing wrong in their conversation. "You know, the few comments that we did get on a group posting were usually negative comments, so .... "

Shelly was delighted when the professor she had the following term turned out to have a much more positive approach. "And she says positive things and so far you know, I can't say a lot 'cause we've only been in it for a couple weeks, but it's so much better than the first one. I just really like it a lot better."

### Keeping informed

Participants appreciated it when professors kept them well-informed of upcoming assignments or changes. Don's instructor used e-mail to communicate with the students. "He used e-mail quite a bit so, kept us well-informed with e-mails and, and things like that." Other professors, such as Hannah's, posted information online. "One prof posts everything! Also you can view it and see when things are due!" In Janet's class, students were expected to check the announcements regularly to keep in contact with the instructor.

He asks that you look at the web page—try to look at it as often as you can because he does post announcements and any changes to the reading or the text. And usually it's

because he typed an error in the test or the text and he wants to go back and change that and let people know about the change.

Other professors were not so conscientious about keeping students informed of what was going on. Melissa shared an e-mail from another student asking, "Does anyone know the schedule for the next month? When do we meet on campus again, what courses, what about grades, etc." Her comment noted next to the e-mail said, "We all had these unanswered questions = frustration."

Sometimes professors provided misinformation, leaving students frustrated and confused. Students in one focus group complained of an instructor posting a syllabus and assignments from a previous term without updating them.

My instructor's hard copy of the syllabus and assignments was different from what was online. The online template was wrong. It had the wrong dates and even some wrong assignments... The due date was wrong, and we couldn't check on it. I spent a lot of time over Thanksgiving when I should have been with my family finishing my paper—and then the due date was wrong.

This class also was difficult for students in terms of understanding the instructor's requirements concerning assignments. One student spent many hours on a project that didn't meet the expectations of the professor.

And then in class the instructor showed a sample – "This is what I want." And it's so frustrating. Why couldn't they have shown that up front?

#### The professor as an integral part of the course

In general, students seemed happiest when professors were an integral part of the class, communicating regularly, participating in discussions, and helping students with questions on content and requirements. Jill liked it

when her instructors introduced themselves right off and let students know there were faces behind the courses. "Both instructors e-mailed me and welcomed me to the course—an extra nice gesture!"

Shelly, too, appreciated getting to know her instructor right from the beginning.

... she's been on, just right up from the get-go she was sending us e-mails to our personal homes greeting us, saying, "Glad that you're taking the class." Just really, really a congenial person and I think she sent me three or four at home before we ever even got started on the online part of it.

Don felt that the instructor's role in the class was an important component and added to the learning process.

I think there's more, because it puts a little life into it. And adds in some of the sidebars that you don't normally get by just reading textual material. The anecdotal kind of comments and observations and things that kind of, (1) make it more interesting, and (2) may help reinforce some concepts that you don't pick up when you just read.

Unfortunately, in the class he was currently taking, the instructor was not playing an integral role in the class. When I asked him if the instructor would elaborate on the text, he responded:

Only if a question was asked initially through the BlackBoard and so he would go into some explanation. Later on, for whatever reason he stopped using the BlackBoard and just went, if somebody sent in a question via e-mail and he would send the question and a response out to everybody and explain a little bit more, but that that would be it.

In classes where the instructor did not interact with the students, Don felt that having an instructor made no difference in how much he learned at all; he could have learned as well simply through the course materials. "In this

particular case, I would say, 'no.' 'Cause, again, there wasn't that much direct interaction—in other classes there have been."

When instructors had little interaction with students, the students felt like they were not learning as much as in a face-to-face class. Ryan was particularly frustrated, as these comments on his anecdotal record shows. "I think a lot is missed without lecture. I'm feeling lost and helpless," and later, "I'm finding these online courses as being too ambiguous. I *really* miss lectures with actual human beings. I am in constant fear of not understanding things or not doing something right. My G.P.A. is everything."

Theresa found that without a way of getting to know her professor, her comments might be misinterpreted.

I finished my first assignment. I'm afraid to send it as is because I can be very opinionated. I'm nervous that if an instructor can't put a face with a writing such as this, I will be graded down for being bitchy. This is a paper for a small class-size environment where the instructor can hear your voice as she reads your paper. For a lecture-size class, I regurgitate information. But psychology asks, or invites, points of view.

When instructors do not play a direct, integral role in the course students can feel put off and isolated. Gail interpreted her experience with one instructor this way.

I had the impression that this instructor was extremely busy, and he was just teaching class to be able to get paid to teach another class, and he was very qualified but he wasn't necessarily qualified to teach an online class.

Hannah had a similar experience with one of her professors and sums up her feelings with her comment, "I feel like I would be bothering the professor if I e-mailed questions."

### Discussion

Previous studies have suggested that direct interaction with the instructor is not a factor that distance students rate highly (Inman et al., 1999). This study would suggest otherwise. While students may not identify direct interaction as a high priority when asked, it is clear that when interaction is not available students become frustrated, irritated, and anxious. Lack of communication with the instructor led to feelings of insecurity in the students. As a study of computer conferencing in online classroom suggested, this might be a common problem in online classes.

It seems that online classrooms are particularly susceptible to communication breakdown due to the novelty of the situation and the lack of nonverbal cues to inform participants about the norms and expectations of communication (McCabe, 1997, p. 283).

Another study, exploring barriers to learning in online course, identified feedback and teacher contact as a one of seven distinct categories of problems and barriers identified by students (Galusha, 1998). Scott-Fredricks (1997) found that participants were not satisfied with the type of feedback they were getting from their instructors and that they felt isolated and neglected when they were not acknowledged by instructor as quickly as they were in traditional classrooms. She concluded that when learners do not believe they are receiving the appropriate type of feedback, their learning can be hindered (Scott-Fredricks, 1997).

A study of attributes contributing to student satisfaction levels in online courses found that students experiencing higher levels of interaction had more positive attitudes toward the learning process and techniques (Phillips & Peters, 1999). That finding would appear to be supported by findings in the current study, in which numerous positive comments and entries in anecdotal records were related to good student-teacher interactions and

many incidents of frustration were related to poor interaction between students and teachers.

Galusha (1998) points out that distance learning requires a collaborative effort between the student and the teacher. While technology now allows distance learners to have nearly the same instructional contact and interaction as the student on campus (Galusha, 1998), this can only happen if instructors are committed to spending the time necessary.

Clearly, distance education students need to replace face-to-face interaction with clear and high-quality communication focused on their assignments. Such a requirement places particular responsibility on their tutors to spend the time required to produce the appropriate level of written feedback (Tricker et al., 2001, p.174).

"It seems there is a critical threshold of leadership required of teachers to maintain the assemblance of a group learning situation." (McCabe, 1997, p. 187)

Participants' satisfaction about the interaction with instructors in their classes during this study was based on a number of factors, both positive and negative. The following chart (Table 5) summarizes the factors involved in student-teacher interaction that participants found to be valuable, as well as those they considered to be negative factors, or costs.

<b>Student-Teacher Interaction</b>	
<b>Values/Benefit</b>	<b>Costs</b>
Welcoming correspondence from the instructor at the beginning of a class  Friendly professors  Hearing professor viewpoints	Unavailable instructors
Prompt responses to e-mails/calls	No responses to e-mails  Slow responses  Unanswered questions
Acknowledging receipt of materials	No acknowledgement of receipt
Feeling in-touch	Feeling isolated  Feeling ignored
Prompt feedback  Debriefing on tests	No feedback  No comments on returned e-papers
Positive reinforcement  Support	Nothing but negative feedback
Clear assignments	Unclear expectations
Keeping students on track  Staying informed	Being delayed due to unanswered questions
Stimulation	(no comments offered)

Table 5: Factors affecting satisfaction with student-teacher interaction.



### **Course interface and navigation**

Comments by participants both in the interviews and on the anecdotal records related more frequently to the way the information was organized on the website than to the actual content. For the most part, students were satisfied with the information they were receiving, but often had complaints about what they had to go through to access it. As one member of a focus group put it, "I'd like to say, it was just the organization— not the content."

When I asked Gail what aspect she considered most important to keep in mind when designing an online course, she replied,

I think it's really important that the format and the structure of the course is really well organized because it's not like you can just raise your hand and just ask an instructor a question, so it has to be a little more organized. You can get away with disorganization in a regular class I think, because you always have some student who's gonna raise their hand and say, "Well I don't quite understand this," or whatever, but in a distance learning class something that's really important is that everything is in an organized format and everything is clearer. And the other thing is everything is clear right up front as far as what the expectations are and if there are due dates, what the due dates are.

### **Logical vs. arbitrary organization**

Participants all wanted to discern some sort of logic in the organization of information. Sometimes they were fortunate in finding this. As Gail put it, "Some of the instructors think in a very logical manner—here's all the information and here are all the links to it." On the other hand, sometimes the information was not organized logically, as in Shelly's class. "... it's helter skelter—it's everywhere."

There was no specific organizational style identified by the participants. Any style worked as long as the logic made sense to them. In one of Gail's classes, information was organized into folders that corresponded to information in her syllabus. "[My class] has several folders with files. Nice and easy to follow. Structured with the syllabus. Very well organized."

Emma found that her instructor organized information logically according to the content.

Even the way he lays out each piece within the text and how he organized it where the statutes go there, explanations underneath of them. Also, this means this, and then here's the scenario, and this is what happens, and .... what is your opinion on what they did and can you now take that and is it ok about what happens? ... did this teacher handle this correctly or not, and what did the administrator do? ... and what's lacking here and what's not lacking here and those kinds of things. And, how can you back that up? He did a good job—he really did. So in other words, you can actually argue the points.

What did not work well for participants was organization that appeared to them to be random and scattered. Gail was frustrated with instructors who put pieces of the work in under different links throughout the website.

... some of the instructors, you start here and they give you the information. Well, then you say, "Ok, where are the readings?" Well, maybe I'll look somewhere else. You look somewhere else—oh, here are the readings. Ok. Well, where are the assignments? So you look somewhere else. And it's like when you go online and you're trying to do a web search for something and you have to keep opening pages and opening pages. And, some people think in a more logical manner. And some people don't.

One focus group member complained that the instructor posted prompts on the discussion board illogically, so that the prompt did not relate to the readings the students were currently doing.

...like the last one really ticked me off 'cause—it was another class. I took one last term, and she's got the discussion things up, and she put one discussion question up, and I answered it right away and then she never put the next one up 'til, six or sev ... it was like seven weeks into the term, and we'd already read that material, and she put 'em up almost at the last minute and I'm one of those that, it's like, put stuff up ahead of time, let the students get the info, and...but I didn't appreciate waiting til the 8th or 9th week of class to respond to this material I read 6 weeks ago ... so, that was kind of annoying.

### Simple structure

Participants appreciated a simple interface without lots of bells and whistles. A simple layout made the course self-explanatory. Vanessa was pleased with the layout of the first online course she took.

Actually, I really like how they have it set up. I didn't have any concept of what a BlackBoard course was before I started this semester and I've been very pleased with how easy it seemed to be to use.

John also found that his course, using eCollege courseware, had a simple, easy-to use layout.

Yeah, I never get confused too much. It's pretty straight forward, it really is. When you first get there, it's got the two classes right there—which one do I want to do right now? You click on that, you go right there, everything's right on the site—click on it and, boom, it's right in front of you.

Students also preferred assignments that were logistically simple, rather than those with complex instructions. Several participants pointed to the read and respond assignments in many courses. As one focus group member put it,

I like the assignments where it's Read Part 7 and then post your response to the threaded discussion on the question that's there. I mean, it's really straightforward. You get your reading done, you write your response and then you go answer two others. I really enjoyed that part.

Focus groups members also pointed out that the sequencing of assignments was important in an online class, moving from assignments with simple instructions to those with more complex instructions in a step by step manner.

I think that the scavenger hunt at the beginning of the semester was fine. That was a fun assignment, 'cause it was pretty direct and simple, and it was kind of entertaining to do.

They were disconcerted, however, when future assignments made huge leaps in complexity, feeling that the earlier assignments should have been used to teach them the skills needed in the later assignments. Because they were working on their own, without direct access to assistance from the instructor, they felt the need for much more complete instructions and a slower approach.

Yeah, the thing I had trouble with was that, like you were saying, it was such a leap. We hit such a leap after the scavenger hunt in typical knowledge that I got way left behind. I was just like, whoa .... but my comfort level didn't come up as quickly as the content went ahead.

And another student pointed out that simply rearranging the order of assignment might have solved the problem, in part.

I didn't feel like I had enough information, and then that [other assignment], once you got to it, it was fairly simple, so maybe, if that one were earlier, to cut your teeth and then try to teach me how to save and start speaking technical speak, I don't really---aargh!

### Visible vs. invisible

One method students identified for simplifying courses was by making information visible, rather than invisible. Shelly was enrolled in her second online class during this study, and was disappointed that it was not as easy to find things in this term's class.

The first one was a lot simpler. It seemed simpler because you just log on and everything's right there, and you just click once and you see it all. With [the class this term] I feel like I'm on a treasure hunt because she'll say, "Now, you have to find these (what are they called) library reserves." Well we never had any of those library reserve things. [My last instructor's] was, you click on the week that you want to do your assignment, and everything you need for that assignment is right there—on that link.

All of the information and assignments in the course seemed to Shelly to be hidden from view, under links and buttons and more links.

For example, I found an area on this writing course that I didn't even know existed until today – and I go, "Oh, well, I'd better do this!" And here you think, I've been logging onto it since what, January .... I think my first login date was the 15<sup>th</sup> or something, and today's the 23<sup>rd</sup>, and I never even found that area? It took me that many days to realize?

Students appreciated when information was made visible in the syllabus at the beginning of the class. Rather than searching through links on the website, students were given a framework all in one place. Don found that this gave him a mental picture of where he was going with the course.

They did a good job. The syllabus was there and the assignments were laid out well, so he had a good path so you knew where you were going and when you needed to get there, so ....

Gail liked the way her instructor put questions to guide her reading right up front in the syllabus.

That's the one thing I like about that class is he gives you all the questions in the syllabus—these are the questions we're going to be asking over the term. Here's the book to read. This is the question you're going to need to answer when you finish reading this book.

She was not as pleased with the layout of other classes, however, when information she needed to access was hidden under layers on the website.

You'll have a list of announcements, assignments, all this other stuff, and in each one you can open—with some of them they're directly linked back and forth, but it'll have the same information but in some of them they don't—you have to know which one I'm in, which class was it, and which one had that [assignment] that I needed to find – and so sometimes there is a little bit of searching. You keep saying, "Now, did I do that? Have I finished that?"

In fact, the very first entry on her anecdotal record reflected this frustration.

Navigating the online information took forever to find the reading assignments (not included in syllabus). Not organized in a logical manner. Too much hunting. Felt like a treasure hunt but more frustrating.

Don had a similar experience in terms of locating the required readings for his course. Not only were they hidden under layers of links, but there were multiple readings for each week located in different sections of the course.

For each module of the class he had several readings that you needed to access and some of the times those were confusing as to, in particular, which ones you needed to pull off. You could eventually figure it out.

Janet was frustrated that the design of the web pages made it difficult to locate the links she needed. She could not see what was inside the different links, and logic could not tell her where things would be.

There is the main web page, then there's a link to a second web page, and I wish the link between the first one and the second one was more clear because I can't—I finally had to write things down, "Ok, on the first web page, if I click onto this (such as course description) that'll get me to the link that will allow me to take the test." And at first I was forgetting that, "Ok, which one do I push?" and I was going through all of those, 'cause I'm only working on the class once or twice a week. So the first two weeks I was trying to figure out, "Ok, which link will get me to this link so I can get to this?" And it

was getting really confusing. And I wish on the first web page it was more clear, maybe put a little link for tests that will take me directly to the test. That really messed me up at first.

Comments on Janet's anecdotal record confirmed her need for visible information. In the "Incident of Pleasure" column near the beginning of the course was the notation, "The announcements are posted on the webpage. I don't have to look for them." But nearby in the "Incident of Frustration" column—"Confused where the assignment section is on the web page."

Gail agreed. The locations of the things she needed to find were not immediately visible. She found it difficult to find things on BlackBoard. "Let's see, was that under Assignments or Course Materials, and then did I look under this or this?" She would much rather just have a packet with everything in it right at the beginning.

Members of the focus groups ran into similar problems in their courses.

For me it wasn't specifically just a particular assignment, but it's just the navigation for it, to figure out what assignments were due. On the left you had a threaded discussion—you had five or six different things, and there might have been assignments in three of them, and so you had to click here, and read this, and make a note of, this is one of the assignments. Even if they pointed to a website and said, "Here's the assignments," and then maybe a link to descriptions of them, rather than the navigation where you have, maybe on the left hand side or the left frame, you have maybe seven or eight different things and there might be assignments in three of them or four of them, finding them, then keeping track of which ones you've done, and which ones you haven't done.

Tracking assignments—which were complete and which were yet to be done—was a particularly daunting task when the assignments were not all

visible in one central location. Again, the focus group had much to say about this.

I think it could have been done—I think if there was some way where the assignments could have been listed ...and here's what's due. And some way for you to figure out which one's been done. It could have been done online, but I think the navigation was confusing.

One student even contacted the instructor for a checklist when he became overwhelmed with the task. Unfortunately, the course was set up so that units closed after a certain period of time, and even with the list the student could not go back online to see what was complete—it was hidden.

I was trying to get caught up, and one thing ... [the instructor] sent me a checklist via the email, and I still couldn't go through the checklist and figure out what I did, because most of it was closed and so the checklist was sort of pointless.

Jesse summed up this frustration with a single note on his anecdotal record. "Show me in one central place what is due when!!! Even one per course. Again, the structure where you have to click on 5 different areas for each course each week is very awkward."

Gail's frustration concerned assignments that were hidden beforehand rather than being closed out afterward. "Another thing that makes it hard is professors who dole out a little bit of material at a time." She would rather have everything up front so she can work ahead.

Another frustration identified by several participants was difficulty in finding the exams online. There was rarely a direct link to a test. Rather, the links were concealed within other links. Janet was particularly irritated with this.

....trying to figure out how to navigate to get to the tests sometimes was difficult 'cause there was nothing that said on the page, "Test", or "Quizzes" or anything. You had—"Ok, is it under communications?" So I'd click on communications. "Is it



underneath announcements?" I'd click on the announcements. "Oh – I found it!" And finally, I just had to write down on a piece of paper, "Test under discussion" or whatever. So there was nothing that said, "Take test here."

She brought this up several times in our interview.

I thought it was very well laid-out – the whole user interface. I just wish it had been easier to find the tests—where do I click on to take the test? I wish that was easier. But I think the interface was fine. I liked it. It was easy to check announcements and once you got in there it was easy to find his e-mail. I thought it was fine.

Gail had one final problem related to visibility. Sometimes the identity of the course was not clear. This was due to the fact that she was taking more than one class, and two of the courses were very similar in content and used the same BlackBoard interface. Without the context of a classroom, it was confusing sometimes to remember which class was which. "Being online, one problem is that it takes a while to sort out which class is which, because some of my classes are similar."

#### Making mistakes correctable

Some of the online courses were designed to be available only for a limited time. As students completed assignments and moved through the course, units locked behind them so that they could not return to work on them, or even to look at them. Students found this extremely frustrating. Participants in all of the focus groups commented on this issue, indicating that they had expected to be able to go back and look at past units—even if it was too late to turn things in.

There were some units where I didn't get to look back and see what the final comments said, and then when it did occur to me two weeks later, then the unit would be closed. So it would be kind of cool to be able to go back on a final sweep.

This had the function of keeping students to a specific schedule, which caused problems for a number of students. John was frustrated with this design choice during his first term of online classes, but his instructor for the current class was leaving the course open for review all term. He was pleased with the control this afforded him.

Some say this is not available after this date or before this date. And then, this term they're leaving it on all through so that's great. There's still due dates when everything's due, but they're leaving it on so you can go back and make sure you did everything.

Gail felt that this was a poor design choice because it failed to encourage students to learn from previous assignments. "Those things can get discouraging 'cause most classes build upon each other and you should be able to go back for your research ..."

Janet was pleased that her course units stayed open so she could go back and review materials at her leisure before taking her exams. Since her exams were based on application rather than recall, the course was left open so that even during exams she could go back and rethink the information.

Well, I think what aided my ability to learn was being able to go back and take my time and reread things just before the test, and while I was taking the test if I wasn't sure about an answer I could go back and reread it and find out, "Oh, ok, that's what's wrong" and I could correct myself.

She was frustrated, however, that as soon as a test had been opened, it would lock up so she could not re-enter it, even if she opened the wrong test by mistake. This had some logic, since professors might not want students viewing test questions ahead of time, but it failed to accommodate her need to confirm whether or not she had completed an exam. Since there were a number of exams in the course, this became an issue.

Unfortunately, once she had locked the exam, it took several days to arrange for access again.

I think what made me really frustrated towards the end is that I tried to go back and check to be sure that I had done all the tests, because being away from the web for a few days, I try to recall, "Ok, did I take Chapter 7?"— so I'd go back and check and the BlackBoard will not let you go back into a test. If you go into it and even if you don't answer any questions, once you check out that's it—you're out. And so I accidentally locked myself out of a chapter and that was really frustrating 'cause I was all ready to take the test.

In each of these cases, participants were frustrated that the design of the course did not allow them to return easily, or at all, to review materials or assignments, to see other students' work, or to correct mistakes.

### Cumbersome design

Many of the comments from participants focused on ease-of-use of the course websites. Unfortunately, a number of issues could lead to a course that was cumbersome to work with.

Gail became frustrated with a course design that led to dead ends, forcing her to go through the entire logging in process again.

...that was the one where I was trying to take the personality test and I got stuck in it and then used the escape, escape, and it won't let you out of a certain web page. Well, this was research on a web page and I finally had to just close everything down and start all over. It didn't make it easy for me to get back into where I wanted. When you log back in, you had to bring up BlackBoard. First you have to turn your computer on, then you have to go to the [university] website, then you go to BlackBoard, then you have to log in. So you type in your login, then you have to type in your password ... and then you have to log in, then you have to wait for the page to load, then ... once you're in BlackBoard and you're logged in, then you have to pick your class. So you pick the

class, then you have to pick the section of the class to find the assignments—and then if you're unlucky, you get booted off.

Jesse did not like the use of frames on his website because each frame held so little text and, each time he scrolled down to view more, his computer took valuable seconds to reload the screen. He noted his frustration on his anecdotal records.

Navigating the frames for the website. It takes so long on a dial-up connection that it's a major pain. Show me the whole assignments at once so I don't need multiple clicks where I see three lines of text each.

Karen also became frustrated with the slow speed of her computer. "The posts load so slowly, every time I finish reading one!"

Several students commented on the amount of reading they had to do online. In general, participants preferred to read hard copies, and would print out the text rather than sit by the screen to read. This caused certain problems, as is described by a member of one focus group.

... the other thing I really didn't like was all the online reading. It was really tough 'cause I don't like to read online, and I could take a very long time to print out the reading assignments. Twenty-some odd pages of reading assignments. That was a lot.

Gail was researching a class as a potential summer term course but was concerned about the amount of reading she would be expected to do online.

And the other thing I notice is going to be a problem in her class is the massive amount of material—is all stuff that you have to read on your computer. Well, to sit there and try to read through twenty pages of information is going to be a pain.

Gail noted a similar frustration on her anecdotal record, suggesting that with so much printing to do, perhaps the option to purchase the materials in a

packet would be appropriate. "BlackBoard is not well organized. Difficult to find the next assignment. Lots of stuff to print. Reading assignments; how come they weren't just sent as a packet?" In one class she had to print out 60 pages. As she pointed out to me in an interview, she'd be happy to pay \$15.00 for a pre-printed packet. Printing it out uses up ink cartridges, which cost \$39.00. And ...it's frustrating to need the material at night, have to print it out, and then, woops, my cartridge is out."

Gail also pointed out that she needs to print things out because she often needs to refer to things as she is working and on BlackBoard it's hard to find things. "Let's see, was that under Assignments or Course Materials, and then did I look under this or this?" It would be easier to simply have a packet with everything in it right at the beginning.

Other participants were discouraged that the course did not take into account that students would be printing and have a design with that in mind. A note on one anecdotal record complained: "The mid-term test is due in a few days! I wish I could print the web notes in B&W to save some colored ink."

Gail had a similar complaint with her online class.

[This class] uses aqua-green text in all the materials. 100-plus pages of text ate away at my expensive color print cartridge. The instructor wasn't thinking on that one. Black text is cheaper to print out.

She pointed out that the designer focused on the online interface, adding in unnecessary graphics and color that, while attractive online, slowed down the printing process and wasted expensive ink.

I would say that the print was kind of a pain and they also have ... unnecessary pictures. Like you had [a graphic] across, which looked kind of cool. But again, when you go to

print all that stuff out, it's kind of needless stuff that's getting printed out. I prefer just text.

Don, also enrolled in the class Gail was in, pointed to the same problem when I asked him what worked well and what did not work well with the course interface.

When materials are put on the web for reading materials, I think they either need to be put on in plain text, without any cutesy graphics, or there needs to be a printer-friendly kind of option so you just print out straight text. The material that was posted on there was great if you were going to read it on the screen, 'cause they had a light-colored background and blue text. But then you'd print it out and it would take forever to print, as opposed to just, hey, all I want is black and white printed out as fast as I can get it and then in straight printer format—and I don't need a cute [graphic] across the top.

A member of one focus group pointed to the cumbersome nature of the discussion board on the BlackBoard course.

I think there were a couple places where more than one threaded discussion showed up in the same unit and that was difficult for me. 'Cause it's easier to have one threaded discussion with the different drop-down menu items, because then you remember, "Ok now I've got to go check," but with two threaded discussions it was, "Which one was I in, oh man," and it just was a matter of—once you're inside a threaded discussion it's much easier to move around the menu, ....

Karen also noted that maneuvering through the threaded discussions was less than simple.

Awk! There's no quick way to get back to the main discussion when you have finished reading all of the entries along one thread—another experience of the cumbersome quality of the board.

Gail ran into difficulties with proctored exams because of her geographic location. She believes that not all states are up to speed in terms of services for, or even familiarity with, distance courses. There were no

testing centers in her state, and finding a proctor was a major problem. Once she had located someone to do this for her, she had to coordinate the scheduling of exams with her proctor, her instructor, and her own work schedule, acting herself as the middle-man.

Ordering exams from my instructor, making sure they get to my proctor and scheduling them with my work schedule and my proctor's work schedule is a major headache! The larger the number of exams, the greater the headaches! Also, the more rigid the exam dates, the greater the headaches.

Melissa was annoyed that her instructor expected her to send things in via the U.S. Postal Service rather than simply sending an attachment in an e-mail, and she noted it in her anecdotal records. "Why not just e-mail? Snail mail = more work = frustration."

Comments from participants suggested they preferred that the course interface not interfere with the tasks and assignments they needed to complete. There were few complaints about course materials being too difficult to complete, but many complaints that access to the materials was cumbersome.

#### Design that works smoothly

Participants were concerned that the interface run smoothly, free of design glitches that might slow them down. Aside from technical problems, which will be discussed in a later section, problems they encountered were few. Hannah ran into problems with currency, finding that her instructor had failed to update materials that had been imported from a previous class. At the beginning of her class she noted on her anecdotal record, "The profs are not updating their website from last term," and a little later, "Prof posts quiz and due dates from last semester!" She was also hampered by her

inability to access all of her classes from her homepage. "The student homepage does not transfer to all classes."

Gail had problems with links that did not work properly.

Yes, and then he had different links where there'd be four or five sections underneath it, and I know a couple of them at the beginning of the class weren't really operating correctly—he had to fix a couple of those. But again, he's trying to work with something that was already previously set up.

For the most part, however, students were pleased that the course interface worked smoothly and as expected. As Ryan noted on his anecdotal record, "The digital drop box on Blackboard really does work well!" And Gail was pleased that she rarely ran into problems with her courses.

That's why I've continued in the program—everything about their distance learning program has pretty much run smoothly. I've found very few bugs in their program.

### Discussion

The course interface and students' ability to maneuver through the course affected the overall experience of participants in this study. Other studies have also found that the learner interface is important to the learner's experience (Berge, 1999).

Many of the issues raised by participants in this study mirrored design issues outlined by Donald Norman (1988) in his book, *The Design of Everyday Things*. Norman points out the tendency for designers to hide key elements in order to improve the aesthetics of a design, with the result of making attractive products that are difficult to use. He stresses that things that are important to attend to should be visible and clearly marked.



Norman also discusses design in terms of people's natural tendency to make mistakes. He claims that designers do not take error into account, and as a result they make it easy to err and difficult or impossible to discover or correct mistakes. In fact, the reverse should be true. Designs should make it hard to make irreversible mistakes, while making it easy to *undo* common mistakes. Norman identifies two kinds of errors: slips, which are due to automatic actions and are often the result of poor design; and mistakes, which are due to conscious decisions and are often the result of poor instructions. In either case, design improvements can reduce errors. Design changes can also make it easier to correct errors when they do occur, by providing immediate feedback when an error is made, and by providing ways to undo errors (Norman, 1988).

Participants made many references, both to factors that hindered their access to information and to those that aided them. Because they were working in isolation, they felt that the course interface needed to be more user friendly, instructions more detailed, and course elements more visible than they would need to be if access to assistance was more readily available.

The following chart (Table 6) summarizes factors related to the course interface and navigation that participants found to be valuable, as well as those they considered to be negative factors, or costs.

<b>Course Interface and Navigation</b>	
<b>Values/Benefits</b>	<b>Costs</b>
Well-organized	No organization Several threaded discussions in a single unit
Logical design Predictable	Random
Simple layout	Too many links Dead ends
Everything visible on website	Can't find things—treasure hunt Assignments hidden in links No direct links to tests Use of frames that limit amount seen
Everything visible in syllabus	Doled-out assignments
Central location with due dates	No way to keep track of assignments
Plain text with no cutesy graphics	Distracting high-tech features Printing colored text Unnecessary graphics
Easy and inexpensive to print	Too much reading online Too much to print
Class packet with all printouts available to purchase	Lack of coordination between different aspects of course (syllabus, readings, assignments, video, etc.)
Runs smoothly	Long download times Bad links
Straightforward assignments Complete instructions	Complex instructions

Table 6: Factors affecting satisfaction with the course interface.

<b>Course Interface and Navigation (continued)</b>	
<b>Values/Benefits</b>	<b>Costs</b>
Assignments that build on one another	Leaps in complexity
Access to back units	Being shut out of assignments/units
(no comments offered)	Similar classes—no context

Table 6 (continued): Factors affecting satisfaction with the course interface.

## Flexibility

I found, in my interviews with the participants, that I was talking to a highly motivated group of students. This was perhaps a reflection of my selection process, which relied upon volunteers, and also possibly a reflection of the distance education student body in general. Students' descriptions of themselves often highlighted this characteristic. As Gail told me:

Oh, I'm sort of an A-type personality. I really like to get on it and get things done and if I can get through it and just check it off my list—ok this class is done—we still have four weeks left in the term but that class is done. You don't have to wait for the lectures to finish the class.

Jill described herself similarly. "Yeah, overly motivated. I drive the ... advisor of the program nuts, 'cause I'm very motivated with it and I'm very intent on finishing it ..." Shelly, too, was a motivated student. "I'm really motivated. I'm actually excited about working toward my degree—I've always wanted to go back to it."

Most of the participants seemed to think that high motivation, organization and determination were necessary ingredients to success in an online program. Don had watched younger, less motivated students struggle in some of his earlier classes.

I think it takes special breed of student to be able to be successful in distance learning—certainly have to have that self-motivation and dedication to that. And I think there's a lot of students that think, "Oh, well, this is a cake walk, you can just ..." Especially in that biology class, which was attracting a lot of the undergraduate students who were taking that 'cause it was the only one they could fit into their schedule—and found out that it actually takes more dedication than it does going to a regular classroom.

Because the students in this study were highly motivated, they could take advantage of the flexibility of an online course and, in fact, desired that flexibility.

### Importance of flexibility

Flexibility was important enough to students that they looked for it in advance to ensure that courses they enrolled in would be flexible enough to meet their needs. Jill selected classes that had the kinds of assignments that were less likely to have hard and fast deadlines.

... that's what's really nice about [this university] is that you can go online and you can find the syllabuses of the courses online, and what the requirements of the course are and then you can pick and choose what's not going to be too heavy of a course load. So for example, if one is writing four papers—it's a writing intensive course—that's easier for me to work with when I'm going to school than when I take one that requires six exams. Being able to get online, look at the syllabus of the course, and saying, "OK, I can take this course with this." You can combine courses that ease up on the workload.

Marie searched for classes that provided the flexibility she needed to work around her family's schedule.

I purposely chose courses that I needed with the exact same three instructors, only different courses because I have already set the bar, and I could predetermine whether they were going to be flexible or not because I knew my husband had a trip in June and that worked out well.

Don's work schedule was such that he could only be in school with a highly flexible class. "Well it was very important, because it was one of the reasons for taking a distance learning class is to fit it into your work schedule."

Emma looked for classes with flexibility because it allowed her to work when and where she was most comfortable.

So, that's the glamour and the pull for me with the Internet piece, was that I could do it on my own time—do it where I'm used to studying. I have test anxiety big-time, so it's kind of nice since I'm in my own space where I normally study, and it's just part of what I'm doing. And the environment, took care of my—for me, anyway, it lowers my anxiety.

Not all of the participants required flexibility in their classes, though they appreciated when it was there. Marie could often work with a less flexible class, but she was careful to plan it into a term when her lifestyle could accommodate it.

I would say it's of average to medium importance. It's definitely something I consider, but if I had a required class that I had to take that I know couldn't be flexible I would just try to plan out my schedule so I took that during a term where it wouldn't impact my family. I'm taking certain things in the summer because that's when I'm not schooling my children. So a lot of that comes into the planning stages ...

Of the participants in this study, Janet was the most able to work with inflexible classes. With a relatively calm lifestyle—no family, no job, and only two classes—she would have had no trouble fitting a rigid schedule around her life. “I think because I was only taking two classes this term ... the flexibility to me was not terribly important. It was nice, because I could work it around my schedule.”

### Flexibility fits lifestyle

For the most part, students in this study had very busy lifestyles. Fitting classes in on top of families and jobs required some creative scheduling. Prior to the beginning of their first class, focus group members expressed concern about this. “Well, there's the whole time commitment—not sure what it will be. Fitting it in the schedule—I'm sure I will adapt, but I'm kind of nervous.”

Since Jill works full time, her only choices for schooling are night classes or online classes. Online courses offer her the flexibility to make school, work and life fit together smoothly.

The other thing is that it's much more flexible than going to school at night, as far as my lifestyle. I work a regular Monday through Friday job now but as far as my lifestyle goes, I can pretty much carry on my own life ... I can go on vacations, I can go and do things and the distance learning program works around that because I can either work ahead on the program ... sometimes I've finished the courses two or three weeks early and then I may go on vacation, I can take a vacation in the middle of the program, in between exams, because I'm not physically going to class.

Vanessa was busy with a young daughter at home and a husband whose schedule was heavy. She needed the flexibility to work around their needs.

Mostly the influence on my satisfaction or dissatisfaction with the course actually probably has nothing to do with the course—is how I can seem to coordinate all of the stuff I need to do in my life and still get a decent grade?

What she discovered was that the flexibility also accommodated unexpected changes in her schedule. Not long into the course, she noted a surprise trip on her anecdotal record. "Flying to Missouri to visit family for two weeks. Wouldn't have been able to if in traditional class setting." A few days later another entry revealed more changes. "Studying a lot. Found out that I'm going to Cancun, Mexico for a couple of days next week. Love being in a distance ed program!!!"

Flexibility was necessary for Don because his daytime schedule was demanding. Fitting courses around his daily work routine would have been nearly impossible.

But the other piece is schedule, and being able to work independently around what my schedule is—which is pretty demanding here—and trying to be able to fit classes into that, and the flexibility to either delay doing something or speed

things up, knowing something's coming up—plus I travel quite a bit so it allows me to do things while I'm on the road or connect to the Internet with my laptop ...

With the flexibility of the online classes, Don was able to fit most of his studying into evenings and weekends.

Most of it's in the evening and weekends—most of it's in weekends, but occasionally I get some time at lunch. I spend a half hour, and I really need to do some reading or go back and review some notes or something, but this job around here's not very conducive to doing anything except this job, so it's usually if I'm sitting here somebody pops in with some problem... so most of it's in the evening. Couple hours I try to dedicate in the evening, and then pretty good blocks of time in the weekend.

As he pointed out, without the flexibility available in his online classes, going to school would not be an option for him.

Yeah, I couldn't, schedule-wise, be able to fit it in, just wouldn't be able to do it. And, so this gives me the flexibility to be able to manage my schedule and manage their schedule to some degree, but I have flexibility to get there, which in a structured classroom situation wouldn't happen.

#### Flexibility allows working ahead

Because they were motivated students, many of the participants wanted to start working on their classes early and push ahead of schedule. Jill generally tried to start her readings well before the term began.

Well, 'cause you can get the syllabuses online at the website so all you have to do is order the textbooks, download the syllabus and you can get a jump-start on the reading assignments.

She was pleased this term to find that both of her online classes were available early to accommodate this, and she noted her pleasure on her anecdotal record.



Both classes had their web site up and running so I could download and print out the class materials before the term officially starts and I can devise a study plan to keep me on schedule—nice.

Starting early and working ahead of time allowed participants to adjust for time periods when they might not be available to study. Gail lived in a small town in the mountains. When her computer crashed, which it often did due to virus problems, she had to drive it 50 miles to the nearest repair shop and was often without her computer for up to a week at a time.

...each term I've had at least a week of down time with my computer. And that's why I've been trying to be ahead—so that if that happens, that I don't miss deadlines, 'cause you can miss a deadline, then you get your grade lowered and ....

Marie was able to accommodate a family vacation because her course was flexible enough to allow her to complete her final exams ahead of schedule. "And on this particular term my family intends to go to Montana on June 7. Finals week is June 10 so I'm going to pace everything so I take my exam by the 5th."

Don had a work-related travel schedule to accommodate and was able to work ahead in order to avoid getting behind on assignments while he was gone.

March I'm gonna be on the road, and so I'm scheduling and pacing myself right now to get at least a week ahead in both classes. ... so I don't have to, when I'm on the road, worry about school stuff. And that's the other flexibility of distance learning, in that with a regular classroom situation you wouldn't be able to do that without missing something key, possibly.

Don found that even when classes had assignments with deadlines, he could often work ahead on the reading and studying, and sometimes he could complete assignments early and hold them for the deadline.

I think, even working ahead, because most of them have some heavy amount of reading, so at least you can get ahead in the reading and note taking and stuff like that, and recognizing some of the assignments may be due later but that's alright. I can stack them up and have them ready to go.

He was able to stay well ahead in both of his classes, which eased the stress at the end of the term.

... with the [one class] I tried to be about a week ahead throughout the course. The other, I was three or four weeks ahead in that one... And again, I did that primarily 'cause I knew I was going to be gone for a week, so I wanted to get as much stuff done and out of the way so when I came back, the only thing I really had to do was study for the finals,....

Vanessa was worried initially about coordinating all of her activities and pacing herself through the class, but as the course progressed, she was pleased with her pacing. "I'm working ahead in all classes." This worked to her advantage when her surprise vacation came up. Not only was she already ahead of schedule, but she also had the flexibility to work from any location.

It was wonderful. I studied in Missouri on a different computer and then I left the five days for Cancun and then came back and continued working on my stuff for finals, and it was very ...that's something I could not have done if I had been in regular, attending classes, so that was wonderful.

Jill preferred to work ahead of schedule rather than working on the road as she traveled. "...I travel internationally, so I usually can't ...I could but I don't usually like to turn in assignments when I'm out trekking in some foreign world."

#### Importance of timely materials

Because students were often trying to work ahead of schedule, it was important to them that all the course materials be available when they were needed. This often became a problem for them. Gail found that not all

professors were prepared for their students to be working on an accelerated timeline. Even the task of logging onto a class for the first time required more time than some professors provided.

They wait until the last—some of the instructors are procrastinators, rather than .... You're supposed to be able to access it as much as 10 days prior to the beginning of class so you can get on. You have to get on, you have to log in, and you have to set up the classes. You can't just go in—it's like you can't just walk into the classroom and say "I'm present." You have to physically go into the BlackBoard, and physically be present to be counted. You can't just turn it on and say, well how come I'm not there? If you don't activate ...

Without being able to log onto the course, she could not even begin looking at materials or scheduling her time. Don wanted to work ahead to be ready for a road trip, but that meant having the materials available to work on.

And then, also, knowing that I was going to be gone for a week, and so I had set my schedule so through most of the class I wanted to be at least a week ahead, so I needed to have things available to pull down when I wanted them ...

Gail was frustrated with one of her classes because quizzes and assignments were not available when she needed them.

... there are quizzes that you have to take. Well, I haven't been able to access the quizzes 'cause she wasn't expecting anybody to do them in the first or second week and I said, you know, "I'm gonna be gone for a week"—I'm going to Salt Lake City and so I want to try and catch up, because I don't want to get behind when my computer crashes and I'd rather get things done ahead of time ....

As Gail's anecdotal record shows, this continued to be a problem through much of the course.

1/23—Sure wish [my instructor] would get the rest of the quizzes online so I could get ahead before I go out of town for one week.

1/24—Leave tomorrow for trip to SLC—would like to take homework with me but ...—no more assignments online yet.

1/24—... assignments for next week not online yet.

2/10—Ready to take the quiz ...—it's not ready yet! It is next on the syllabus but the last one on the syllabus is available—have not prepared for that one.

2/11—...—got e-mail that quiz would be posted today. Still not available.

2/22 Next assignment not yet available for [my course]. Wish I could get it done.

Gail pointed out that another thing that makes it hard is professors who dole out a little bit of material at a time. Without having everything up front, it is difficult to work ahead.

Another issue that affected the flexibility of classes for students was that several instructors shut down access to parts of the course after a certain period of time. Units were only available for a limited time. This was frustrating for one member of a focus group because he was not only starting out a new course, but at the same time he was starting out a new job.

I had my most busy time during the first 3 weeks. And then the units got cut off. And I was just thinking, gosh, I've had this just one busy time, with a new job and I'm going to fail because of these three weeks—and I think I'm ok now . . . but it's just . . .

John struggled with his busy schedule, and it took him some time before he figured out a system that would work for him.

I wasn't very organized last term going into it. And what I mean by organization is keeping track of what I have already done and what haven't, because I did fall behind. You know I would go back and I'd try to click on it and it would be taken off, and I was like, I don't know if I did that or not, you know...

### Flexible instructors

Not only was it important to participants that the structure of the course be flexible, but also that their instructors be flexible. Theresa was pleased that her instructors were willing to allow students to turn in assignments on their own timeframe. "Both of my instructors are excellent, I feel, at having flexible due dates to accommodate people like me who are also working ten hours a day. "

Jill had problems with the course interface in one of her classes, and she didn't have the time in her schedule to deal with the problems. When she went to her instructor for options, he was willing to accommodate submittals in another format.

... I had one course where the website was just a mess, but this was before the new BlackBoard came on, and I told the instructor, "I'm tired of dealing with your website," and I said "do you mind if I e-mail this stuff to you." And he's like "yeah, no problem." I said "your website's just got a mess of bugs in it, and I just don't want to deal with it." And he's like "yeah, no problem."

Melissa had problems with her computer and was pleased that her instructor was willing to make adjustments. She made a note in the "Incident of Pleasure" column on her anecdotal record. "Professor flexibility in taking late work due to computer problems."

Vanessa had conflicts in her life that made it impossible to take her exam at the scheduled time and was pleased that the instructor was willing to accommodate her needs.

I can't take finals this week and I tried to get a hold of one of my instructors and it was really easy and he was like, "No problem" and I'm taking it, both my finals that I have left on Monday of next week. And the other instructor I haven't got a hold of yet, so I'm hoping it's ok.

Not all of the participants were fortunate to have such accommodating instructors, and when they were not flexible, students became frustrated.

Gail was not allowed to work ahead in one of her classes.

...one instructor I had a difficult time with because, it shouldn't matter when I turn the assignment in, but he said "No, you may not turn it in until this date." You know what? I'm busy this date. Could I please turn it in early? NO. You have to turn it in by this date. No earlier and no later. He gave me a window of two days.

Jill was unhappy with her instructor because of his unwillingness to let students take tests early, and she noted this on her anecdotal record.

[My class] has three test dates that are locked in stone and the instructor doesn't like you working ahead of schedule. Somewhat defeats the purpose of the flexibility of a distance learning program. I can understand him not allowing me to take the exam later than his dates, but I can't understand him not allowing me to work ahead. Frustrating.

She was concerned that the instructor for her other class might also be inflexible.

I don't know if the instructor for [the other class] is as rigid with exam dates. I'll find out next week. I hope not. He has two exams. Frustrating even thinking about it.

Jill also complained that one of the main factors hampering flexibility was deadlines. A few deadlines were acceptable, but weekly assignments made it difficult. She did not mind having set dates for her exams, as long as there were not too many of them. "...the midterm and final for that was very strict on a date, which was fine. That doesn't bother me because it's halfway through the class and at the end of the class."

She did however, object to the threaded discussions that required input on specific days.

Another one had it where it was, on certain dates you had to have it in, and that was a little more structured for me. So sometimes they'd put it on like a Friday—had to be in by Friday and so here you are, running around work, doing other things, and then you had to go home, type this in—you know, write it, type it into the computer, make sure it was on that discussion board by that Friday. So, the more structured the dates, I don't like them as well. But it works, but the more flexibility I have in the program, the happier I am with the course.

Even when postings were not required on a specific day, but were instead expected on a regular basis, Jill was not pleased.

I don't like when it's a weekly. Those threads are usually a weekly discussion board, or every two weeks discussion board. The exams are only twice out of the ten-week period. So, if the exams are structured that's not a problem for me, however, if I've got to do something every single week, every Saturday I've got to have an assignment in, that's kind of a pain.

As far as Jill was concerned, the fewer the deadlines, the more satisfactory the class.

For me the classes that work the best are the classes that have complete flexibility, so they have all their assignments up front—what you need to do, and then you can turn them in at your flexibility...”

Vanessa, on the other hand, thought that deadlines might have been helpful for keeping her on task. “Yes, I, actually I think if there were regular deadlines it might have been easier for me, but my classes were very lenient. So it almost made it harder.”

### Self-pacing

Courses that had all materials available from the beginning and did not have regular due dates gave students the flexibility to work at their own pace. Some students loved this, as Ryan's note on his anecdotal record

pointed out. "Working at *my* pace is great. I can get ahead which gives me peace of mind. 'Going to class' when it's good for me is a plus!" Hannah noted a similar sentiment. "The great thing about Distance Ed is you can work on what you want. Just finished [one class]. I like the fact you can work at your own pace."

Shelly liked the sense of independence it gave her to be in charge of her own timeline.

... well, I think mostly it is the independence and privacy that I like. Being able to pick the time that I want to do the homework, and I can go at my own pace. I just feel a sense of independence from— that's why I like to take all my courses.

She also found that knowing she had her own time frame freed her from panicking when she ran into computer problems.

Like tonight, I got on there to check and, the computer crashed three times. So, I have to restart my computer. Now it doesn't usually do that that many times, so that was frustrating, but I just have gotten to expect that with computers. And also, if you were at a crucial point, or a critical point in something you'd get really mad, but when you're home and you can say, "Oh this stupid thing" and get up and go and have a cup of coffee and come back—I don't think I have that much problem with technical—it doesn't frustrate me as much, I guess, is what I'm saying.

Having a completely flexible time frame allowed Emma to finish the reading and exams for her class in the first two weeks of the term.

...this offered me some flexibility as to when I got that particular course done, so I wasn't locked into a time, and as many courses as I take, cause that made seven—I had to figure out where would I fit one more course if I could, so I'm on the fast-track for the [degree] program.

Janet, who was enrolled in the same class found the loose timelines to be somewhat disconcerting.



At first the self-paced got me worried a bit because other students were going by so fast. I mean, if you wanted to you could finish the whole thing in just three days I think—the whole course.

She also wondered about how effective the learning could be when everything was done in such a short time.

Are you really going to get that much out of the course by cramming at the beginning or the very end? And I almost think the very end would be worse 'cause you look back, read other people's stuff, and just sort of take stuff out ... it's just not as meaningful.

For some, self-pacing was difficult. Vanessa had a hard time staying on task without a more rigid schedule.

The biggest problem I have is the fact that it is completely, self-initiated. I tend to do really well when I have certain things that I have to do every day, and this is, I can either do one class, take a week and get it done, or I can pace myself, and I have a problem with staying on task.

She also had a hard time finding a study schedule that worked for her.

With lecture classes that I've attended, you have a set lecture class and then usually I would study afterwards. It was just kind of a pattern. And it made it easier. But this was completely self-motivated so to try to figure out—I still haven't figured out a set time that works to study. It's pretty much if she was taking a nap, or if she was asleep or, no consistent thing at all, and I have days where my husband was home and days when my husband was not home and I tended to get more done when he wasn't home.

Her anecdotal record confirmed her worries. "Work is piling up. Difficult to keep up with reading."

Veronica was the only traditional undergraduate who responded to my request for research volunteers. She was happy to help, and promised to keep anecdotal records and interview with me during the term. I became

worried as the term progressed that the flexibility of the course might not work well for Veronica. Each time I tried to set up interviews, she had conflicts that kept us from meeting. Eventually I received an email explaining that she had not yet actually started working on the course. "I am so sorry. This term has been crazy. I haven't really even done much on my class website since it's not all due till the end of the term anyways... Maybe I'm not cut out for this! Sorry."

I tried to keep up with her through the term but she did not communicate with me, and I assumed that she had given up on the course. I was wrong, however. At the end of the term I received this happy note. "i'm sorry i never responded! Life was crazy in those last few weeks of school. I actually did all the work for my online class in the last week of school and got an A!"

### Discussion

Participants in this study indicated that flexibility was one of the most important characteristics of online courses and was often the primary reason they chose online classes over traditional. Many other studies have had similar findings (Brace-Govan & Clulow, 2000; Rittschof, 1999; Roblyer, 1999). In a study of student responses to distance education (though not online), Pettrachi (2000) listed ten benefits of distance courses identified by students. Nine of those benefits focused on flexibility, including the following factors:

- could look at class whenever they wanted;
- more than 1/2 said biggest benefit was the scheduling component;
- remote students said viewing at home where they were comfortable was a distinct advantage;
- working where there were no distractions;

- required self-motivation, which they believed might help them learn more;
- could watch when in peak mental condition;
- fitted around work schedule;
- time flexibility;
- sense of control over learning environment (Petracchi, 2000).

Three of the five drawbacks identified also focused on issues of flexibility, and included the following:

- difficult to stay motivated and focused;
- easier to fall behind;
- temptation to leave lectures until the last few weeks (Petracchi, 2000).

A number of studies found, in fact, that flexibility was the number one factor related to course satisfaction (Cooper, 2001; Tricker et al., 2001; Roblyer, 1999) and rated even more highly than interaction, technology attitudes, or logistical concerns (Roblyer, 1999). One suggested reason for this is that busy adults with many responsibilities have a greater need for the flexibility in order to coordinate their schedules (Christensen et al., 2001; Scott-Fredericks, 1997). Traditional student who are focused on school rather than family and work commitments may have less need for the flexibility online classes offer. Flexibility, while accommodating busy schedules, can also result in procrastination (Scott-Fredericks, 1997). Participants in the current study showed little inclination to procrastinate, but instead worked ahead of schedule. This was perhaps because all were older-than average, busy adults. The one 21-year-old student who began but did not complete the research process was the only traditional student in the study, and the only one who indicated issues with procrastination.

The following chart (Table 7) summarizes factors involved in course flexibility that participants found to be valuable, as well as those they considered to be negative factors, or costs.

<b>Course Flexibility</b>	
<b>Values/Benefit</b>	<b>Costs</b>
Syllabus available ahead of time for planning	Course not available prior to the start of class for planning purposes
Quizzes and assignments available when students are ready	Quizzes and assignments not available when student is ready
Allows following own timeline	Being tied to others' schedules People out of sync on discussions due to flexible time requirements
Ability to work ahead for absences Ability to work around work schedule Ability to work around family needs	Course doled out a bit at a time
Ability to work at own pace	Hard to stay on task due to flexibility Weekly scheduled assignments that don't allow flexibility
Flexible due dates	Hard and fast deadlines
Flexible instructor	Units cut off so students can't return
Able to work from any location	(no comments offered)

Table 7: Factors affecting satisfaction with flexibility.

### **Hardware/software issues**

Technical issues, while mentioned, were not the greatest concern of most of the participants. Students often took problems matter-of-factly. "...that was frustrating, but I just have gotten to expect that with computers," was Shelly's response when her computer crashed several times one evening. Jill noted a similar sentiment. "I expect glitches in the websites and how they link things—and that's just computers." They seemed to accept it as part of the price for taking a distance course. As Gail explained to me, "So, I think the technical part has been difficult, but, on the other hand, it's a lot nicer than driving."

While students were willing to accept certain technical difficulties, they were frustrated when the technical issues could be easily avoided. Their comments about hardware and software fell into several categories: technical skills, technical support, technical issues in courseware and course design, computer and server glitches, and computer system and compatibility issues.

#### Technical skills

Because of her previous experience with computers both at work and at home, Gail felt that her technical skills were advanced enough to allow her to complete an online course without major problems. She was comfortable with a variety of software, and felt capable of doing most of the troubleshooting that might be needed. "Yeah, I mean I can't fix the computer when it breaks ...."

Other students were less sure of themselves. As a member of one focus group pointed out, "No, between my computer problems and my lack of

skill, my learning curve was—you're starting up here, and I'm starting down here, so..."

The class that focus group members were taking was particularly demanding in terms of technology, and they did not feel that it was designed well for teaching them the skills needed to complete assignments.

Yeah, the thing I had trouble with was that ... it was such a leap, we hit such a leap after the [first assignment] in typical knowledge, that I got way left behind. I was just like, "whoa," .... But my comfort level didn't come up as quickly as the content went ahead. I think that there was a hugely, just really from my knowledge and comfort, it's almost like this class could have been broken into two courses so you could get a more advanced feel of doing more sophisticated things once you kind of cut your teeth on some smaller steps.

Although Jill ran into certain technical problems in her courses, it was never anything she could not deal with. She noted that it was not just the students who needed to improve their skills with technology.

... you can tell the instructors are also playing with it 'cause occasionally [my instructor] will write a note on the announcements, "This file's not opening right, if you have problems with it, I can't get it to operate." So, the instructors have— just coming up with the new technology too, and they're having just as many problems, I think, as we're having at the other end.

She was also aware, however, that her experience and comfort with computers was more advanced than that of many other students. She wondered if some students would be less capable of coping with technical problems.

So, I went around this new website. The new program they've got, the BlackBoard program, is excellent, and it's got less bugs in it, and it works much nicer. But, I could see where people that are afraid of computers would be afraid to get on the program because you do have to go in and out of files, you do have to download files. Most of the instructors are now

coming up online with different types of files, which sometimes creates a little bit of a glitches. I had PowerPoint files I had to download for this semester, and I've never dealt with PowerPoint files before, so that was a new experience for me. I had to figure out how to download them, and then how to run them on my computer, so I could see if somebody is totally afraid of computers then it would be a turn off for the program. In fact I've mentioned it to people and admitted—I say “online through websites on computers,” and they freeze up, ‘cause they’re afraid of websites and afraid of the computers. But I've had minor glitches on the computer. Most of the stuff I can get out.

Gail had the same experience. She felt comfortable with the PowerPoint assignment, but knew she was experienced and wondered about other students. “If students don’t know how, they’re stuck.” They were also expected to download pictures from the Internet for the class, but with no instructions.

Marie had difficulty getting started in her class. While she was able to solve some of the problems on her own, some of them required instructions that were not provided for her.

I did have quite a few computer issues getting started with this. I know enough to trouble-shoot some basic problems if my computer goes down, and use your basic word processing program... that kind of thing. But I had a little difficulty using the interlibrary loan and things like that at first, and accessing those different programs.

Marie also had some unique issues due to her disability. As she noted on her anecdotal record, “Disabled student uses DCE to avoid campus mobility issue, but needs adaptive keyboard because I keep losing info—hitting keys by mistake.” She explained to me in an interview later that her hands would occasionally move involuntarily, causing her to hit random keys. “Ok. Well, I would go to push Preview and accidentally my hand moved and I pushed cancel and I lost a whole lot of work—it was on my psychology journal.”

While this was frustrating, Marie's instructor was understanding and flexible enough to accommodate her needs.

Instructor compassionate about keyboard problem—extended deadline, but I didn't need it. Learning that advanced planning and getting assignments done earlier appears essential to resolving potential computer issues.

### Tech support

When students had technical problems they could not solve on their own, they often believed that it was because no training or instructions had been provided. Shelly felt that she was on her own when it came to figuring out how the course worked. When I asked if she thought she had had enough training to get started, she replied:

I don't—no, not really because it was all mostly self-taught, but I gleaned a lot of information from my friends because we were all in the same boat, and I have some really nice, nice people that I've been in this cohort with.

Janet also felt alone in terms of learning the courseware and familiarizing herself with the website. "[T]here was no support, unless I e-mailed him. I felt that I had to basically teach myself the BlackBoard, which was not difficult. Just getting used to it, you know, that was it."

Don had very good experiences working with his instructors on technical issues.

The instructors themselves were very adept in the distance learning discipline, if you will. And very responsive—were able to help students trouble-shoot technical problems they were having, or at least direct them to the right place to get it resolved.

When Marie became frustrated with technical problems, she turned to Computer Consulting for assistance.



But [Tech Support], and this is a real pet peeve for me, I think I wrote it down. They clearly have some people that really know what they're doing, and they have some people that keep you on hold for 15-20 minutes while they look up the answers in books. And while they're trying really hard and I appreciate their dilemma, and I even feel for them 'cause I've been in that situation before. I don't think they should have them answering the phones unless they're really prepared to be dealing with those kinds of things.

It took her several phone calls to find someone with the knowledge to help her solve her problem.

I said, "Please do not relate this back to the last person that dealt with me, but you cannot be having someone answer the phone who keeps me on hold when I've got two children for 15 minutes to look something up in a book. It doesn't matter how well intentioned they are, I don't have that kind of time and I'm already frustrated calling you."

A note on her anecdotal record reiterated her frustration with the technical support.

[Tech Support] is very "desirous" of helping, but they have a chasm between people who "want" to help but need more training, and actually "can" help. Called three times to get knowledgeable help without offending person that had to put me on hold a lot to "look up" answers.

Marie also found that the technicians were not always in tune with the course schedules and the needs of the students. She noted her frustrations on her anecdotal record:

I am still needing to access Discussion forum and BlackBoard service technicians have an announcement posted, "BlackBoard out for servicing 3-17-02." What are they thinking? We have finals and journals to post. Oh my G\*\*! I am angry.

Her note on 3-16 indicates the problem was resolved. "The BlackBoard Service has been rescheduled. Good!"

One positive outcome from working on technical problems with little or no help was identified by Shelly, who was initially quite disappointed with the level of support available.

...and yet, even without any help from him verbally I was able to walk, to get through the problems with contacting my friends that were taking it and they helped me, and I just figured it out, and it made me feel good about myself. I just thought, "Wow, I did this!"

### Courseware and course design technical issues

Technical issues varied significantly from course to course. It is important to note that most of the courses in this study required a very low level of technical skill because they did not make use of the many options available through the courseware. For the most part, the courses required only navigating through the website, following links, downloading files, and participating in threaded discussion. The courses relied heavily on reading texts, discussing them, and taking tests. The one notable exception was the Internet for Educators course taken by members of one focus group, which required students to practice numerous technical skills and use a variety of software.

As Jill pointed out, some courses ran smoothly, while some had numerous problems.

I can tell right off the bat if I'm gonna have problems with a class or not, just simply if everything runs smoothly at the beginning, and that's where everything usually falls apart, or is working well is at the beginning.

She found that, for the most part, the courseware she was using worked well. "The new BlackBoard website runs smoothly and is much better than the old one. The old one had too many bugs and was a pain to use." This did not mean that she never ran into problems.

No way. Technology—but even I get frustrated with my own computer sometimes, so nothing runs perfect on a computer. And, especially when they changed, they put the new BlackBoard website up and—you've got instructors that are just becoming familiar with computer technology.

Don had very good luck with the courseware. “[I]n fact, even BlackBoard itself I think was pretty stable .... I don't think there was any time that I ever tried to get on the BlackBoard it wasn't up.” Vanessa noted that the functioning of BlackBoard seemed to be dependent on the computer system she was using. During part of her course she was visiting family in Minnesota, where she had more difficulty. “More difficult to work on the BlackBoard with new computer.”

Other problems had to do with the design and set up of the course elements as opposed to the courseware in general. Gail had problems getting online initially because things were not up and running as they should have been.

...because they hadn't activated it correctly. So I had to do several phone calls and finally they said, “Oh, we didn't turn it on yet.” We can turn it on. And so that was a difficulty...just getting started.

Don also found that parts of his course did not work properly. He told me good-naturedly, “Unfortunately one of the links he sent doesn't work, but ...” This was not the only time there were technical difficulties preventing access to materials.

...he also had some web, nuances of, there were a couple of readings he had trouble getting posted and for some of us that were trying to work ahead 'cause we wanted to go skiing for a week, it was kind of frustrating 'cause it wasn't out there yet, and we wanted to get it, but ....

As noted on his anecdotal record, other glitches plagued him through the course. "Page not found on link provided by [instructor]," and later, "Part of document will not display."

Vanessa had similar problems, and simply gave up on the website, relying on supplemental materials instead.

....trouble accessing some of the files—I couldn't get them to download but I just ended up getting the same information from, or sufficient information for my assignments from just the books.

Gail had technical difficulties with peripheral materials. For example, she was sent a CD that never worked. After e-mailing for help six times, she finally called the professor who told her to simply take the midterm without doing the activities on the CD, which was some sort of interactive game.

Gail noted her frustration with this several times in her anecdotal records.

2/2—Ready to load CD for [class]. Has obscure instructions. Not sure what CD is for. Will try to discern.

2/4—Still trying to load CD. [Instructor] finally mailed some instructions. They didn't work either. Some discrepancy between / and \ on instructions.

2/6—Frustration—still cannot download CD info. Got four more e-mails from instructor.

2/10—Still have not resolved the CD problem.

Various other technical problems irritated Gail throughout her courses. At one point she had problems opening one of her tests. "...couldn't open results of quiz. [Instructor] sent it from Mac—I have IBM." On yet another occasion, she found her self trapped in an assignment. "[F]ound assignment. Did assignment. Got stuck in assignment. Had to escape out and log in again to get to next step in assignment."

Sometimes students had problems with accessing the course itself. Marie was frustrated when she got kicked off the system in the middle of an assignment. "Typing journal for Psychology on discussion format. BlackBoard kicked me off system. Lost 1-1/2 hours work." Hannah experienced a similar problem and noted her frustration on her anecdotal record. "BlackBoard is down and I am trying to take a test."

Don's experience with an earlier class affected his ability to keep up with the work.

There was a period of time there, that they had some serious technical problems where you couldn't even get onto their—they didn't use BlackBoard but they used something similar to BlackBoard—and there was about a week and a half that they had serious problems and impacted your ability to get things done, in which case it started putting you behind. And so that was highly frustrating.

In Shelly's class, because images did not load properly, she was unable to see the student work that had been posted.

No, I just never saw. I mean, I saw—it's kind of hard to explain, but I saw a little bit of it, but I never saw all of the students' [projects], and I know they must have ....and he was supposed to activate the JPG images or something because when you turn on their [project] all you'd see was that little image—you wouldn't see their actual picture that they meant to put on there—it wasn't there.

Don was surprised and frustrated that the system was not designed to communicate between different parts of the course. When he had to change his e-mail address, the new information had to be input in a number of different places, rather than in a central place that communicated the new information to all the relevant fields.

Well, when they went through that and I had to change my e-mail address at [the university], I went in there and went into the student profile, and it's got, you put in your e-mail address

and I thought I was all done, and then I got a note from [the instructor] saying, "I can't get through to you," and apparently you also had to go into the [university] network ID and change that, too. I said, "Why don't they stop each other?"

### Computer and server glitches

Students sometimes had problems with their own computers. As Gail noted, "It's really difficult if you get behind, especially if you have a technical problem where your computer doesn't work." Because of problems with viruses, she had to contend with computer crashes on a regular basis.

And, my computer has had a problem with crashing and if it's down, it's down usually for 5 days, because usually I do a lot of my work on the weekend, and if it crashes on a Saturday, I can't—the computer store is not open until Monday. It's a 50-mile round trip for me to take the computer to the computer store, so I can't just drop it off and wait. So if you drop it off, wait a day or two, then get somebody to go pick it up, then bring it back, then see if the problem's solved. By then my window of time for the class is done.

Hannah's problem was not with the computer itself, but with the power to the computer. "Power went out. Don't know what to do!"

An issue mentioned more often was that of server problems. As Don pointed out, "The struggle distance learning will have for some time, and particularly outside of the [valley], is the Internet access speed." Although his own server was having no problems, he attributed this to the fact that he was located in a central, metropolitan area. "Yeah, so I haven't been having to deal with a dial in .... and slow dial in, at that. And, so I know that's an issue in outlying areas."

Many of the participants had dial-in connections, which tended to lead to more problems than found with cable connections. Several focus group

members lived in outlying communities where cable was not available and they struggled with their connections. "Dial up connections, if you're going to do a computer, I mean, if you do this online search class, dial up connection is going to be very frustrating." Even a fast modem did not necessarily solve the problems. "Mine was a 56K where we were at, that didn't really work either."

Emma found that her dial-in connection disconnected her occasionally, particularly if she was inactive for a short period of time.

I have ProAxis and it's a dial up so it can click off and I hate that, 'cause I took an economics class this summer and all his tests were online—I mean, the course wasn't online but the tests were and it clicked off a couple of times and thankfully he always, "Okay, yeah, I'll boot you up and get you. I'll clear you and you can do it."

While Gail did not have too many problems with this herself, a fellow student complained of getting kicked off the server.

One student was having some problems—I think she uses the public computer—and she was having problems getting kicked off. Or, different servers, if you're only on for so long and you're not doing something active—if you're reading, they don't consider that being active and she'd get booted off and she'd try to get into the discussion board and think about what she was saying—and if you're not quick enough she would get booted off and .... So I said, one thing to do is you can write it in Word and then copy and paste.

Ryan relied on a dial-in connection in his remote location and was frustrated when the entire server went down. "AOL in [my region] was down. Couldn't get online for two days—not [the university]'s fault but still a problem."

Vanessa also had several server problems, particularly while she was on vacation during part of the term.

...but I did have some problems in Missouri. I used different connections and stuff, I had problems getting kicked off and

so I had to do a lot—wait and do a lot of my stuff when I got back here but that was my choice to go down there, so ...

Her anecdotal record shows a pattern of server problems.

1/9 —Unable to log in to Econ class.  
 1/12—Problem fixed, able to log in.  
 2/12—Server problems. Unable to log on  
 2/13—Server problems. Unable to log on  
 2/18—Server problems. Unable to log on  
 2/22—Working with a different computer and server. It's taking awhile to get everything set up.

Melissa's difficulties had to do with the server at work, where she was trying to study. Because she teaches in a public school, the computers are set up to deny students access to certain sites. This, however, made it difficult for Melissa to complete her assignments.

Sat at the computer at work and literally cried. The Mac at work is connected to its own server in the district. Saving files/ downloading/uploading is not always easy due to firewalls that are supposed to block certain websites from the eyes of students but end up not letting teachers do what they need to do. The Mac also has AppleWorks and had trouble reading Word files. Also, I tried to attach a file to my Hotmail e-mail to send a simple text file to my instructor and it would not attach. I then tried on my PC at home (I had to retype the document at home—long two pages) and it worked. I could not even find a way to send the file from my work e-mail to my home so I would not have to type it again. And I consider myself computer savvy!

### Computer system and compatibility issues

Other issues arose when students' computer systems were not new enough or good enough to handle the course requirements. As members of the focus group pointed out, "If you don't have a good system, or your school won't provide it, it's just frustrating." When I asked them if they were told ahead of time what the minimum requirements would be, I was told, "They



told us the minimum system requirements, but minimum is truly minimum. It runs, but you waste a lot of time.” One member described how she was slowed down by an inadequate computer.

I know that, on my computer, it worked fine for everything until we hit HTML, and it wouldn't work, and then I was searching desperately around, trying to find a computer that I could use that would allow me to do the assignment. And that was horrible. I went through four different computers before I even found one where I could even do the assignment. By that time I was really frustrated and upset, and I thought I was just stupid. But then I would ask and then they would—so the instructions we were given wouldn't work until I had a computer where they worked, and then they worked. But by the time I got to that point I was, not very—I was just, like, “I don't understand, I don't get it.”

In general, they seemed to prefer simpler course designs that did not create problems for computers that were less than ideal. “There are lots of toys—lots of bells and whistles. But if your system's no good then it's just frustrating.” As one focus group member noted, “One person said they had video conferencing and all that, but if you're going to do it for everybody, you're going to have to go to the lowest computer ability.”

Another focus group member complained that the software and computer requirements were such that he had to invest in upgrades after the course had started.

That's really hard because, online, to do online assignments like the web browsing, it's an online assignment, and you have to do it, but I had a really hard time with it, and I ended up putting out a hundred dollars—not only for MS Office, but I had to buy a cable that, because I was spending, literally, come home from the office and spend the rest of the night until 12:00 trying to keep on the computer, trying to reconnect when I got cut off or when my screen froze, or just ...

Another member pointed out that her system had been adequate for her needs until she began taking online courses.

Oh, I think it was because I was online more. I never realized that my screen would freeze up while I was on the web so often, but, and it was either that it was my server, or my computer couldn't handle too many applications open, or. ... So it's given me a lot of incapacabilities.

Vanessa was unsure whether the problems she had were due to an inadequate computer system, or if the problem lay with the server.

All the ones that I tried to access and download, I would download and then it wouldn't bring them up so I didn't know if it was a problem with my computer or with just not being able to access it.

Marie's frustration stemmed from the fact that her instructor had a computer and software that was older than most of the students' systems.

Instructor wants us to cut and paste and use older word processing program. Only new programs can be purchased. The quality of my transmission will be reduced because our system capacities differ. Long delay ... no response yet. Must have too many papers to grade. Feel bad for instructor and self.

Marie was also frustrated that the courseware her class used was unable to read the codes in her word processor.

....I typed my psychology journal into my Microsoft Works. I like to use bold and italics and long sentences—so, I used to be an English major, and it looked real nice, but I go to transfer into the BlackBoard and it deletes all my bold. It deletes all my italics and all my underline and it rethreads the whole thing. So what looked beautiful now looks like trash.

She recognized, however, that the problems she was running into were likely to be the same types of problems that her instructors were encountering.

...and I can totally see where the distance thing has to be hard for them, too, because everybody that's sending them stuff has different computer capabilities and I'm sure they're getting e-mails like, "Did you get the attachment, did it open?" That tends to be a problem. 'Cause my professor could never open any of my attachments because he had an antiquated system.

Some compatibility issues may have been simply due to a lack of experience of either the student or the instructor. Melissa noted an "Incident of Frustration" when she received a note from her instructor stating, "The document was saved as htm not html. I can't open this version. Could you try sending it as a Word document?"

### Discussion

Participants identified a large number of technical issues that caused problems for them during their courses, but none of the students indicated that the problems were overwhelming. In an exploration of the student experience in online courses, Carswell et al. (2000) reached a similar conclusion. "Students are surprisingly tolerant of technical problems—as long as they are resolved" (p. 44). As they pointed out, "Fast and empathic problem-solving is crucial to preserving the student experience" (p. 44). They noted that it is dangerous to underestimate the amount of technical support that is necessary (Carswell et al., 2000).

The current study indicated similar feelings. While participants expected a certain number of technical glitches, they became frustrated if they were not corrected quickly. This frustration was echoed in a study by Scott-Fredericks (1997), who noted that, "It was vital to a positive learning experience, that technical difficulties be taken care of quickly before the student became too frustrated" (p. 140).

Scott-Frederick (1997) also pointed out that students differed in their ability and willingness to deal with technical problems.

Though some were not able to overcome technical difficulties, others diligently refused to let their frustration get the best of them and by employing various strategies were able to evolve to a veteran CMC learner" (Scott-Fredericks, 1997, p. 145).

She offered no suggestions, however, for why some students persist in the face of difficulties while others give up. She did note that, "If too many obstacles were encountered in the stage of Mastering the Technology, the participant never evolved to the stage of Mastering the Process" (Scott-Fredericks, 1997. p. 138). In her study, two participants who never mastered the technology did not finish the course (Scott-Fredericks, 1997).

Another study of barriers to online learning pointed out that the use of electronic media can inadvertently exclude students who lack computer skills, causing problems for non-technical students. The author suggests that if distance learning is to be successful, technical barriers must be made a non-issue (Galusha, 1998).

A major concern related to time lost due to technical problems. If the problems persisted to the point where students got behind in their work, or could not make use of the time available in their schedule, participants complained. In a study of online classes, McCabe (1997) also found that time issues were connected to technical problems.

The teachers also complained that the week long orientation was not adequate to prepare students for academic discussion online. Consequently, they felt that they lost time to technical issues during the first few weeks and recommended extending the orientation period for new students (McCabe, 1997, p. 292).

The following chart (Table 8) summarizes factors related to hardware and software that participants found to be valuable, as well as those they considered to be negative factors, or costs. While the list of costs is much longer than the list of benefits, this does not indicate that costs outweigh benefits. Students simply want the technical side of their course to run smoothly. Unfortunately, there are a large number of issues that can potentially keep that from happening.

<b>Hardware and Software</b>	
<b>Values/Benefit</b>	<b>Costs</b>
Enjoy computer challenge	Learning technology AND content
Technical support	Poor tech support Lack of technical skill Course requires leaps in technical skills Instructor with poor computer skills Getting behind due to tech problems Time lost due to tech probs. No training No instructions
No technical glitches	Technical glitches Frequent bugs in courseware

Table 8: Factors affecting satisfaction with the hardware and software.

Hardware and Software (continued)	
Values/Benefit	Costs
No technical glitches (cont.)	Elements not activated Bad links Images that won't load Files that won't download Dead ends Computer crashes Lost connections / Internet provider down Out-of-order Compatibility issues Course elements that don't communicate with one another Power outages Slow Internet connection speeds Slow download times Firewalls that block access Bells and whistles that require top-of-line computer system Inadequate computer system Cost to upgrade system / buy software
Ability to problem-solve with other students or the instructor.	(no comments offered)

Table 8 (continued): Factors affecting satisfaction with the hardware and software.

### **Support systems**

Interviews with students and comments on anecdotal records indicated that certain factors influencing students' satisfaction or dissatisfaction with an online course were not directly a part of the courses they were taking. Rather, they involved support services that were peripheral to the actual course, and included a variety of university departments, the DCE (Department of Continuing Education) office, the library, the bookstore, and testing centers.

#### University support systems

All of the courses included in this study were connected to departments of continuing education. It was important to students that things run smoothly for them, and the DCE office helped this to happen. As Marie pointed out, "Without DCE, those of us middle-aged would never get a real second chance. So if our parents didn't provide the first one, we are stuck. This opens up a whole new world." Marie found the office to be particularly helpful.

Especially in the advising department. And making sure that all of my units transferred in and counted for something and then I had a clear plan of how to go from where I was to where I needed to be—they've been really good about that.

She felt that the personnel in the office went out of their way to be accommodating, which made the distance education process much easier for her.

DCE advisor very knowledgeable. She focuses on my goals instead of her goals for me. I am so grateful. I have called her so many times—changing my plans or with confusion issues and she is never anything but encouraging. The DCE staff overall are very competent and strive to make the program work. I think this is why it does work.

While Marie was frustrated with the lack of assistance and competence in several of the departments with which she interacted, the DCE office was always helpful and in tune with the needs of distance education students. On her anecdotal record she noted her pleasure. "By contrast, DCE [staff member] very knowledgeable and goes 'beyond the norm' to be patient and pick up the slack for other departments."

Students also appreciated support the university provided by communicating information about the distance education program to students. For example, Jill was pleased that the university had a system in place for making course schedules available online.

So I kind of try to sequence the courses and [the university] puts out—at least they've been semi-good about putting out their course schedules two semesters in advance, or three semesters in advance.

She noted also that a class she was taking at another university had entire syllabi online, which was even more helpful to her planning efforts than the schedule alone.

One of the classes I'm taking this term coming up is from [another university], and they publish their syllabuses online for the upcoming semester. They actually publish all their syllabuses online, which is kind of cool.

When she compared the two universities, she noted that one had taken steps to make the planning process easier for students, and she appreciated that.

The only thing that is a big difference is they make it much easier—they actually have a whole section on their website of just syllabuses, so you can actually look up every course they offer what the syllabus is and what the course entails. [This university] doesn't have that available—easy access. You have to really research it on your own.



Don noted that one college where he had taken classes actually had a separate course set up for students who were new to distance education, providing them the orientation information they needed to get started.

...but I know in [the community college] they had a kind of orientation course for new distance learners to walk them through the technology and how the classes work and things like that. To tell you the truth, I don't know if [this university] has that or not, I don't pay attention ...

Marie found that campus support services were an important part of her experience with distance education. She noted several instances on her anecdotal record where departments on campus not directly connected with distance education provided her with the assistance she needed to complete her online courses.

Disabled services coordinator very helpful; providing resources and aid to access adaptive equipment.

Writing lab helped me redirect issues on an essay. For instance, English teachers like one format, other departments' [professors] like another. Person helping gave great tips on how to accommodate both in different approaches to writing.

Financial aid treats DCE students just like campus students. It means so much to me that they never tire of my questions (however dumb) and help me achieve my goals, too!

### Library

Karen was delighted that enrolling in online classes gave her access to the university library. "I love having access to the [university] library! Love it!" Through the Internet she could search the holdings, view electronic documents and order articles.

Marie also used the library, but was frustrated in trying to work with the Interlibrary Loan office. On her anecdotal record, she noted, "Seek ILL

documents. ILL office unable to be reached. Just get message machine. Phone call and two e-mails not responded to."

Part of the problem was that Marie had not used Interlibrary Loan before and was unfamiliar with the procedure. Instructions were not provided to help her through the learning process.

I had a 12-page term paper due at the end of the term and I didn't know how to get the books or the articles from [the university] to me. And then when I finally figured it out, I got a page when I printed it and it said 21 of 148—I thought I was getting charged \$21 times 148 pages, and I just about went through the roof.

She also found that a support system was not in place to answer questions when she needed help. "And when I tried to call ILL they kept flipping me back to the DCE library advisor, so some of that communication was lacking, between those two units."

Hannah also ran into some difficulties working with the library. The time-frame for checking out books did not provide enough time for both mailing and using the books. "Not sure about checking out books and having them mailed. Still have my book—still need it but can't renew again!"

### Bookstore

Problems with the bookstore were more widespread. Because students were studying at a distance, they relied on timely mailing of their books and materials. Because they were working with flexible schedules, it was important to them that books arrive on time or early to allow them to get started on their readings. Unfortunately, this did not seem to be the pattern. Don was frustrated with the bookstore system that made it impossible to have books sent to his home.

The bookstore has a problem because everything they send out that's over \$50 they require a signature for UPS. Well,

that's great if you happen to be at home, and most of us, of course, are not at home, so it goes to your house and then you have to go down to the UPS place to pick it up. Luckily I finally caught on, figured out, well, I'll just have them send it to my work address and it just comes here and somebody signs for it and I get it. Which is interesting, because the bookstore, for some reason has that policy which is a pain in the neck for working people. But, I just ordered the, I'm taking the fish and wildlife [class], and it's videotaped, and I ordered the videotapes and they sent the videotapes directly to your house without a signature required, so even within the university they seem to have these different rules, so .....

He also noted that book orders are held for a considerable time before being mailed out.

There is a delay, 'cause I know part of that is, of course if you request used books, they wait for books to come in 'cause they may not have stock of used books. For example, for my classes for this next term, I think, February 28 I ordered the books and I just got them last week. So there was a delay there, but I had ordered, asked for all used books, so it didn't surprise me that there was a delay.

Jill, however, ran into the same problem even though the books she ordered were not used. This frustrated her so much she eventually quit using the university bookstore and moved to a competitor.

I quit getting it through [the university] because the way they operate is they wait—even if you order a new textbook, they still hold your order until all textbooks are received from their students on campus—all the used textbooks are bought back. So they wait until a week prior to the start of the term to send out your textbook, so you can't really get ahead.

Theresa had difficulties receiving supplies on time and sent me this note of frustration one week into the term. "Due to some miscommunication at the [university] bookstore, one of my course books didn't get sent. Now I will be behind and have to cram to catch up." Several days later, I received

another note. This time, like Jill, she indicates that working with the university bookstore is simply not worth the trouble.

Still frustrated that I can't get the course materials on time. The [university bookstore] might need to work on sending books out to distance ed students earlier. They sent my order out two to three weeks after I had paid and placed my order. Luckily, my books arrived (minus one) on the day classes started. But I need this one that's missing and I've checked for it here. But being overseas my options are limited. I think next term I'll be safe and order my books from Amazon.com. The extra expense is worth my grade.

Ryan had assumed that books for online classes would be available at the nearby regional campus for the university. When he discovered they were not, he considered ordering his books through the main bookstore, but even if they were sent immediately the time lag would be several days. With some irritation, he drove to the main campus to make the purchase—a trip that took most of a day. He noted his frustration on his anecdotal record. “Books for online courses are not at the [regional] campus book store. Would take four days to FedEx or UPS—too long. Would have gotten behind. Drove to [the main campus].”

#### Proctors/testing centers

Proctored exams were commonly used in the courses involved in this study. For the most part, participants found this to be a simple process. Most students had testing centers nearby and followed a fairly routine procedure. As Don told me, “I do it through—[the community college] has a testing center so I just schedule time with them and the instructors send the test to them and I just run over there and take the test.”

Because of her mobility issues, Marie found it easier to take her tests with a proctor at a nearby public library. When I asked her if she had trouble lining up a proctor, she replied,

Depends on who you pick for your proctor. I picked mine at the local library two miles away; it was no big deal. If I'd picked one at [the university], where I had to go park and deal with all that, now that might have been an issue. But because you can pick libraries or things like that, I think that people shouldn't feel committal to use the big-name places. We've all got public libraries and the lady that helped me made it real easy.

Vanessa agreed that it was simple. "Well, I haven't found a problem with that." Her feeling was that people were generally supportive of distance education and willing to help with proctoring. "She was very open to it—seems everybody else has been very open to the concept of distance ed."

Jill's experience, however, was entirely different. She lived in another state and believed that this was part of the problem—that the state was not as advanced as other states in terms of its awareness and support of distance education.

I went to my library, which is just down the street, and a lot of people don't want to be involved in this whole mess—they don't understand it, and they don't want to be responsible for anything, so I walked into my library and they're like, "No, we don't do any of that. We don't want to have anything to do with it." I finally went to the local college that I live nearby, and I went and asked a couple of the counselors, 'cause I didn't even know where to go to find out who could proctor exams and they're all looking at me funny, like, "Huh? What are you talking about?" With distance learning and online courses, that's how foreign it is down here, ok? So finally, when I was at the local college and asking one person, the transfer center coordinator overheard the conversation and said, "Oh, I can do that for you. That's not a problem." Ok? So, she started doing it for me a couple years ago. She runs the transfer center and also is a counselor there, and through [the state] you can have any university person, or anybody that you don't know, proctor exams. So she started doing it for me, but the one thing I've found that creates a problem is if the exams are, well, number one is getting the exams to her. And I think the instructors, they forget that this proctor is not a testing

center and that's all she does is test exams. From what I understand, up in Oregon, on their distance learning program, they actually have testing centers that that's all they do is take tests at, and that's all these people do, at these centers. So it seems more commonplace up in Oregon than it is down here, and it creates a problem where, if the exams are on specific dates and I'm a middle person in between my instructor and the proctor, I have to e-mail my instructor and tell my instructor to send the exams to her. I have to keep asking her to see if the exams arrive. Once the exams arrive, I have to check my work schedule and try to coordinate 'cause the transfer center's only open until 5:00 at night, so I have to get time off from work to go take this exam. And then I also have to schedule it on my proctor's schedule, cause, that's not her primary responsibility. I'm kind of like a real sidekick on her part. She's not responsible for me at all. Ok? So I'm not her primary responsibility, so she has other things she has to do at the transfer center. So I have to schedule around her schedule, my schedule, and then do all these e-mails back and forth.

Arranging the schedule became a problem for Jill, as she found herself acting as the middle-person between the instructor and the proctor, and simply keeping up with the communication was time-consuming.

...the only problem with the proctors is if the instructor doesn't send the exams out in advance. That's where I ran into problems and I ran into that with one term, which was a nightmare of a term 'cause I had almost eleven exams—for two classes I had eleven exams. And it was a nightmare because both instructors weren't as flexible in getting the exams out extra early.

### Discussion

Students taking online courses are not isolated within a single class. They also find themselves interacting with numerous departments within and outside the institution, including Admissions, Registration, Financial Aid, DCE, the bookstore, the library, testing centers and a variety of other departments, depending on their needs. Students' experience in their online

course is dependent, to a certain degree, on the ability of these departments to provide for their needs easily and smoothly.

Other studies have also pointed to this issue. In a study of barriers to learning in distance education courses, one entire category of problems and barriers focused on student support and services (Galusha, 1998). Another study that looked at the optional use of an Internet supplement to a course found that users thought the university did not provide adequate personnel to assist them (Bee & Usip, 1998).

In a study of student satisfaction with online courses, Tricker et al. (2001) found that two of the lowest rankings on course satisfaction included ease of registration and appropriate support services. These factors were not integral to the online course, but rather were part of the broader university function of providing a support system for students enrolled in their programs.

Of the 24 benchmarks for successful online courses identified in a report by the Institute for Higher Education Policy, four focus on student support systems. They include: (a) information about programs such as admissions requirements, tuition and fees, books and supplies, etc.; (b) hands-on training and information about source materials such as electronic databases, interlibrary loans, news services, etc.; (c) access to technical assistance throughout the course; and (d) accurately and quickly answered questions from student service personnel and a structured student complaint system (Policy, 2000).

While these issues have not been addressed in a large number of studies of satisfaction with online courses, they formed a distinct, though small,

component in this study. Participants identified a number of factors that helped or hindered their efforts.

The following chart (Table 9) summarizes factors involved in support services that participants found to be valuable, as well as those they considered to be negative factors, or costs.

<b>Support Services</b>	
<b>Values/Benefit</b>	<b>Costs</b>
Access to a university library	Library checkout too short
Good communication about courses	No information on the campus website
Good communication between departments	Poor communication between departments
Assistance from specialized departments such as Financial Aid and the Writing Lab	No instructions on use of peripheral systems, such as Interlibrary Loan
Testing centers	Locating a proctor
(no comments offered)	Bookstore not timely  Signatures required for delivered books  Books not available at regional campus bookstore

Table 9: Factors affecting satisfaction with support services.



## IMPLICATIONS

### Introduction

This study explored the usefulness of expectancy-value theory in understanding the student experience in online courses. Its purpose was to determine the factors students consider when determining value in an online course, in order to operationalize the value construct in expectancy-value theory to allow for further study. A first step is to redefine the theory in terms that are representative of the input from participants in this research.

### Expectancy-value theory redefined

Expectancy-value theories have been defined in a variety of ways, using both the terms value and valence. In this paper, I will use these two terms as defined by Vroom (1964), where valence refers to the affective reactions individuals have *in anticipation* of events and outcomes related to a task, and values refer to the affective responses they have to *actual* events and outcomes as they occur.

Many researchers view the value or valence construct in expectancy-value theory as a measure of the value or valence an individual places on the final outcome resulting from completing a task. Often, this measure is determined by asking only one or two questions of the participant pertaining to their valuation of the final outcome. Additionally, although valence can have either positive or negative values, much research relies only on positive scales (Van Eerde & Thierry, 1996). Some researchers (Vroom, 1964; Wigfield & Eccles, 2000), however, recognize a number of factors as playing a role in the determination of both positive and negative values or valences. This study supports the latter view.

Participants in this study identified both valences and values, reported both positive and negative responses, and indicated a wide range of factors that influenced their satisfaction with online courses. This satisfaction was not determined entirely by the value they placed on the end outcome but was also influenced by many peripheral outcomes along the way. In other words, the means played an important role, along with the ends, in participants' determination of value/valence. While the participants were all goal-oriented, their affective reactions to the experience of being in an online course more often than not focused on events that occurred along the pathway toward the final outcome. These findings are not consistent with current definitions of expectancy-value theories in two significant ways.

First, none of the current definitions of expectancy-value theory pays particular attention to the relationships between positive valence (benefits) and negative valence (costs). Participants in this study implied that their satisfaction was based on an evaluation of *both* benefits and costs. Wilbur Schramm (1973) has suggested a theory, Fraction of Selection, that addresses the relationship between positives and negatives. Schramm worked with mass media and was interested in what motivates individuals to select to participate in one channel of information over another. He suggested that the choice was a function of comparing the effort that must be expended to the reward that will result. Individuals select the option that provides the highest reward for the least effort. In other words, they compare all positive valences with all negative valences to determine the net valence of a medium. His equation reads:

$$\frac{\text{Promise of Reward}}{\text{Promise of Effort}} = \text{Probability of selection (Schramm, 1973)}$$

This equation may be representative of the way participants in this study evaluated the valence of their online experience.

A second significant difference is that "value" in expectancy-value theory has focused mainly on value placed on the outcome, without looking closely at value placed on the experience. Participants in this study clearly included the experience in their evaluation of value in an online course. Discussions of the adoption of technological innovations have pointed out that "when we talk about how potential adopters determine the *value* of a particular innovation, we must factor in ease of use!" (Gilbert, 1995). Ease of use is an assessment made of the actual experience, not the final outcome. This is consistent with Rea's (2000) version of expectancy-value theory, which includes an affective component—emotional reactions to task (Rea, 2000). These emotional reactions focus on the experience rather than the outcome.

I would suggest, then, that the "valence" measure that is entered into expectancy-valence theory is the sum total of the valence students place on the outcome and the valence they place on the experience. I further suggest that students compare the sum total of the positive valences (benefits) with the sum total of the negative valences (costs) to determine if the benefits outweigh the costs. Therefore, valence can be defined as:

$$\frac{\sum \text{perceived benefits of outcome} + \text{perceived benefits of experience}}{\sum \text{Perceived costs of outcome} + \text{perceived costs of experience}}$$

Entering this definition of valence into expectancy-valence theory, the model would be as follows:

$$\text{Motivation} = \text{Expectancy} \times \text{Valence}$$

Where valence is defined as

$$\frac{\sum \text{perceived benefits}}{\sum \text{perceived costs}}$$

I further suggest that, since students are evaluating their experience in an online course, as well as the outcomes of completing the course in determining their satisfaction, their levels of motivation will change as the experience progresses and their perceived benefits and costs materialize and are either confirmed or disconfirmed. If this is true, the following interpretation of Schramm's model might also hold true.

$$\frac{\text{Actual Reward}}{\text{Actual Effort}} = \text{Probability of Persistence (continued motivation)}$$

Taking the above model into account, we have the following expectancy-value model:

$$\text{Persistence (continued motivation)} = \text{Expectancy} \times \text{Value}$$

Where value is defined as

$$\frac{\sum \text{actual benefits}}{\sum \text{actual costs}}$$

It should be noted that I am not suggesting that actual numbers be plugged into this model for the purpose of predicting a probability value. Rather, I am suggesting that individuals make a subjective comparison of what they consider to be costs and benefits and determine if the net result is positive or negative. The way they weight each factor is highly personal and the result of their evaluation is used for the purpose of comparison against other options. Even if the net result is positive, motivation to participate and persist may be less than motivation to take another course of action.

### **Use of expectancy-value theory to direct design**

Christensen et al. (2001) have pointed out that understanding the variables that influence student receptivity to online education helps to create a profile for student recruitment, program design, course design, and retention. Participants in the current study have identified many

characteristics of online courses that are under the control of the designer. Further, when examined in light of expectancy-value theory, they provide guidance for modifying course design to be more conducive to effort expenditure and persistence.

Participants identified factors in all categories represented within expectancy-value theory as being influential in their satisfaction or dissatisfaction with their courses. They provided examples of outcome values, utility value, affective values and costs associated with their classes. Although expectancy was not specifically targeted in this study, several participants referred to it. Marie told me that she expected to get straight A's. Ryan worried, "My GPA is everything." Theresa confessed that she was afraid she was doing things wrong. Confidence and insecurity were issues that were mentioned frequently, and are directly related to students' expectation of success.

In applying this theory, two concepts are important to keep in mind. First, expectancy-value theory is intended to explain individual motivation, not group patterns of motivation. Every individual will have different expectations, valences, and values, making it impossible to determine exact numerical values for different factors that will hold true for all individuals. It may, however, be possible to identify patterns that indicate factors with some level of positive valence across a broad range of individuals, as well as factors that are considered negative, to some degree, by most individuals. For example, all participants considered lack of responsiveness from their instructors to be a negative aspect, although they felt differing levels of irritation or insecurity as a result. Minimizing this cost will improve the cost-benefit ratio for all participants, but to different degrees.

Second, motivation in expectancy-value theory is not considered an autonomous function, but a response that is relative to other forces acting within an individual (Van Eerde & Thierry, 1996). In other words, the level of motivation an individual has to complete a task is influenced by comparison with other choices available to that individual. This concept is represented in Schramm's Fraction of Selection as well (Schramm, 1973), where individuals choose the course of action that provides the best ratio of rewards to costs.

If the models, as I have defined them above, hold true, designers should be able to manipulate factors identified by participants in this study, by changing design, to minimize costs and enhance benefits, thus improving the ratio of benefits to costs and the potential for higher motivation and higher persistence in online courses.

The question raised by this research then is, can we improve the design of online courses to enhance the positive factors identified by participants in this study while minimizing the negative factors? In other words, is it possible to improve the valence and value (cost-benefit ratios) for most students, thereby improving motivation and persistence? Schramm (1973) suggested this possibility with his Fraction of Selection, pointing out that one can raise the probability of the selection of a given communication by either lowering the lower part of the ratio (effort) or raising the upper part (reward) (Schramm, 1973). Hancock (1995) also points to this idea by suggesting that a teacher may elect to influence one or more of the components of expectancy theory—expectancy, instrumentality, and/or valence—to influence student motivation.

Answering this question will require examining factors identified by participants to determine those that are in control of the designer, then

enhancing factors with positive values, and minimizing factors that are negative costs. The following table (Table 10) lists positive and negative factors, as revealed in this study.

	<b>Factors to Enhance</b>	<b>Factors to minimize</b>
<b>Orientation</b>	Pre-planning information Printed orientation info. System requirement info. Hardware Software Training in software Training in peripheral services Clear goals and objectives Clear expectations Clear instructions Thematic orientation Design simplicity Layout that makes all visible Study guides Timely feedback	Hidden assignments Layers of assignments/info Last-minute notification Time-released assignments Too many clicks Complex assignments
<b>Course Content</b>	System to address questions Identification of key concepts Focused content Relevance Applicability Utility value Interesting content New ideas and perspectives Mind-challenging ideas	Contradictory sources Vagueness Irrelevant content Confusing content Superficial content Redundant content Remedial content Misinformation Out-dated information Boring presentation Busy-work Info with no long-term benefit
<b>Student-Student Interaction</b>	Systems for making friends Mechanisms to share views Opportunities to share ideas Ease of interaction Two-way conversations Thought-provoking probes Systems for support Safe environment Small discussion groups Mechanism to ask questions Ability to edit responses	Isolation Superficiality One-sided conversations Opportunities to copy others Too little participation Too many messages Misunderstandings Put-downs Off-task discussions Long threads Scheduling problems Time lags Out-of-sync discussions Scheduled posting times

Table 10: Positive and negative factors revealed by this study

	<b>Factors to Enhance</b>	<b>Factors to minimize</b>
<b>Student-Teacher Interaction</b>	Welcoming teacher presence Prompt responses Acknowledging receipt Availability of instructor Prompt, helpful feedback Positive reinforcement Friendliness of instructors Supportiveness of instructors Clarity of assignments Visibility of instructor Updates and reminders	Ignoring students Lack of responses Delays in responses Unanswered questions Causing delays for students Negative feedback (only) Lack of feedback Unclear expectations Unavailable instructors
<b>Interface and Navigation</b>	Logical organization Simple layout Visibility of elements Central location for due dates Predictability Simplicity of type-style Ease of printing Packets of printouts to buy Straightforward assignments Access to back units Complete instructions Assignments that build Method to track assignments	Random organization Hidden assignments Long download times Distracting high-tech features Too much reading online Similar classes—no context Too many links Dead ends Links that don't work Shutting down units Complex instructions Leaps in complexity Elements not coordinated Small frames Colored text Unnecessary graphics
<b>Flexibility</b>	Syllabus available to plan Quizzes available when ready Flexible due dates Flexible instructors Entire course accessible	Lack of planning information Unavailable assignments Hard and fast deadlines Schedule depends on others Time-released assignments Shutting down units Weekly assignments
<b>Hardware/Software</b>	Runs smoothly Learning opportunities Technical training Good instructions Schedules accomm. glitches Fast resolution of problems Provide system requirements Good tech support	Technical glitches Required leaps in tech skill Unskilled instructors Bugs in courseware Inactive elements or bad links Files that won't load Dead ends Computer crashes Lost connections Compatibility issues Power outages Slow connections or download Bells and whistles

Table 10 (continued): Positive and negative factors revealed by this study



	<b>Factors to Enhance</b>	<b>Factors to minimize</b>
<b>Support Services</b>	Good campus support system Good communication Availability of testing centers Intro to peripheral systems Prompt Bookstore delivery Broad availability of books	Slow service Poor communication Inflexible rules

Table 10 (continued): Positive and negative factors revealed by this study

Examination of these factors shows that some are outside of the control of a designer. For example, power outages and lost Internet connections can happen despite the design of the course. The designer does have the control, however, to minimize other costs to make more room for the uncontrollable ones. In other words, if we assume

$$\text{Value} = \frac{\sum \text{benefits}}{\sum \text{costs}}$$

then it follows that lowering any costs has the net result of lowering the total cost value, which improves the overall value. Thus, minimizing all costs within the control of the designer can compensate for costs that will occur outside of the designer's control.

Examination of the factors above also reveals that some factors are contradictory. For example, participants reported that out-of sync discussions, where students joined at different times, reduced the quality of the discussion, and thereby labeled this as a negative factor. At the same time, they complained that scheduled posting times reduced their flexibility. Choice of which factor to minimize depends on the relative values of the outcomes. In other words, what is more important—cohesive discussions or flexibility? Often the choice to minimize a cost may be tied to learning goals.

**Non-value-adding work**

Learning requires effort—therefore we cannot assume we can reduce all costs and still have a viable learning environment. Maki et al. (2000a) suggest students' lower satisfaction with online courses may be due to heavier course loads, citing research that relates low workloads with higher satisfaction. Results of their study also show that higher satisfaction did not mean more learning and vice versa (Maki et al., 2000a). In other words, reducing all costs and making online courses easy might result in more satisfied students who learn less.

Examination of participants' positive and negative reactions to online courses shows us that costs can fall into two categories—those which add to the learning experience, and those which have no learning value. For example, scheduled posting dates are considered a cost by several participants, but they result in a more cohesive discussion which has educational value. On the other hand, instructors failing to respond to student e-mails serves no educational purpose. I would label this a “non-value-adding cost.”

The term “non-value-adding” was introduced in a study on value-measurement in health care (Michelman, Rausch, & Barton, 1999) that suggested that it is possible to satisfy the needs of demanding consumers by eliminating the non-value-adding services that drive costs up. A value-adding service was defined as any service the end consumer is willing to pay for. Elimination of tasks such as correcting the mistakes of others or duplicating paperwork leaves employees more time to spend on value-adding tasks, such as direct patient care (Michelman et al., 1999).

I believe this concept can be applied to the design of online courses in a similar way. By identifying factors that add to the total cost value but do not add to the learning experience, and minimizing those costs through design changes, we can free up more energy for effort toward learning. In other words, reduce all non-value-adding costs to make room for learning-related costs to occur while still maintaining a high valence. Non-value-adding costs eat up energy that could be spent productively on learning. Rea (2000) makes a similar point. "...unpleasant emotional extremes such as apathy, anxiety, boredom and overexcitement can be debilitating to attention, performance and persistence" (Rea, 2000, p. 7). By reducing or removing non-value-adding costs it is possible to improve the ratio of benefits to costs even when value-adding costs are high.

### **Expectancy-value theory and learning**

The suggestions above are aimed at increasing motivation and persistence in online courses, but it is possible that learning will also improve when non-value-adding costs are reduced. Cognitive load theory suggests that learning improves when instructional designers pay attention to the limitations of working memory (Cooper, 1998). This theory is grounded in the work of George Miller (1956), who demonstrated that an individual's working memory is limited to seven, plus or minus two, bits of information at any one time. What constitutes a "bit" of information is determined by an individual's previous experience with the subject matter. When complex information that contains many interrelated elements can be incorporated into one schema (Anderson et al., 1978), it can be considered one bit of information (Marcus, Cooper & Sweller, 1996). Thus, what differentiates experts from novices is the number and complexity of their schemas. A novice must treat each element individually, while an expert can call up a schema that deals with many elements as one (Cooper, 1998).

According to cognitive load theory, the total cognitive load on our working memory consists of both intrinsic and extrinsic factors. Intrinsic cognitive load refers to the difficulty of the content, while extrinsic cognitive load is caused by the method of delivery. When both intrinsic and extrinsic cognitive load is high, it can exceed the capacity of working memory. Therefore, removing extraneous load can make room in working memory for the intrinsic load of difficult content. Extraneous load can include such things as split attention, searching, non-routine tasks, distractions, and information that does not fit into existing schemas (Cooper, 1998).

Looking back over the non-value-adding costs identified by participants in this study, it is clear that many of these costs could also be labeled as extraneous cognitive load factors. For example, using the categories above for extraneous cognitive load, we can organize some of the costs identified in this study.

#### Split attention

- Random organization
- Contradictory sources
- Too many messages

#### Searching

- Long threads in discussions
- Hidden assignments
- Too many links
- Poor orientation information

**Non-routine tasks**

- Complex instructions

- Poor technical skills or support

**Distractions**

- Boring presentation

- Off-task discussions

- Long download times

- Distracting high-tech features

- Unnecessary graphics

- Technical glitches

**Mismatch with existing schemas**

- Confusion

- Leaps in complexity

- Elements not coordinated

It would follow, then, that reducing non-value-adding costs could lead to improved motivation and persistence in online courses due to an increased valence, as well as to improved learning due to reduced cognitive load.

**Is this a testable theory?**

Testing theories on human behavior is wrought with difficulties due to individual differences in people. Expectancy-value theory, in particular, focuses on individual choices, making it difficult to suggest universal predictive value. Objections have been made to expectancy theories due to the difficulty of testing them. "In a sense, Vroom's theory continually passes the buck from one object to another and never says what the original source or sources of the valence of all these objects are" (Lawler, 1971, p. 89).

While expectancy-value theory, as described in this document, cannot be used to make precise, mathematical predictions, it can be used to predict patterns. In other words, we can hypothesize that minimizing common non-value-adding costs while enhancing commonly-identified benefits will result in increased motivation to achieve and persist in online courses, as evidenced by enrollment and retention rates. In this sense, the theory is testable. Using the factors identified by participants in this study, it should be possible to improve the valence and value (ratio of benefits to costs) for taking an online course by modifying course design to minimize negative factors and enhance positive factors, and then test for increased enrollment and persistence, as well as for improved learning gains.

### **Limitations**

Use of expectancy-value theory in the manner described above may lead to improved online courses and more satisfied students. However, several limitations suggest using care in applying these ideas too broadly.

1. Due to the in-depth nature of the interview process, the sample size was small. While this allowed deeper exploration, and the possibility that additional, less obvious, factors would emerge, it also meant that the data could not provide the numbers of incidents necessary to document a clear pattern. Therefore, this study exposed many student issues with distance education courses, but is limited in its usefulness for generalizing without further documentation.
2. Participants were selected from only two universities. This raises the possibility that certain factors were influenced by programmatic idiosyncrasies unique to the universities rather than specific to

distance education courses. Additional studies at different universities can determine if patterns are consistent across schools.

3. Although intended to ensure participant diversity, the use of purposive sampling means that results do not represent the full cross-section of the student population at the universities studied. Therefore, additional factors unique to specific, non-represented segments of the population can be anticipated. This was evidenced within this study when factors reported by the lone disabled participant were clearly related to the nature of being disabled. Other population segments can be expected to report factors unique to their own circumstances.
4. Sampling methodology in this study relied on volunteer participants. This raises the question of response bias. Do volunteers differ in a systematic way from non-volunteers? It would seem likely that they do. It is possible that students with a high expectation of success would be more willing to share their experience with a researcher than those concerned with failure. Indeed, all of the participants in this study did successfully finish their courses. Additionally, the act of volunteering took self-motivation. Volunteers were required to initiate the contact with the researcher themselves. All participants in this study described themselves as highly motivated and indicated that they felt this was a necessary trait for success in an online course. We could hypothesize, then, that less motivated students were less likely to volunteer as participants, and may also have been less likely to perform successfully in an online course. Therefore, it is possible that students with lower self-motivation were not represented in the

study, and would have introduced a different set of factors influencing their evaluation of costs and benefits.

5. All students represented in this study were older-than-average, non-traditional students. Results from this study cannot be assumed to hold true for younger, traditional students. Indeed, the one traditional student who initially volunteered as a participant was the only participant who did not follow through with the study, and was the only participant who indicated difficulty in completing the online course. It is likely that, had she continued in the study, factors would have come to light that could illuminate the reasons for her difficulty. These factors may have been different from those revealed in this study, yet typical of younger, traditional students.
6. All participants in this study successfully completed the online courses they were taking. Therefore, this sample was not representative of the general population, where withdrawal rates have been found to be consistently high (Cooper, 1996; Richards & Ridley, 1997). It is possible that the act of participating in this study increased the success rate. Regardless of the reason, the successful nature of their experience might mean that participants in this study provided positively biased input. Additional studies involving students who did not succeed might illuminate negative factors that were absent from this study.
7. There was little diversity in course design within this study. Although a variety of content areas and instructors were represented, nearly all the courses were designed to involve reading (mostly text books), responding (via threaded discussion), and taking tests (mostly



proctored). (This was true at one university more than the other, highlighting the possibility, mentioned above, that courses at different universities might differ systematically.) This was entirely unexpected, since the pilot study conducted during the term prior to the interview stage involved courses that did not fit this format. This study, therefore, may have missed factors of benefit or cost that would have been revealed if more diversity in course design were represented.

8. With the exception of the courses represented in the pilot study (and discussed within the focus groups), none of the courses involved in this study took advantage of the variety of technologies available to them within the courseware, such as virtual chat, the whiteboard, document sharing, or the technologies for group work. An occasional course incorporated PowerPoint, and several courses provided links to Internet sites, but other than that, students were not required to possess a great deal of technological skill. Courses were, for the most part, simply correspondence courses that had been placed online. Again, this was unexpected, since the pilot study involved courses that had the students interacting with a large number of technologies. It can be assumed that the number of difficulties encountered with technology would be lower in the low-tech courses, as well as the number of benefits reported from the use of technology. This idea is supported when comparing comments by members of the focus group to those of participants in the interviews. Focus group members had a great many concerns with the technology, while interviewees, for the most part, were not overly concerned with it. As a result, the findings from this study cannot be assumed to represent the full range of factors that would be

identified if courses that used the newer technologies more fully were included.

9. Interpretation of the data collected during this study was analyzed qualitatively by the researcher. Participant comments were coded and categories emerged. The way these categories were presented were the result of a long struggle evaluating the merits of presenting in one way over other options. It can be assumed that a different researcher might identify different categories or choose to present them in a different way. For this reason, a good deal of raw data, in the form of quotations, was incorporated within the findings to allow other researchers to determine whether or not the researcher's interpretations fit with their own interpretations.

### **How this study informs my practice**

This study has informed my practice in two significant ways. First, it has reinforced an awareness of several general concepts relating to students' participation and persistence in online classes. Second, it has identified a variety of specific factors that will influence the design and implementation of online courses to enhance participation and persistence.

#### General concepts

This study has led me to believe that it is important to gather feedback from students early and frequently to develop an understanding of the factors they consider to be positive or negative in their online experience. Being responsive to student feedback will be important in terms of providing support for students, providing an effective learning environment, and adjusting future online courses. For example, keeping in mind students'

reasons for choosing an online format can allow for the design of courses that meet their needs. This may mean being flexible about due dates, or allowing students to work at an accelerated pace to accommodate other commitments in their lives.

Factors can be expected to differ in different situations. Clarifying these factors has made it evident that there may be some situations in which an online format may not be effective. Recognizing these unique situations may be difficult without listening to input from students.

Most important, this study has indicated that it will be important to be clear, in my own mind, where I want my students to expend their energy in order to improve learning. Having a clear image of what work is required to enhance learning will enable me to recognize the non-value adding costs that require energy of my students without leading to improved learning. I can then minimize these non-value adding costs wherever possible to reduce cognitive load and make more room for learning to occur.

At the same time, this study has verified that it will be important to improve the ratio of positive to negative factors for students, by enhancing positive factors (for example, by providing a clear orientation system) and minimizing negative factors (for example, reducing feelings of isolation by communicating frequently with students). Improving this ratio is likely to lead to higher motivation for my students to persist in the online courses.

Accomplishing these two tasks will require an understanding of the specific factors that students identify as positive and negative in their online experience, as well as continually interacting with students to fine tune this understanding for different circumstances.

### Specific concepts

Examples, though certainly not exhaustive, of specific concepts from participant input that will influence the way I approach teaching in my practice include those in the two broad categories of instructor presence and clear orientation.

Instructor presence involves the feeling, from the student perspective, that the instructor, though not physically present, is available and involved in the class. Participants indicated that instructor presence is vital to the learning experience in online courses. Providing a welcoming presence and responding promptly to queries and other communications will be an important function that I will have to provide as an instructor. This will do two things for my students: it will reduce the isolation they might feel when working at a distance, and will reduce feelings of insecurity when they have questions or concerns about the course. Participant responses indicated an awareness that things can go wrong with electronic delivery of papers and messages, and that they need to be reassured that their correspondence has been received in order to feel confident that it actually got through. A simple acknowledgement of just a word or two can alleviate concerns about assignments being received. Also, because of the time involved with providing written feedback, it is easy for teachers to neglect communicating with students unless there is a problem. This means it will be important to provide positive feedback regularly, as well as corrective feedback.

Participants also indicated that a clear orientation system and a straightforward design are imperative when they are working at a distance. Orientation includes providing pre-planning information, wayfinding information, technical orientation, and thematic orientation, among other things. The learning environment in my classes must be as clear and

accessible as possible, giving students direct access to content in order to reduce frustration. When there is no face-to-face interaction for addressing problems directly, clarity is important. This will help to give my students confidence.

One way to make sure the orientation system is effective and that students can easily find their way around my courses will be to take advantage of all design tools available to make the online interface clear and user-friendly. This means relying on consistency, standardizing the look and placement of elements on the site, and providing many clues for users so that they can easily find their way around.

These, and other, ways of addressing the needs of my students will help to create an environment where students can feel motivated rather than frustrated, and where they can focus on content, rather than on extraneous problems.

### **Suggestions for further research**

This research study has explored the student experience in online courses with the intent of identifying positive and negative factors that play a role in students' determination of the value of a course. As an exploratory study, it provides insights and raises questions, rather than suggesting solutions. Although alone, it offers no answers, it does raise a number of questions that could be explored by follow-up research studies.

1. Does an increase in perceived net value, as reported by students enrolled in an online course, result in higher enrollment rates, as suggested by the expectancy-value theory defined in this document?

2. Does an increase in actual net value, as reported by students enrolled in an online course, result in higher retention rates, as suggested by the expectancy-value theory defined in this document?
3. Can identified costs be reduced and benefits be enhanced via course design? If so, does this result in higher student satisfaction? Does this result in enhanced learning?
4. Do the factors identified in this study occur on a wider scale, across diverse courses and varied student populations? Which factors have the most profound influence on student satisfaction and learning?
5. Can improving the orientation system ("Where am I going and how do I get there?") on a Web course minimize confusion, as evidenced by fewer orientation-related questions, reports of higher satisfaction, and increased involvement of students in course activities?
6. Will improved thematic orientation (What is to be learned and why?) minimize confusion, provide security, and result in more satisfied students and more effective learning?
7. Do traditional students (ages 18-25) identify the same factors of cost and benefit that non-traditional students identify? Do traditional students show higher or lower levels of satisfaction with the online format?
8. What factors do students who have dropped out of online courses identify as influencing their satisfaction with the experience, and their choice to withdraw? As noted by McCabe (1997), "More needs to be

known about the silent students' perceptions and experience of online classrooms to understand the reasons behind their inactivity" (pg. 289).

9. What factors do students with disabilities identify as influencing their satisfaction with an online course? Can the online format provide them with opportunities to participate in an educational experience on equal footing with other students?
10. Can reducing non-value-adding costs improve cognitive load, leading to improved learning?

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## APPENDICES

## **APPENDIX A**

### **Informed consent forms**

**School of Education  
Oregon State University  
Corvallis, OR 97330**

## **Informed Consent Document**

**Research project:** *Online Classes: the Student Experience*

**Investigators:** Dr. Mark Merickel, Distance and Continuing Education, Oregon State University  
Mary Bucy, PhD student, College of Education, Oregon State University

As online courses proliferate on university campuses questions arise about how to design the most effective online instruction. This research study will explore student perceptions of their experience in online classes, including such things as anxieties, confusion, motivation, ease of use, technical difficulties, effective methods, etc. It is hoped that this input from students will help to identify design factors that can be manipulated to improve the overall design of online courses, as well as to improve this course in particular.

I understand that as a student in (this university's) MAT program, I am being asked to participate in a short (approximately ½ hour) focus group in which I will be allowed to volunteer my thoughts on the experience of studying online or may choose to simply listen or not participate at all. I understand that the comments I provide will be used to help determine ways to improve the design of this course as well as other courses. I understand that my comments will not be used in an evaluation of my work in this course. I understand that the focus group will be videotaped, and that only the researcher will have access to these tapes.

I understand that any information obtained in connection with this study that can be identified with me will be kept confidential. My comments will be combined with those from other students in this course to show patterns and trends. Neither my name, nor any information from which I might be identified will be used in any data summaries or publication. Any video tapes used to record discussions in which I participate will be stored in a locked safe deposit box accessible only to the researcher and will be destroyed following completion of this study.

I understand that my participation in this study is entirely voluntary and that I may refuse to participate or may withdraw at any time without penalty. I understand that any questions I have about the research study or procedures should be directed to Mary Bucy at [bucym@wou.edu](mailto:bucym@wou.edu). If I have any questions about my rights as a research participant I should contact the IRB Coordinator, OSU Research Office, (541) 737-3437.

My signature below indicates that I have read and that I understand the procedures described above and give my informed and voluntary consent to participate in this study. I understand that I will receive a signed copy of this consent form.

\_\_\_\_\_  
*Signature of participant*

\_\_\_\_\_  
*Name of participant*

*Date signed:* \_\_\_\_\_

\_\_\_\_\_  
*Participant's current address*

\_\_\_\_\_  
*Participant's Telephone Number*

**School of Education  
Oregon State University  
Corvallis, OR 97330**

**Informed Consent Document**

**Research project:** *Online Classes: the Student Experience*

**Investigators:** Dr. Mark Merickel, Distance and Continuing Education, Oregon State University  
Mary Bucy, PhD student, College of Education, Oregon State University

As online courses proliferate on university campuses questions arise about how to design the most effective online instruction. This research study will explore student perceptions of their experience in online classes, including such things as anxieties, confusion, motivation, ease of use, technical difficulties, effective methods, etc. It is hoped that this input from students will help to identify design factors that can be manipulated to improve the overall design of online courses, as well as to improve this course in particular.

I understand that as an online student, I have been asked to participate in a series of interviews during winter term of 2002. I will be allowed to volunteer my thoughts on the experience of studying online. In addition, I may be asked to participate in up to two phone conversations to clarify information discussed in interviews. I understand that I may communicate with the researcher via e-mail if I wish to clarify information in the interviews, or bring up additional concerns as they arise throughout the online courses. I understand that I am also being asked to record in a journal events or activities that I find frustrating or rewarding during my experience online. I understand that the comments I provide will be used to help determine ways to improve the design of online courses. I understand that my comments will not be used in an evaluation of my work in this course.

I understand that any information obtained in connection with this study that can be identified with me will be kept confidential. A fictional name will be used to represent my comments in any publication of this study. Neither my name, nor any information from which I might be identified will be used in any data summaries or publication. Any audio tapes used to record discussions in which I participate will be destroyed following completion of this study. If a transcriber is used, the researcher will insure that the transcriber understands and complies with the methods for insuring confidentiality described here.

I understand that my participation in this study is entirely voluntary and that I may refuse to participate or may withdraw at any time without penalty. I understand that any questions I have about the research study or procedures should be directed to Mary Bucy at [bucym@wou.edu](mailto:bucym@wou.edu) or (503)838-8794. If I have any questions about my rights as a research participant I should contact the IRB Coordinator, OSU Research Office, (541) 737-3437.

My signature below indicates that I have read and that I understand the procedures described above and give my informed and voluntary consent to participate in this study. I understand that I will receive a signed copy of this consent form.

\_\_\_\_\_  
*Signature of participant*

\_\_\_\_\_  
*Name of participant*

Date signed: \_\_\_\_\_

\_\_\_\_\_  
*Participant's current address*

\_\_\_\_\_  
*Participant's Telephone Number*



**APPENDIX B**  
**Pre-questionnaire for focus groups**

## Questionnaire

Please circle the appropriate answers below.

1. How many online courses have you previously taken?
  - a) 0
  - b) 1
  - c) 2
  - d) 3
  - e) 4
  - f) more than 4
2. As a computer user, do you consider yourself a:
  - a) Novice
  - b) Experienced but cautious
  - c) Competent and comfortable
  - d) Expert
3. How would you describe your feelings in anticipation of this online program?
  - a) Positive
  - b) Negative
  - c) Indifferent
4. Would you have preferred a face-to-face program?
  - a) Yes
  - b) No
5. Could you have taken this program if it were offered face-to-face?
  - a) Yes
  - b) No
6. If not, why? (*select all that apply*)
  - a) Distance
  - b) Time Conflicts
  - c) Family Commitment
  - d) Other
7. What is your age?
  - e) 20-24
  - f) 25-29
  - g) 30-39
  - h) 40-49
  - i) 50+
8. What is your gender?
  - a) female
  - b) male

**APPENDIX C**  
**Focus group response charts**

First Focus Group			
Wishes	Expectations	Emotions	Concerns
<ul style="list-style-type: none"> <li>• Syllabus at the beginning of class</li> <li>• More information about course framework</li> <li>• List of Saturdays for planning</li> <li>• All information ahead of time so we can start reading</li> <li>• A list of FAQ's</li> <li>• Consistency between different instructors in presentation styles</li> <li>• Let us know expectations up front so we can schedule time</li> <li>• No face-to-face meetings</li> <li>• Would be nice to be able to talk to prior students—maybe at first orientation</li> </ul>	<ul style="list-style-type: none"> <li>• Possibilities</li> <li>• Able to schedule own time</li> <li>• Work in pajamas</li> <li>• Coffee break whenever you want</li> <li>• Time to organize ideas</li> <li>• Work in a nice, quiet room</li> <li>• An experience (not just reading)</li> <li>• Easy</li> <li>• Convenient</li> <li>• Immediate answers from professors via email</li> <li>• Differences between instructors</li> <li>• Everyone will have different days and times when they can work on things</li> <li>• It will fit into life—fit into pockets of time</li> <li>• No idea what to expect</li> <li>• If you've been on a computer before this will be easy</li> <li>• Won't be true discussions—more of essay writing.</li> </ul>	<ul style="list-style-type: none"> <li>• Relief</li> <li>• Excitement</li> <li>• Nervous</li> <li>• Leery (email)</li> <li>• Freaked out (about possible computer glitches)</li> <li>• Concerned</li> <li>• Curious</li> <li>• Cautious (about email)</li> </ul>	<ul style="list-style-type: none"> <li>• Viruses</li> <li>• Emailing</li> <li>• Having to share computer</li> <li>• Computer or network breakdowns</li> <li>• Time commitment</li> <li>• Fitting this into schedule</li> <li>• How many times we have to log on</li> <li>• How many hours a day</li> <li>• Type of instruction hasn't been discussed (push vs pull)</li> <li>• Possible conflicts with other commitments</li> <li>• Don't want to start out behind and have to play catch-up</li> <li>• Already feel a week behind at the start</li> <li>• Can't get textbooks at ahead</li> <li>• Will it just be transferring documents through email or discussions</li> </ul>

Appendix C: Focus Group Response Charts

First Focus Group (continued)			
Wishes	Expectations	Emotions	Concerns
	<ul style="list-style-type: none"> <li>• Online discussions will allow more peoples ideas to come out</li> <li>• Will be able to work on this at school (work) or at home</li> <li>• More communication with instructors than in classrooms</li> <li>• Instructors are available</li> </ul>		<ul style="list-style-type: none"> <li>• Inconsistency between professors will make it hard for students at a distance to relearn the system.</li> <li>• If instructors throw things at us week by week it's hard</li> <li>• Last minute notification</li> <li>• Not enough time to log on and find out what's going on before things are due</li> <li>• Groups with members who don't participate</li> <li>• Have to have notice to be able to plan</li> <li>• Many hours of driving time—would rather put it into classwork</li> <li>• Never been in an online discussion—don't know how it works</li> <li>• If synchronous interaction (phone, video) is not used it will take away from ability to exchange ideas</li> </ul>

Appendix C: Focus Group Response Charts (continued)

First Focus Group (continued)			
Wishes	Expectations	Emotions	Concerns
			<ul style="list-style-type: none"> <li>• If synchronous interaction (phone, video) is used it's not going to work for many people</li> <li>• Old phone lines</li> <li>• One year old</li> </ul>

Appendix C: Focus Group Response Charts (continued)

Later Feedback			
Positive	Negative	Suggestions	Emotions
<ul style="list-style-type: none"> <li>• Flexibility</li> <li>• Can schedule time for myself</li> <li>• Can jump on when I have time</li> <li>• Time conflicts don't become crises</li> <li>• Can come and go as please</li> <li>• Like to see other student's responses</li> <li>• Gradebook function</li> <li>• Nice to have a place to keep work and look for assignments</li> <li>• Email feature—convenient</li> <li>• Reduces travel time</li> <li>• It's amazing how close we are—only meeting 15 times over two years.</li> <li>• You know people better than face-to-face (maybe because it's a cohort)</li> <li>• Can console each other by phone and email</li> </ul>	<ul style="list-style-type: none"> <li>• Gradebook not user-friendly</li> <li>• Hate Powerpoint online—always overviews/no content</li> <li>• PowerPoint takes forever to download and isn't worth it.</li> <li>• Don't like things that take a long time</li> <li>• Always a long-distance phone bill—huge bills</li> <li>• Lots of crashes</li> <li>• PowerPoint has no meat—all in the book</li> <li>• If your system's no good it's frustrating</li> <li>• Minimum system requirements are truly minimum—you waste lots of time</li> <li>• A lot of wasted time</li> <li>• Reduced travel time <i>but</i> spend more time with problems</li> <li>• Isolated—no one for help/support</li> </ul>	<ul style="list-style-type: none"> <li>• Prefer hard copy</li> <li>• Keep it simple</li> <li>• Just text is fine</li> <li>• Should have outlines</li> <li>• A way to track assignments</li> <li>• Feedback that says, Yes, I received it.</li> <li>• Checklist to say, yes, you've turned that in</li> <li>• Samples of what's wanted up front.</li> <li>• Communication with the professor is important</li> <li>• Should all have a class on netiquette: how to write a neutral or nice email</li> <li>• Have your spouse look at things before you send them</li> <li>• Use emoticons</li> <li>• Best classes don't have lots of assignments</li> <li>• Works best to say, Here's the text. Read it. Discuss it.</li> </ul>	<ul style="list-style-type: none"> <li>• Frustration</li> <li>• Lots of tears / frustration</li> <li>• Annoyed (by learning how to learn in cyberspace)</li> <li>• Overwhelming</li> <li>• Confusing</li> </ul>

Appendix C: Focus Group Response Chart (continued)

Later Feedback (continued)			
Positive	Negative	Suggestions	Emotions
<ul style="list-style-type: none"> <li>• We've taken several online classes so we have ideas—can help instructors.</li> <li>• Hear different viewpoints</li> <li>• Learn more through interaction (threaded discussions)</li> <li>• Read and respond—then respond to others.</li> <li>• Things that are really straightforward and clear</li> <li>• Clear expectations</li> <li>• Clear deadlines</li> <li>• Works great—go to a site, check out links, come back and comment. Clean, clear, specific assignment.</li> </ul>	<ul style="list-style-type: none"> <li>• Hard copy of syllabus was different than online—wrong template</li> <li>• Sometimes template uploaded by eCollege is static even though it was supposed to be dynamic. Sometimes old information is uploaded.</li> <li>• Due dates wrong and we couldn't check on it</li> <li>• No one else knows what's going on—not even our spouses</li> <li>• Some professors never answer emails</li> <li>• Some students did wrong assignment—no feedback. They don't tell you til afterwards.</li> <li>• Not having body language makes it hard.</li> <li>• Webliography was busy work—no long-term benefit. Can't go back to it after the class ends.</li> <li>• We should be beyond just answering the question and turning it in.</li> </ul>	<ul style="list-style-type: none"> <li>• Read, write, discuss—focus on content.</li> <li>• Threaded discussions are more valuable than assignments.</li> <li>• We need to read and think</li> <li>• Need questions that prompt discussion.</li> <li>• Should be graded on interaction, not answers</li> <li>• Professors should lead us through the steps they went through to gain the knowledge.</li> <li>• Phone tree or phone buddy system</li> </ul>	

Appendix C: Focus Group Response Chart (continued)



Later Feedback (continued)			
Positive	Negative	Suggestions	Emotions
	<ul style="list-style-type: none"> <li>• Some professors use threaded discussion just to turn in assignment but no discussion—so just busy work.</li> <li>• If professor thinks his/her knowledge is too important to put online—they resist and don't do it well.</li> <li>• Annoyed (by learning how to learn in cyberspace)</li> <li>• We have same amount of work as those who've never been in a classroom</li> <li>• Had to spend \$100 for software and hardware just to stay connected</li> <li>• Slowed me down to take this course (connection)</li> <li>• Never realized my screen would freeze so often online</li> <li>• My computer couldn't handle too many applications open.</li> </ul>		

Appendix C: Focus Group Response Chart (continued)

**APPENDIX D**  
**Anecdotal record form**

## Anecdotal Record

Please keep this form next to your work area and record each incident which causes you frustration or pleasure as you work with your online course. Notes need not be extensive.

Date	Incident of Frustration	Incident of Pleasure

**APPENDIX E**  
**Letter to instructors**

Dear Dr. \_\_\_\_\_,

My name is Mary Bucy. I am currently working on a doctorate in Education under Dr. Mark Merickel, focusing on the student experience in online courses. I am hoping to conduct research during winter term, and Dr. Merickel, has suggested that I contact you for assistance in locating potential participants.

I am looking for approximately ten students who will be enrolled in online courses during Winter Term, 2002 and who would be willing to participate in two or three interviews during the term, and to maintain a simple log of online experiences that have caused frustration or enjoyment. Their time commitment would be minimal, but their input will be valuable in helping to understand the successful design of online courses.

I have attached a letter that can be sent, from you, to students you know who are enrolled in online courses next term. It explains the project, asks for their interest and lets them know how to volunteer. I am hoping to be able to meet with them as early as the first week of the term (individually, at their convenience). I apologize for the short time frame--the Human Subjects approval just came through allowing me to begin recruiting.

Thank you so much for any assistance you can give.

Mary Bucy  
(541) 752-5612 or (503) 838-8794

**APPENDIX F**  
**Letter from instructors to students**

Dear (student),

During winter term of 2002, Mary Bucy will be conducting research for her PhD dissertation at Oregon State University. The study will explore the student experience in online courses in order to better understand how course design influences student satisfaction. She is currently looking for a small number of students, 18 years or older, interested in participating in this study.

Selected students will be asked to participate in two to three individual interviews (30-minutes to one-hour each) over the course of the term and to keep a simple log of anecdotal records. They will also be invited to communicate via e-mail. Interviews will be conducted at times convenient to the participants, either when they are on campus or, if necessary, in their own home towns.

As an online student at \_\_\_\_\_ this winter, you are invited to participate in this study. The time commitment will be fairly small, and you will be contributing to a growing body of knowledge that will help in understanding how to design online courses that successfully meet the needs of students. Your choice to participate or not participate in this study will in no way affect your grade or standing in the class as I will have no role in the research.

If you would be interested in contributing to this study, or would like more information, please contact Mary Bucy directly at [mbucy21@attbi.com](mailto:mbucy21@attbi.com).

Thank you,

Professor  
Address  
Phone  
E-mail

## **APPENDIX G**

### **Invitation to focus group participants**



### Research Participants Needed

During winter term of 2002, I will be conducting research for my PhD dissertation at Oregon State University. The study will explore the student experience in online courses in order to better understand how course design influences student satisfaction. I am currently looking for a small number of students interested in participating in this study.

Selected students will be asked to participate in two to three individual interviews (30-minutes to one-hour each) over the course of the term and will also be invited to communicate via e-mail. Interviews will be conducted at times convenient to the participants, either when they are on campus or, if necessary, in their own home towns.

If you would be interested in contributing to this study, please fill out the short form below and return it to me or to your course instructor. This form does not commit you in any way. I will contact you within the next few weeks to discuss this study further.

Thank you.

Mary Bucy  
ED 143  
Western Oregon University  
Monmouth, OR 97  
503-838-8794  
[bucym@wou.edu](mailto:bucym@wou.edu)

-----  
\_\_\_\_ I am interested in participating in Mary Bucy's research exploring the student experience in online courses.

Age range: (circle one)

20—29

30—39

40—49

50+

Previous online courses: (circle one) 0 1 2 3 4 5 6 7+

Computer comfort level: (check one)

\_\_\_\_ I love being introduced to new technologies

\_\_\_\_ I'm ok with new technologies

\_\_\_\_ I'm uncomfortable with learning new technologies

Name: \_\_\_\_\_ Phone: \_\_\_\_\_ E-mail \_\_\_\_\_

**APPENDIX H**  
**E-mail to interested students**

Hello

Thanks so much for responding to my request for volunteers for my research study. I'm hoping to have some diversity in the students who participate with me, and it would be helpful if you could answer the following three questions:

What is your age range: 20-29; 30-39; 40-49; 50+

How many previous online courses have you taken?

Describe your comfort level with new technologies.

The study involves two methods of data collection. First is a series of two or three interviews. Second is an anecdotal record that participants will maintain as they work through the course, jotting down instances of frustration and also events that are pleasing. I am attaching a copy of the Anecdotal Record form so that you can see it. It is a very simple form and will not require long entries. Some participants will do both the interviews and the forms, some will only fill out the forms.

Because of the time requirement for conducting interviews, I can only handle a small number of students and will use the answers to the above questions to ensure that I am not interviewing students with very similar characteristics.

I am also attaching an Informed Consent document which will give you more details about the study and your rights. It should be signed before we begin collecting data. If you will send me your address, I can send a stamped, addressed envelope so that you can return the signed form to me.

When I hear back from you, I will let you know if I would like you to participate in the interviews or only fill out the anecdotal record. Let me know if you are still interested after reading the attachments.

Thanks so much for your interest and willingness to participate. I look forward to working with you.

Mary Bucy

**APPENDIX I**  
**Information packet cover letter**

Jan. 6, 2002

Name  
Street Address  
City, State, Zip

Dear ,

The enclosed forms should get you started collecting information for the Online Student Experience study you have volunteered to participate in. If you have any questions or need more forms, don't hesitate to email me at [mbucy21@attbi.com](mailto:mbucy21@attbi.com), or phone me at (503) 838-8794 [(541) 752-5612 evenings and weekends].

I will be contacting you by e-mail when I would like you to submit the filled out forms. Expect me to ask for the first set in about 3-4 weeks.

Please be sure to read, sign and return the Informed Consent document before you start documenting your experience for me.

Thanks so much for your interest and willingness to participate. I'll look forward to hearing from you so that we can set up a time for an initial interview.

Sincerely,

Mary Bucy

**APPENDIX J**  
**Instructions for completing anecdotal record forms**

The attached forms are for your use while you are working on your online course. You do not need to give extensive descriptions of each incident, but simply record a short note identifying what caused your reaction.

In the first column, note the date so that we can track the point within a course that certain kinds of problems are more prevalent.

In the second column, note incidents or factors that cause a negative reaction, such as frustration, anxiety, irritation, boredom, feeling overwhelmed, feeling isolated, etc. Do not limit yourself by my definitions. Simply note those things which cause you to have a negative reaction to anything concerning the course. For example, "The instructions for Unit 8 are confusing." or "This assignment seems irrelevant" or "This is too much—I can't keep up." or "My computer keeps crashing."

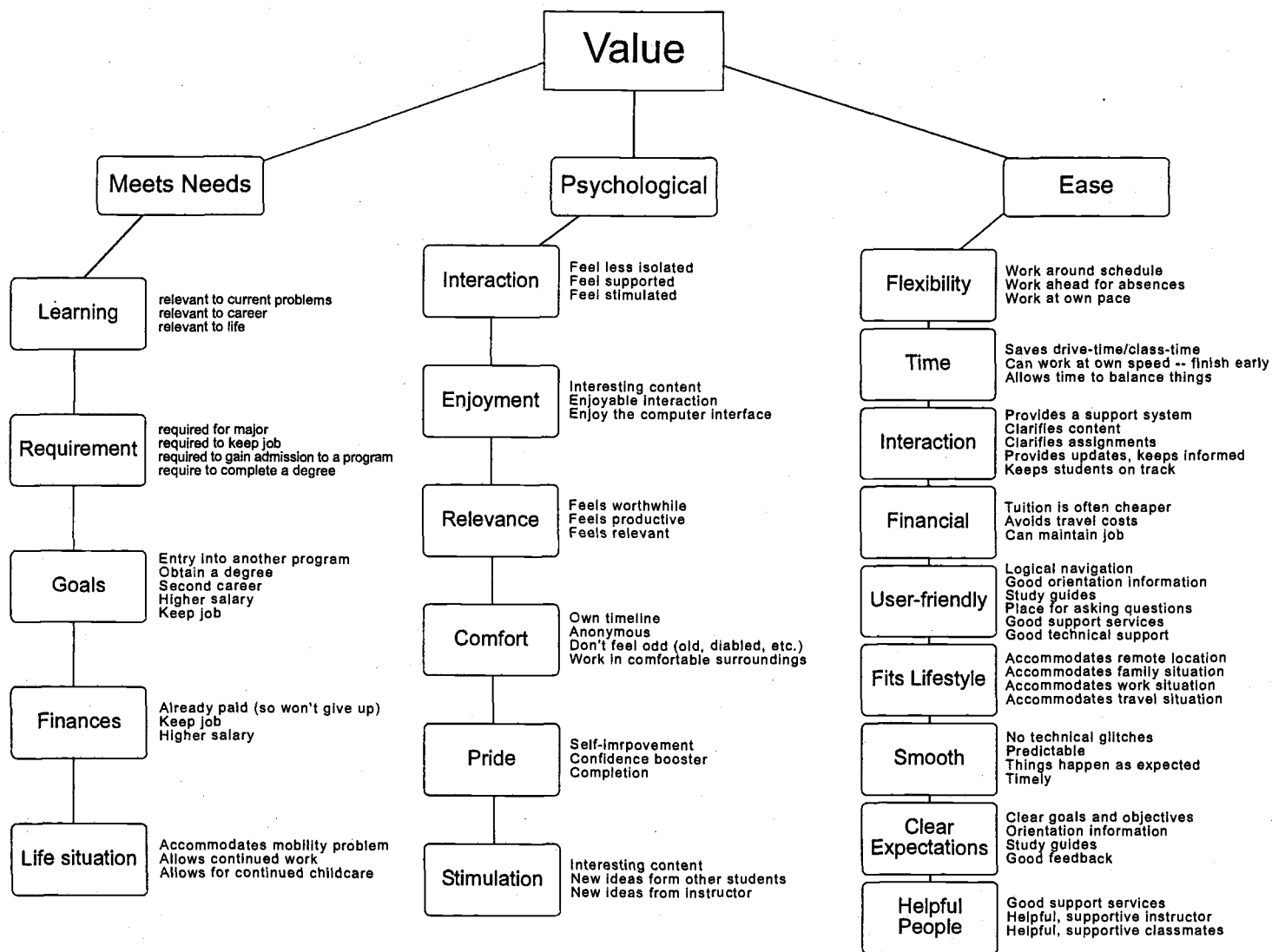
In the third column, note factors or incidents that cause a positive reaction, such as feelings of enjoyment, excitement, pride, competence, connection, relevance, etc. Again, do not limit yourself by my definitions. Simply note those things which give you positive feelings about the course. For example, "I love the threaded discussions we're having." or "This course is well-organized." or "Wow-I'm learning a lot." Or "I'm surprised how good the interaction is."

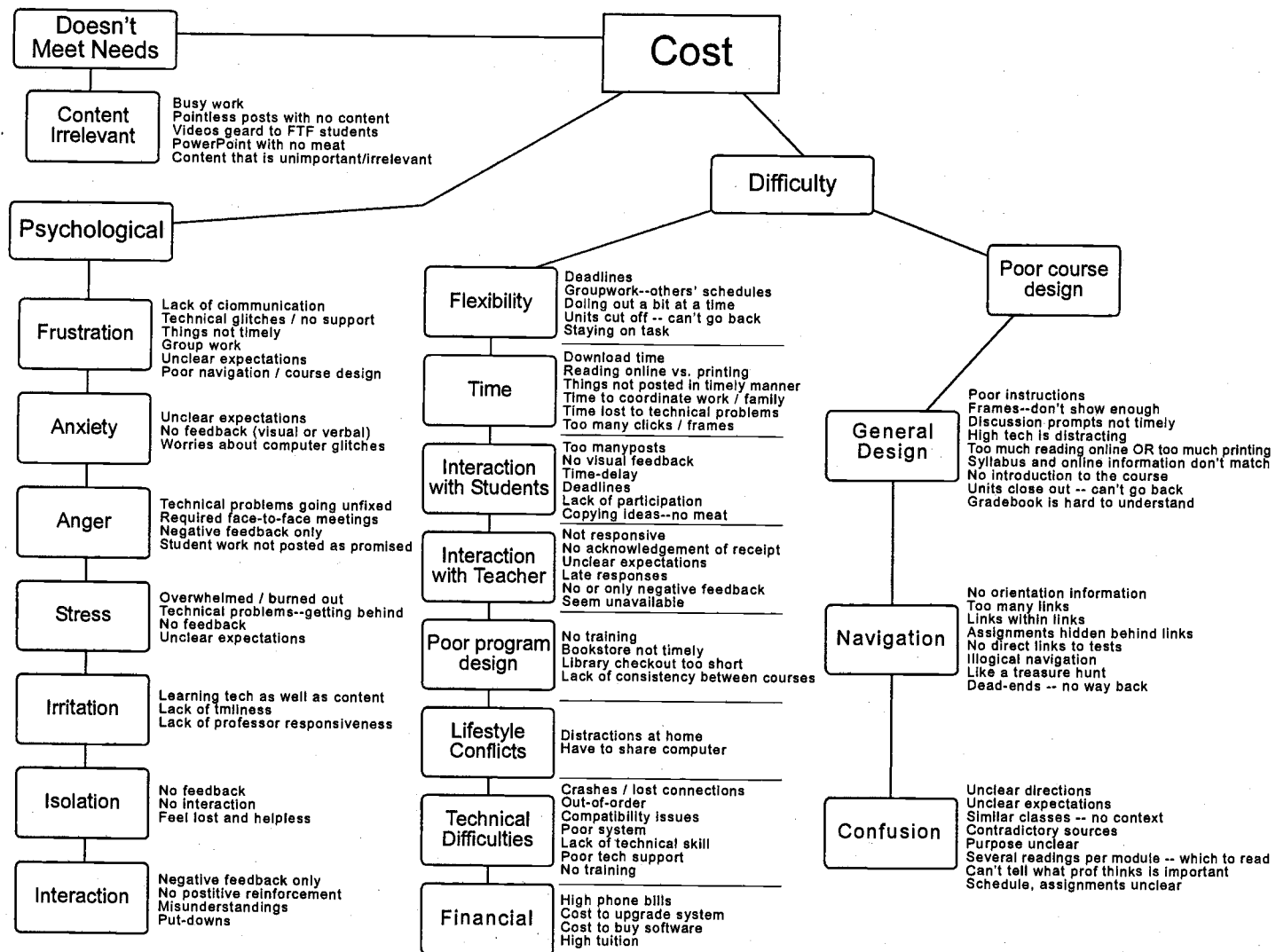
I will ask you to submit the filled out forms two or three times during the term. I have enclosed addressed, stamped envelopes for that purpose.

Feel free to contact me if you have any questions. If there are factors you wish to discuss in more detail than the forms allow, you may e-mail me at [mbucy21@attbi.com](mailto:mbucy21@attbi.com)

**APPENDIX K**  
**Value and cost flowcharts**







**APPENDIX L**  
**Design category table**

	<b>Value/Benefit</b>	<b>Emotional Response</b>	<b>Cost</b>	<b>Emotional Response</b>
<b>Orientation</b>	Good orientation system Study guides Clear goals and objectives Good feedback	Security	Unclear expectations No training Poor instructions No introduction to course No orientation information Unclear directions Purpose unclear Can't tell what professor values Schedule, assignments unclear	Frustration Anxiety Stress
<b>Content</b>	Relevant to current problems Relevant to career Relevant to life Interesting	Satisfaction Enjoyment, stimulation	Videos with info geared to FTF Unimportant, irrelevant content Contradictory sources Can't tell what professor values	Frustration
<b>Pedagogy/Delivery</b>	Study guides Place for asking questions Things happen as expected	Security Confidence	Busy work PowerPoint with no meat Things not timely Required FTF meetings Work not posted as promised Reading online OR printing lots Things not posted with timeliness Too many clicks Frames don't hold enough info Poor instructions Syllabus and online don't match Units close—can't go back Gradebook is hard to understand Several readings per module	Frustration Anger Irritation Confusion

Appendix L: Design Category Table

	<b>Value/Benefit</b>	<b>Emotional Response</b>	<b>Cost</b>	<b>Emotional Response</b>
<b>Interaction (Student/student)</b>	Combats isolation Provides support system Provides stimulation Enjoyable interaction Can be anonymous Don't feel odd (old, disabled) New ideas, views Helpful, supportive	Stimulation Enjoyment Comfort	Pointless posts, no content Group work No communication Misunderstandings Put downs Too many posts No visual feedback Time-delay Deadlines Lack of participation Copying ideas—no meat	Frustration Isolation Embarrassment
<b>Interaction (Student/teacher)</b>	New ideas Provides support Clarify content Clarify assignments Provide updates Keep informed Keep students on track Helpful, supportive	Stimulation Security Connection	No feedback Only negative feedback No positive reinforcement Lack of teacher responsiveness Not acknowledging receipt of assignments or messages Unclear expectations Late responses Discussion prompts not timely Seem unavailable	Anxiety Stress Isolation Anger Irritation Insecurity
<b>Interface</b>	Predictable	Security Comfort	Long download time High tech is distracting Too much reading online Similar classes – no context Small text	Frustration Confusion Stress

Appendix L: Design Category Table (continued)

	<b>Value/Benefit</b>	<b>Emotional Response</b>	<b>Cost</b>	<b>Emotional Response</b>
<b>Navigation</b>	Logical navigation Good orientation system	Security Comfort	Poor navigation Too many links Links within links Assignments hidden in links No direct links to tests Illogical navigation Like a treasure hunt Dead-ends—no way back	Frustration Confusion
<b>Flexibility</b>	Allows following own timeline Work around schedule Work ahead for absences Work at own pace	Comfort Confident	Deadlines Groupwork – other's schedules Doling out a bit at a time Units cut off, can't go back Staying on task	Frustration Distraction
<b>Hardware/Software</b>	Enjoy computer challenge No technical glitches	Enjoyment	Technical glitches Getting behind due to technical problems Learning tech AND content Computer crashes/Lost connections Compatibility issues Poor system Lack of technical skill Poor tech support No training High phone bills Cost to upgrade system or software	Frustration Stress Irritation

Appendix L: Design Category Table (continued)

	<b>Value/Benefit</b>	<b>Emotional Response</b>	<b>Cost</b>	<b>Emotional Response</b>
<b>Support Systems</b>	Good tech support Good support systems Helpful supportive professor	Security Pleasure Connection	Technical glitches unfixed No tech support system Bookstore not timely Library checkout too short Lack of consist. between courses	Anger Frustration
<b>Context issues</b>	Required for major/degree Required to keep job Required to gain admission Want a second career Leads to a higher salary Accom. mobility issue Allows continued work Accommodates family Can work in comfort of home Saves travel time and cost Allows time to balance things Cheaper tuition Accommodates remote location	Satisfaction Security Comfort Confidence Motivation	Too much – overwhelmed Time to coordinate w/ family/work Distractions at home Have to share computer Tuition too high	Overwhelmed Distraction Worry

Appendix L: Design Category Table (continued)