



## AN ABSTRACT OF THE DISSERTATION OF

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Abstract approved:

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With the rapid development of technology, online learning is increasing significantly and becoming a popular method of education for many universities and colleges around the world. Because of computers and the internet, most online learning today is interactive, and sometimes more interactive than the traditional classroom. Students can interact on equal ground, regardless of their race, gender, and appearance. Even without face-to-face teaching, it is now possible for rapid communication to take place between the teacher and the students using a variety of technological tools to enhance learning, such as conferencing tools, electronic mail, internet mailing lists, and newsgroups.

Online education gives students a high level of responsibility for their learning. However, there are many issues that affect their successful completion of online courses. Some of these issues include work overload, lack of technological skills, and

feelings of isolation. In addition, course design for effective online learning needs to be modified to fit the online format. Since there is no direct teacher-student contact, course expectations and outcomes must be clearly defined, and timely feedback must be provided. Well-trained online teachers often encourage critical thinking, problem solving, and the discussion of alternative points of view through a variety of available technologies. Because critical pedagogy emphasizes these elements, the researcher further investigated the theory of critical pedagogy as it applies to successful, web-based learning.

Critical pedagogy theory emphasizes human factors and addresses many important educational issues, such as diversity, equality, gender, student empowerment, and positive student-teacher interactions. Therefore, the focus of this study was to determine effective factors of online learning, based on the theory of critical pedagogy and best practices for traditional and online teaching. From the literature review, seven criteria were established, including Instructional Design and Delivery, Student Learning Outcomes, Assessments, Student Empowerment, Social Presence, Critical Thinking Skills, and Alignment.

Utilizing mixed evaluation methodology, these criteria of effectiveness were used to evaluate online courses at Oregon State University, College of Liberal Arts. In addition, this study examined whether students and teachers differ in their perceptions of online learning and whether or not significant relationships exist between these criteria. Finally, based on an analysis of the study results, the researcher explored elements of an effective online course derived from instructor perspectives, student perspectives, and researcher observations.

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Factors that Contribute to the Effectiveness of Online Learning  
Technology at Oregon State University

by  
Ghadeer Zainuddin Filimban

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I understand that my dissertation will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my dissertation to any reader upon request.

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Ghadeer Zainuddin Filimban, Author

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# Factors that Contribute to the Effectiveness of Online Learning Technology at Oregon State University

## INTRODUCTION AND RATIONALE FOR THE STUDY

According to Criscito (2002), distance learning can be defined as any educational system that includes participants who are separated by distance or time. It has a long formal history, generally recognized as beginning in the late 1900s when correspondence courses became available. Correspondence courses involved the slow process of mail sent back and forth between teacher and student. With the rapid change of technology, the options for distance education have greatly expanded. According to Mehrotra, Hollister, and McGahey (2001), in the 1930s, two-way radios were used for instruction. Subsequently, a variety of technological delivery tools have been involved in distance learning, such as cable television, closed circuit and interactive television, video and audio recordings, telephones, and computers. The authors commented that distance learning was slow and expensive, or operated at a relatively short distance. With the development of satellite down-linking, education over greater distances became possible. In addition, the authors pointed out that distance learning can occur exclusively in isolation, in conjunction with meeting in a traditional classroom, or can be a group of students meeting together to watch an interactive video lecture.

According to Keegan (1995), in his discussion of distance learning and educational technology:

Distance education and training result from the technological separation of teacher and learner which frees the student from the necessity of traveling to a fixed place (school, college, university) at a fixed time (school timetable, training schedule, lecture programme), to meet a fixed person (teacher, instructor, professor) in order to be trained or educated. (p. 5)

Although technology has significantly changed distance learning, older forms of distance education, such as correspondence courses, are still in use today. For example, in a study conducted by Adams (2006), a content analysis of 409 distance education web sites revealed that 90 were correspondence courses (with email support). Adams pointed out that all types of distance learning “whether in web-based or correspondence-by-mail format” included the shared attributes of geographic and time separation (p. 4).

Furthermore, as the California Distance Learning Project (2005) pointed out, distance learning can be synchronous or asynchronous. Synchronous learning is the simultaneous interaction between all the participants in real time, such as in the use of audio and video conferencing, shared whiteboard, and internet chats. While in asynchronous learning, the teachers and students do not participate simultaneously, such as in the use of electronic mail, many internet courses, and videotaped courses. However, both synchronous and asynchronous methods can be used within one educational course.

Distance learning is important because it provides opportunities for learners to continue their education, regardless of distance and schedule limitations. According to Needles (1999):

... the challenge of making distance education equate with quality education is to a large extent wrapped up in the amount of “distance” that is taken out of distance education. More flexibility and more dialogue through multiple communication links among the students and instructor are required to achieve this objective. (para. 8)

Online education is a subset of distance education that is taught through the internet, using a computer. According to Piskurich (2004), it “refers to learning that occurs as a result of information obtained via electronic means” (p. 8). In addition, the Florida State University President D’Alemberte (1995) stated that “in the past, distance learning was a second choice, a last resort even, for people who unfortunately couldn’t get an education in the normal way, which was to sit in a classroom and listen to a live teacher” (para. 1).

Today, distance education, especially online education, is becoming increasingly popular. Many university courses are taught online and some are only taught online. Students are encouraged to take online courses, not as a second-class alternative, but as a first-class method of instruction. Nearly all college students have the option to take online courses. According to Schrum and Hong (2002), “online learning has thus rapidly become a popular method of education for traditional and non-traditional students” (p. 57). One of the most important characteristics of online learning is that students can control the pace of their own learning.

## Background and Statement of the Problem

Increasingly, students are enrolling in online courses rather than in traditional courses, where they are required to sit together for three to four hours in a classroom every week. Web-based courses offer students more options than traditional classrooms. According to Mehrotra et al. (2001), students in these courses are given “considerable choices in selecting what discussions to pursue, what resources to seek out, and what topics to investigate more deeply” (p. 9). Hence, online learning has become an essential component of modern higher education. Because it is a popular way of earning credits, colleges and universities are increasing the number of courses that are being taught online. According to the National Center for Educational Statistics (NCES), which is a part of the Institute of Education Sciences and the United States Department of Education (1999), “between fall 1995 and 1997–98, the percentage of higher education institutions offering distance education courses increased by about one-third, from 33 percent to 44 percent” (p. vi). In addition, the number of students enrolled in distance education almost doubled between 1994-95 and 1997-98 increasing from 753,640 to 1,343,580. Furthermore, the statistics provided by NCES (2003) suggested that between 1997-98 and 2000-01, the number of enrollments increased from 1,343,580 to 2,876,000. The information provided by NCES does not generally distinguish between the various types of distance education; however, NCES does provide data for 1999-2000 that reveals 90% of undergraduates who took distance courses took internet-based courses.

Furthermore, current statistics indicate the ongoing dramatic growth of distance learning within higher education. Mehrotra et al. (2001) stated that “indeed, distance education has come into the mainstream of higher education and is available from a wide spectrum of institutions” (p. 9). According to Allen and Seaman (2006), in the Sloan Consortium fourth annual report on the state of online learning in U.S. higher education, Fall term 2005 marked the largest increase in the number of online students. More than 2.3 million students took at least one online course during the Fall term 2004 as compared to nearly 3.2 million during the Fall term of 2005, a growth rate of 35%. Recently, Oregon State University (OSU) Extended Campus (2007b) announced that 2007 was the largest graduating class to date. During this academic year, “87 students finished their degrees through Extended Campus, as compared to 71 in 2005-06 and 49 in 2004-05” (para. 1). It is evident that online learning is continuing to grow significantly.

In light of this tremendous growth, it is critical to examine various important factors that must be considered in order to create effective online courses. These factors include the need to increase online student completion rates, provide training to online instructors, support students’ technological skills, and develop a more reliable online assessment tool. The examination of these factors guided the researcher’s investigation into the complexities of developing quality online education.

Excellent online education is needed to ensure that e-learners receive outstanding instruction that meets their needs and interests. Palloff and Pratt in 2001, pointed out that:

... the more typical online student is seeking an active approach to learning and more involvement in the learning process.... [They are] not content with being *taught to*, the online student seeks to engage with faculty in a more collaborative learning partnership. (p. 2)

If the students' needs are not met, then they are likely to withdraw from the course. According to Willging and Johnson (2004), "it is estimated that dropout rates for distance education are higher than those for on-campus programs and courses. Some studies roughly estimate that students enrolled in distance education are twice as likely to drop out than on-campus students" (p. 106). Carr (2000) pointed out that "although there is significant variation among institutions ... several administrators concur that course-completion rates are often 10 to 20 percentage points higher in traditional courses than in distance offerings" (p. 2). In addition, Lynch (2001) confirmed that "student dropout rates were as high as 35% to 50%, compared to 14% for traditional classes" (para. 2). Finally, in a study by Fredda (2000), the completion rate for undergraduate campus-based courses was 14% higher than for internet-based courses.

Frankola (2001) attributed this high rate of attrition to several factors including "inexperienced instructors" (p. 54). In addition, Irani (2001) pointed out that "even as scores of faculty in U.S. postsecondary institutions now offer courses online, few have been trained in the proper development and execution of distance learning courses" (p. 15). As Palloff and Pratt (2001) pointed out, online courses and programs may not

provide a good educational experience unless the institution has taken into consideration the need for training and support of faculty teaching the courses, a solid budget, and a clear idea of who owns the course materials. According to the Distance Education Report, the Center for Teaching Excellence at the University of North Carolina found that only 15.9% of the faculty “had previously taught an online course” (*Gauging Faculty Attitudes*, 2004, p. 5). Furthermore, the Distance Education Report described a study conducted by McDaniel, at Middle Tennessee State University, which investigated faculty attitude and preparation. The findings indicated that instructors who had low-level technical abilities had low-quality online classes (*Faculty Attitude, Preparation*, 2004). In other words, online courses need to be the product of well-trained teachers, excellent organization, and outstanding presentation of the educational material. It is in the best interests of the institution to ensure that online students have access to quality, effective courses.

Further research into the problem of high attrition by Lynch (2001) “indicated that the domain of online learning was new to students; many lacked fundamental computer skills and were newcomers to the Internet. This lack of experience impinged on their ability to adapt to the new learning environment” (para. 3). Furthermore, Gaide (2004) stated that one of the “key issues affecting student retention” is a lack of computer skills (p. 4). Moreover, Willging and Johnson (2004) reported in their survey results under “Technology-related Reasons” that a “lack of technical preparation for the program” contributed to a high drop-out rate (p. 115). It becomes evident, as Lynch (2001) emphasized that “effective student and faculty preparation for the Web-

based teaching and learning environment can make a significant impact on student success in their studies, thus increasing retention and curriculum completion” (Conclusions and Recommendations section, para. 2).

Many institutions are not prepared for the challenges involved in offering quality online learning; especially, there is a lack of a reliable assessment tool for evaluating and improving online courses. Moskal, Dziuban, Upchurch, Hartman, and Truman (2006) pointed out that “as the online environment expands ... it presents formidable challenges to higher education. Universities must confront the demand for new pedagogies, enhanced support for both faculty and students, organizational redefinition, authentic and contextual assessment techniques” (p. 27). In addition, the Distance Education Report pointed out that “the importance of regular assessment and improvement for the success of the program” is essential (*Gauging Faculty Attitudes*, 2004, p. 6). Furthermore, Bender (2003) emphasized that there is a “crucial need for a more rigorous and objective assessment” of online courses (p. 166).

That brings us to the question: How can institutions evaluate online courses in a valid, competent manner that meets the criteria of an effective learning experience for students? The purpose of this study was to create an effective assessment tool that institutions of higher education can use to evaluate online courses, from the viewpoint of the students, and also from the viewpoint of faculty who teach the courses.

The difference between most assessment tools that are already available and the one that was developed through this research is that the tool used in this study was based on critical pedagogy theory. As critical pedagogy brings with it the human

factor, it focuses on student diversity, student/student and student/teacher interactions and collaboration, and the empowerment of students through accountability for their own learning process.

Critical pedagogy is dynamic and requires that both students and teachers continually reassess values and behaviors. According to Darder, Baltodano, and Torres (2003), critical pedagogy is often described as being composed of a variety of important principles and awarenesses, including:

- *Cultural Politics*: Students from disenfranchised or minority groups can be empowered by transforming the structure of power, culture, and political ideologies in the classroom.
- *Political Economy*: Traditional classroom structure replicates the power structure of the dominant socio-political groups.
- *Historicity of Knowledge*: The historicity of knowledge is the awareness of how historical changes in social, political, cultural, and intellectual institutions inform the structure of the classroom. If students are to be empowered, their teachers must understand what historical contexts have informed their practice. The end goal in critical pedagogy is to make the students aware that while human beings are the source of injustice, they are also the vehicles for change, able to right the wrongs.
- *Dialectical Theory*: Critical pedagogy supports a dialectical view of society, knowledge, culture, and ethics. This principle informs critical pedagogy by not viewing conflicts or problems individuals have as isolated incidents, but as

events produced by conflicts between the individual and society. By doing so, students can recognize the myth of objectivity and subjectivity by recognizing that they are interrelated.

- *Ideology and Critique*: Ideology is the way an individual attributes meaning and structure to their socio-political environment. The ideologies of the individual are revealed by the way in which they perceive their own inner history and experiences. Critical pedagogy calls teachers to recognize that their curriculum is informed by ideologies which maintain the dominant structure's status quo and exclude the relevance of the students' perspective.

- *Hegemony*: Gramsci (1971) referred to hegemony as the dominant culture exerting power over the minority by controlling the leadership positions in society. This control must be constantly asserted by the dominant group in order to retain their favored status. Critical pedagogy calls for educators to understand the tools and methodology of hegemony in order to undermine them.

- *Resistance and Counter-Hegemony*: The first principle of resistance and counter-hegemony is that all people have the ability to learn and "produce knowledge," and to challenge the dominant groups (p. 14). Within critical pedagogy, counter-hegemony is a term utilized whenever a subordinate group in the socio-political culture takes action to reconstruct the power relationships in order to make their own views the central voice of knowledge and power.

How the individuals of the subordinate groups resist is tied into how they view their oppressors.

- *Praxis*: Praxis is practical learning; it is human activity which is self-created and self-perpetuated. Critical pedagogy views praxis and theory to be interrelated. Theory informs practice by providing better understanding of the way things are, and the way they might be, and praxis informs theory of humanity's capacity for learning and especially change.

- *Dialogue*: Dialogue is the primary method utilized by critical pedagogy in the classroom. Through discussion, a process of students asking questions of the teacher, and the teacher asking questions of the students, everyone is allowed to contribute and learn.

- *Conscientization*: Conscientization is the process by which students not only understand the social, political, moral, and intellectual realities which define their lives and education, but feel empowered to take action and reconstruct that reality.

These principles give a strong foundation for the investigation of the relationships between different aspects of life. Kincheloe (2005) stated that "critical teachers gain the ability to help students understand multiple perspectives and the influence of their own location in the web of reality on how they see the world" (p. 127).

In order to create an assessment tool based on critical pedagogy theory, some of the important factors that needed to be addressed for online students were:

- Did you feel comfortable with the online procedure?

- Did the instructor seem to understand your learning needs?
- Did the instructor acknowledge students' ideologies and biases, and allow and encourage alternate points of view?
- Did the course material encourage personal change and growth?
- Did you feel respected as an online student?
- Was the teacher's feedback valuable, timely, and did it keep you on track?

Some of the factors that needed to be addressed in an assessment tool for online teachers were:

- Did you design your course to meet students' various learning styles?
- Did you encourage your students to experience personal change and growth?
- Was your course syllabus clear, and were your objectives well defined?
- Did you encourage interaction and discussion between students and yourself?
- Did you encourage your students to think critically?
- Did you use multiple forms of assessment for evaluating your students' achievements?

The questions above were chosen because they are directly linked to critical pedagogy theory. For example, the questions asked of students were related to student empowerment, learning outcomes, social presence, and thinking skills, all of which are key components of critical pedagogy. Equally, the questions asked of online teachers were associated with factors such as instructional design and alignment of goals and

outcomes that are addressed in critical pedagogy theory. The data collected and analyzed in this study was used to determine the effectiveness and quality of a number of online undergraduate courses in the College of Liberal Arts at OSU.

Previous research studies done by universities as well as businesses have focused on various elements that they consider most important when evaluating online courses for effectiveness. Cook and Dupras (2004) stated that some of these elements are: the use of teaching methods that promote positive student interactions, active learning, valuable teacher feedback, quality course content, improved learning outcomes, and flexibility. Little and Banega (1999) in their assessment of course materials stressed the importance of good technological delivery: “looking only at learner outcomes, undelivered or improperly delivered content can make that content seem defective when it is not” (p. 9). They note that good content is of little value if it is poorly delivered. In addition, Toporski and Foley (2004) pointed out that teachers should integrate and maintain a variety of media in the online learning environment, define what is being learned in context of the students’ everyday lives and goals, and provide a cognitive support structure for learning. Michigan Virtual University (2002) listed four standards for quality online courses. These included: “technology, usability, accessibility, and instructional design” (Components of Our Standards section, para. 1). The technology standard reviewed the function and the proper use of technology. The usability standard required that the delivery method provided students an “optimal learning environment” (Usability Standards section, para. 1). Accessibility required that the course met certain Web Accessibility Initiative (WAI) regulations.

Instructional design included requirements that course material be instructionally beneficial.

There are differing viewpoints among researchers about what defines an effective online course. For the purpose of this study, all of the above viewpoints were considered in defining the factors for an effective online course. Furthermore, informative studies have been done that implement critical pedagogy within higher education classroom courses. Lacking were similar investigations of online courses. Applying critical pedagogy to a broad spectrum of online courses in the CLA at OSU has enriched the literature through gathering and analyzing data regarding these courses.

### The Significance of the Study

The effectiveness of online distance learning technology in a sampling of undergraduate courses at Oregon State University was the focus of this research study. Critical pedagogical philosophy, particularly as applied to students' perspectives, was considered.

One of the dilemmas faced by online teachers is that undergraduate students sometimes lack motivation for completing the course. Because it may seem easier to augment an already busy schedule with an internet course, rather than a traditional face-to-face course, some students may take on more work than they can handle. There is reason to believe students enrolled in online courses are busier than those

enrolled in traditional classes. In addition to their enrollment in an online course, they may be involved in the following: (a) a full- or part-time job; (b) face-to-face classes; or (c) extracurricular activities, such as athletics, music and theater groups, student government, and student publications. As the work piles up, students might drop the online courses in order to catch up. In addition, if the students feel that the online instructor is not qualified to teach the class, then they will probably drop out.

I chose to focus on undergraduate courses for several reasons. Not the least of these reasons is the purely practical matter that there are more undergraduate than graduate courses and students at OSU. Because of the popularity of online courses, student enrollment is increasing. According to the website of the OSU Office of Institutional Research (2008), between Spring 2004 and Spring 2006, undergraduate online student enrollment at OSU Extended Campus increased nearly 50% from 1,113 to 2,202 students. Furthermore, in the College of Liberal Arts, large numbers of online courses and the diversity of classes offered by Extended Campus provided a diverse cross section of students. Additionally, since student motivation is seen as such an important factor in online education, studying undergraduate students who were enrolled in online courses allowed me to investigate this problem. Ekong and Jerry (2004) stated that “student personal factors such as motivation, discipline, and time management skills are some of the important factors that facilitate success” (p. 11). The authors pointed out that “instructor characteristics were also found to be very important. These include the showing of interest and caring for the students by

providing good, clear, specific and detailed feedback on assignments and discussion forums” (p. 18).

An important factor that seemed to be missing from the research on effective online courses was the application of critical pedagogy as an underlying philosophy for development and evaluation of online courses. Many studies had incorporated good pedagogy in general, including collaborative learning, critical thinking, and other strategies, but they had not discussed all of the principles of critical pedagogy or how they could be applied to online courses. Some of the research had shown that critical pedagogy could be usefully applied to assessment practices, especially in the area of teacher education. According to Keesing-Styles (2003):

A critical pedagogy of assessment involves an entirely new orientation - one that embraces a number of principles that may not be familiar in the generic assessment literature. To achieve a critical approach to assessment, it must be centered on dialogic interactions so that the roles of teacher and learner are shared and all voices are validated. (The Relationship between Critical Pedagogy and Assessment in Teacher Education section, para. 2)

## Research Questions

The following research questions were established in order to provide guidance for the study:

1. Based on the theory of critical pedagogy, what assessment tool can be developed to evaluate online courses from instructor and student perspectives?

2. According to instructor and student responses to questions based on the theory of critical pedagogy, how effective are online undergraduate courses?
3. Is there a significant difference between the students and the instructors in their perceptions of the online courses?
4. Are there correlations between the criteria of effectiveness used in the assessment tool?
5. What constitutes an effective online course based on instructor perspectives, student perspectives, and researcher observations?

## The Context

In recent years, there have been numerous studies done in different countries, such as the United States, Australia, and Canada, relating to effective online courses. Although this research provided a great deal of information, the research seemed to lack the philosophical foundation for strengthening instructional design in light of the results. The number of online courses had been increasing rapidly during the last decade, despite limited study of what exactly constitutes an effective online course. My goal was to create an effective model for evaluating online courses, based on the philosophy of critical pedagogy.

Although the change in online education is occurring in countries all over the globe, I restricted my inquiry of online education development to the United States. Nonetheless, as I conducted my research, I was mindful of how the developments in

the United States may be transferred to other countries around the world. Because I am an international student, I am always aware of various cultural experiences with new technology.

Barron (2003) pointed out that the cultural value and philosophy may affect the criteria of online learning. He found when comparing North America, Europe, and Asia, that North America has the most optimistic view of online learning. Some of the factors that contribute to such varying views of online learning included “cultural differences among these regions in perceptions and use of organizational learning, and the different levels of maturity of eLearning in each region” (p. 21).

Developing a curriculum that integrates technology in the educational system is expensive; however, the alternative of constructing new buildings and the other facilities needed to support traditional face-to-face education is also expensive. Training faculty and staff to make use of technology and to assist students with problems is a major undertaking. Additionally, technological tools such as computers, internet connections, digital audio, and cameras are expensive; moreover, technological innovations render much technological equipment obsolete within a few years. As these changes occur, it is important to make sure we are creating effective online learning experiences.

According to Phelps, Wells, Ashworth, and Hahn (1991), a comparison study conducted on US Army Reserve courses revealed that online courses cost less than traditional classes in the long run. When these costs are compared to the costs of constructing new universities which require physical infrastructure, online courses

appear very cost effective. This is especially true when the benefits of improved technological skills are factored into the equation.

### My Experience with Educational Technology

I have learned more about technology and increased my knowledge of effective teaching practices while completing my graduate degree in Educational Technology. I took several workshops from different institutions in a number of practical subjects related to instructional technology. During this time, I gained the knowledge that has driven my interest in computers and which has allowed me to envision the possibilities for integrating technology in classrooms.

When I started my Master's degree program in Iowa, I chose the field of Educational Technology because I wanted to study technology in the United States. I received additional intensive computer training, especially when I became a teaching assistant for the Educational Media and Computing Class. Through teaching undergraduate students, I learned many new things, which opened a new world for me, such as distance learning, visual literacy, diversity in media, multimedia, and rethinking tools. This experience helped me understand that just as there are less or more effective traditional classes, there are also less or more effective online courses. This understanding increased my curiosity about what elements define an effective online course.

## LITERATURE REVIEW

### Critical Pedagogy

Critical pedagogy theory was used as a basis for this study. The reason for choosing this philosophy was that it addresses many important educational issues, such as diversity, empowerment of students, and positive student-teacher interactions. According to McLaren (1994), critical pedagogy “provides historical, cultural, political, and ethical direction for those in education who still dare to hope” (p. 168).

Critical pedagogy strives to create well-educated citizens and a better society. For example, Chen (2005) stated that “a positive sense of self, or identity, enables one to view one’s group or community positively, which facilitates the cultivation of healthier citizens with stronger self-esteem” (p. 12). Chen pointed out that schools play a major role in creating students’ ideas about their cultural identity. In the U.S, through the “hidden curriculum,” the dominant society tends to give credence to white, higher-class culture while undermining other cultures (p. 15). Critical pedagogy recognizes and strives to overcome this dilemma. Chen argued that “critical pedagogy is a powerful tool for cultivating positive cultural identity for subordinate groups” (p. 13).

## The Analysis of Critical Pedagogy

Darder et al. (2003) pointed out that Paulo Freire was extremely influential in developing critical pedagogical theory between 1970 and 1997. His book, *Pedagogy of the Oppressed*, published in 1971, has been widely studied by educators in the United States. Another well-known theorist, Henry Giroux, first used the term critical pedagogy in his book *Theory and Resistance in Education*, published in 1983. He stated:

... the concept of critical theory refers to the nature of self-conscious critique and to the need to develop a discourse of social transformation and emancipation... In other words, critical theory refers to both a “school of thought” and a process of critique. (p. 27)

According to Darder et al. (2003), other educational philosophies that contributed to critical pedagogy practice were those of John Dewey, Jonathan Kozol, Myles Horton, and Herbert Kohl. The authors pointed out that in the early 1900s John Dewey advocated that “education must engage with and enlarge experience; that thinking and reflection are central to the act of teaching; and that students must freely interact with their environments in the practice of constructing knowledge” (p. 3). Jonathan Kozol, a “social activist” in education, fought against poverty, racism, and oppression (p. 4). He questioned the American educational system and proposed that it should include the “human and spiritual, as well as political” (p. 4). Myles Horton was known as “one of the sparks” that started the “civil rights movement in the United States” (p. 3). He advocated that educators should create a community that included

everyone, regardless of race, color, or economic status. Herbert Kohl established the Open School Movement in the early 1960s. He realized the importance of student diversity in the school system. His active political views helped to pave the way for other critical pedagogical theorists who came later. These and many other dedicated educators worked to improve the inadequate social and educational structures of their time.

In their introduction to critical pedagogy, Darder et al. (2003) pointed out that several theorists from the Frankfurt school, including Horkheimer, Marcuse, Adorno, and Fromm, were driven to write significant essays describing the principles of critical pedagogy, which was an educational development they felt was necessary to meet the needs of a changing society. These theorists believed that through the use of their principles, education and society could be reformed. Darder et al. stated that critical pedagogy was established on a set of “heterogeneous” principles rather than homogenous ones (p. 10). The authors claimed that critical pedagogy includes many philosophical perspectives that have been expressed:

through a variety of intellectual traditions—traditions that have sought to explore the relationship between human beings, schools, and society from a myriad of epistemological, political, economic, cultural, ideological, ethical, historical, and aesthetical, as well as methodological, points of reference. (p. 10)

Darder et al. (2003) listed the components of critical pedagogy as: cultural politics, political economy, historicity of knowledge, dialectical theory, ideology and critique, hegemony, resistance and counter-hegemony, praxis, and dialogue and conscientization. The first component, cultural politics, is used to give power and

voice to those with little social influence. Critical pedagogy places an emphasis on evaluating the current educational system to determine if it is neutral, biased, or promotes social justice. Critical pedagogy provides a means to assess the validity of education. Kincheloe (2005) pointed out that educators “must expose the hidden politics of what is labeled neutral” (p. 10). The concept of cultural politics assigns value to students’ personal lives and their community, and finally challenges students to think critically about their viewpoints, which have been determined by their socioeconomic status. McLaren (1994) argued that “teachers must understand the role that schooling plays in joining knowledge and power, in order to use that role for the development of critical and active citizens” (p. 168).

The second component of critical pedagogy as defined by Darder et al. (2003) is political economy. The authors argued that the current educational system seems to give more power to students of higher class, so that the “privileges of the culture of the dominant class,” are maintained (p. 11). Critical pedagogy seeks to change this relationship and to empower the lower classes. Political economy describes the relationship between the culture and the class of students and teachers. These relationships cannot be isolated from every aspect of daily life. The culture and class of students and teachers contributes to their understanding of themselves and their environment. McLaren (1994) contended that:

Critical pedagogy is founded on the conviction that schooling for self and social empowerment is ethically prior to a mastery of technical skills, which are primarily tied to the logic of the marketplace (although it should be stressed that skills development certainly plays an important role). (p. 170)

The third component of critical pedagogy as defined by Darder et al. (2003) is the idea of historicity of knowledge which maintains that one cannot have knowledge apart from the historical context that created it. Education and learning take place within a historical context. Darder et al. stated that “students and the knowledge they bring into the classroom must be understood as historical—that is, being constructed and produced within a particular historical moment and under particular historical conditions” (p. 12). Furthermore, students come to realize they are “subjects of history” and although social injustices may have a long historical tradition, these injustices are a product of humans, so they can be changed by humans (p. 12). As Giroux (1983) pointed out “human beings not only make history, they also make the constraints; and needless to say, they also unmake them” (p. 38).

Darder et al. (2003) identified the fourth component of critical pedagogy as dialectical theory. They suggested that critical pedagogy places an emphasis on the possibility of transforming the current system and encourages change and growth rather than restricting thought to one way of thinking. In critical pedagogy, humans are seen as interconnected and codependent. McLaren (1994) stated that dialectical theory views schools as places of “*both* domination and liberation” (p. 176). He also pointed out that schools’ roles are to enable students to both participate in issues of social justice and challenge the status quo.

The fifth component of critical pedagogy as defined by Darder et al. (2003) is ideology and critique which explains that ideology is central to people’s interpretations of their experiences. McLaren (1994) defined ideology as the

“production of sense and meaning” (p. 184). Darder et al. pointed out that critical pedagogy encourages teachers to critically examine their classroom experiences in light of their ideology and then to assess their behaviors and to improve their teaching, so that “dominant cultural assumptions and practices” do not control their classrooms (p. 13).

Darder et al. (2003) proposed that the sixth component of critical pedagogy is hegemony. McLaren (1994) defined hegemony as the:

... maintenance of domination not by the sheer exercise of force but primarily through consensual social practices, social forms, and social structures produced in specific sites such as the church, the state, the school, the mass media, the political system, and the family. (p. 182)

Darder et al. explained that critical pedagogy encourages teachers to transform the conditions in their classrooms for the benefit of lower-status students. An essential element of this scheme, as defined by these authors, is that it is ongoing; the battle against hegemony is never ending. This resistance requires “understanding not only how the seeds of domination are produced, but also how they can be challenged and overcome through resistance, critique, and social action” (p. 14).

The seventh component of critical pedagogy as identified by Darder et al. (2003) is resistance and counter-hegemony. Kanpol (1997) defined counter-hegemony as “the ultimate challenge to forms of alienation, oppression, and subordination, as well as a site for the maintenance and extension of hegemonic understandings” (p. 38). Darder et al. recommended that teachers have an understanding of the extent to which students may feel a need to resist the educational hegemony. They emphasized the

importance of allowing students to have a voice in the design of the course and the messages sent by the educational system. The authors described counter-hegemony as reconstituting power relationships so that marginalized individuals can participate in the educational process.

The eighth component of critical pedagogy is praxis according to Darder et al. (2003). McLaren (1994) defined praxis as “informed actions” and stated that “actions and knowledge must be directed at eliminating pain, oppression, and inequality, and at promoting justice and freedom” (p. 190). Darder et al. considered praxis as “all human activity... understood as emerging from an ongoing interaction of reflection, dialogue and action” (p. 15). Because of these ideas, the theories that underpin critical pedagogy are continually exposed to an ongoing review and critique. Without this ongoing analysis, “practice becomes ungrounded activity or ‘blind activism’” (p. 15).

The last component of critical pedagogy as identified by Darder et al. (2003) is dialogue and conscientization. It is considered central to critical pedagogy because the educational process should validate all students “through challenging the dominant educational discourse and illuminating the right and freedom of students to become subjects of their world” (p. 15). This dialogue should support both “reflections and actions” (pp. 15-16). Students and teachers each learn from one another and “actual lived experiences cannot be ignored or relegated to the periphery in the process of coming to know” (p. 15). Students develop a consciousness of their social environment and realize their own ability to alter this environment. Weiler and Mitchell (1992) described Freire’s approach to conscientization as the “development

of critical consciousness” that “can only emerge through dialogical, problem-posing education” (p. 241).

McLaren (1994) also discussed the dilemma of structured curriculum in our schools, which favors certain groups of students over others: “critical pedagogy asks how and why knowledge gets constructed the way it does, and how and why some constructions of reality are legitimated and celebrated by the dominant culture while others clearly are not” (p. 178). He referred to this as “the hidden curriculum” (p. 191). The hidden curriculum undercuts the idea that the educational process should validate all students, which is central to critical pedagogy. Historically, schools have divided students by whether or not they were competent to go to college or should, instead, get a job out of high school. This practice continues today and is known as tracking. As McLaren stated, the hidden curriculum “is a part of the bureaucratic and managerial ‘press’ of the school—the combined forces by which students are induced to comply with dominant ideologies and social practices related to authority, behavior, and morality” (p. 191).

McLaren (1994) argued that state assessments, or other standardized tests in the U.S., are used for tracking students. These assessments have been shown to be biased and to favor the experiences of students who are white and middle or upper class over those of students from a multicultural heritage or low socio-economic status. This puts students from diverse cultural and financial backgrounds at a great disadvantage. The author commented that students who score highly on these tests are given more opportunities to advance than are those who score poorly. This practice

severely undermines the idea of empowering students to be successful. McLaren pointed out that “empowerment means not only helping students to understand and engage the world around them, but also enabling them to exercise the kind of courage needed to change the social order where necessary” (p. 190).

### The Importance of Critical Pedagogy for Online Distance Learning

Gayol and Schied (1997) emphasized the importance of critical pedagogy to understanding the global consequences of distance education. They indicated that critical pedagogy can be used by educators to combat repressive aspects of the online environment, and to promote social justice and fairness. The authors offered a brief overview of five approaches for supporting democracy in transnational distance learning. One of these approaches explored the idea of incorporating marginalized learners. Gayol and Schied pointed out that:

Critical pedagogy attempts to open a democratic space in the sphere of contents, but it is more important to share expertise in order to allow marginalized groups to understand the process of being a virtual learner. This is the most complex and the most important example for working towards the creation of more democratic relationships. When societies make it impossible or difficult for members of subordinate cultures to become teachers and readers of socio-cultural signifiers, education is divided into those who have knowledge and those who receive knowledge. In such cases democracy and equity can hardly be achieved. (Empowerment of Marginalized Learners section, para. 1)

The study suggested further investigation of marginalization to avoid continued injustice. The implementation of critical pedagogy in cyber-classrooms recognizes the multi-cultural, gendered, and racial context of knowledge. In another approach, the

authors addressed the concern that much of the information available online is written in English and represents the English speaking culture and world view. Gayol and Schied suggested that critical pedagogy supports “de-construction of texts,” so that the learner can explore information in the context of their own language and culture (Resistance to Linear Interpretations section, para. 1). Furthermore, there is the potential for expansion in the area of international online education. The authors promoted an additional approach that supports online learning for marginalized learners. They suggested the:

... reservation of virtual space to run educational programs. Practices that encourage the establishment of reserved and free educational virtual space could include encouragement to international virtual programs to offer virtual scholarships to marginalized groups and the establishment of policies to recycle computers to marginalized sites. (Reservation of Virtual Space for the Growth of High Quality, Free Education section, para. 1)

Finally, Gayol and Schied emphasized again the importance of critical pedagogy in supporting democratization and equalization of access to online education and resisting oppressive and imperialistic practices.

LeCourt (1998) examined the role of critical pedagogy in computer-mediated communications (CMC), especially synchronized discussions. CMC is a communication form in which students and instructors correspond and exchange information using networked computers. The author recognized three concepts that empower critical discourse. These concepts include: “anonymity, power, and authority” (pp. 279-280). First, the concept of anonymity allows learner participants the opportunity to convey their perspectives without hesitation and to “express reified

positions of racism, sexism, and so on, in such discussions rather than in face-to-face discussions in an academic context” (p. 180). Secondly, power relationships are exposed in “real-time discussion” because students can experience “the ways a given discourse gains (and loses) the ability to silence and exclude or provide voice and power to a given contributor within a given moment” (p. 279). Finally, the experience of authority allows learners to explore a variety of opinions, renegotiate positions, and “invoke context they find more persuasive” (p. 280). LeCourt concluded that the use of critical pedagogy in online classes fosters “social and self criticism” by allowing students to analyze and reflect on their own comments within the context of the group commentary (p. 292).

Whithaus (2005) pointed out that “the value placed on dialogue in works of critical pedagogy is precisely what makes it valuable as a teaching praxis for computer-mediated writing” (p. 80). Critical pedagogy offers an assortment of teaching strategies that support innovative methods of computer-mediated writing and allow online students to have the opportunity to share their thoughts and ideas, listen to the perspectives of others, and change their own viewpoints in that process. For example, Mayo (2001) motivated her students to embrace social justice through the use of computer-mediated communication. She encouraged her students to publish their research through the internet in order to receive world attention and be able to interact with outside communities. Students were able to communicate with students in other places and exchange experiences. It empowered students to analyze their own lives, communicate with others, and break down the stereotypes that others have of them.

Mayo concluded that “giving students courage and voice to stand up for their beliefs” changed her students from being passive learners to active learners who care about their environment and “know how to make connections and enter conversations” (An Agenda for Social Justice section, para. 3).

MacFadden, Moore, Herie, and Schoech (2005) discussed the issue that traditional educational curricula do not speak to the needs of students from diverse backgrounds. The authors argued that the current systems of education duplicate the structure of power and control found in the dominant culture. For example, the egalitarian perspectives of race, gender, culture, age, and disabilities, are not always integrated into the classroom teaching/learning. Critical pedagogy addresses this marginalization because it supports and acknowledges student ideas, opinions, and experiences as a significant part of the educational setting. Furthermore, the authors suggested that critical pedagogy challenges “educators to turn their critical gaze toward themselves and their teaching practices. This willingness to explore alternative teaching/learning models has been especially evident in the online learning literature” (p. 37).

Eastmond (1995) stated that being able to provide the needed technological tools is not the whole solution to providing equal opportunity and access to the online network. What is important is for students to know how to communicate successfully online in order to be empowered and participate equally in the learning community. This includes:

(a) learning technical procedures to effectively participate online; (b) processing the online information; (c) deciding when to contribute and how best to present one's thoughts online; (d) determining a frequency of reading and writing on the conference; primarily to follow multiple discussion, avoid information overload, and achieve maximum interactivity; (e) inviting further interactivity through timely contributors to solicit response; and (e) learning to express oneself accurately and concisely through text. (p. 193)

Eastmond observed that online learning “bridges a larger relationship,” not only between teacher and students, and distance, but also between individual learners and their peers, and time. In addition, Eastmond found that computer-mediated communications (CMC) is starting to cross “cultural, social, racial, ability, and age-related gulfs” (p. 128). However, the author mentioned that online learners may not interact with their peers harmoniously because of the complex diversity that prevents them from feeling part of the community. He stated that online learning may require students to “interact more with technological devices than with other humans” (p. 203). On the other hand, online students can “use these tools to form and sustain relationships in a world as divided as ever by distance, time, culture, economic means, and the pace of living and working” (p. 203).

Campbell (2002) conducted a project of action research that included 40 female faculty from the University of Alberta. The study discussed critical pedagogy in the context of feminist pedagogy and revealed faculty preferences that valued the importance of relationship and student interaction, such as CMC. Campbell pointed out that:

Critical pedagogues strive to design learning environments in which practice reflects democratic values arrived at through intellectual challenges to the taken-for-granted, emphasis is placed on the development of student and

teacher voice, and knowledge is constructed in relationship with others. The faculty in this study told stories of teaching and learning in which these values were embodied in online conversations. (p. 36)

Finally, the author stated that CMC can be utilized as a medium for critical pedagogy and instrument of global transformation.

Wang's work in 1999 integrated critical pedagogy into a multimedia technology project, and provided evidence that technology can be a valuable and significant contribution to critical pedagogy. Wang's study showed that "technology can be used to support the pursuit of one form of pedagogy or another" (p. 3). Wang proposed that technology education could help fill the gap in "current school curriculum [that] fails to provide [a] meaningful connection between classroom learning and the real life students are living" (p. 3). Thus, technology can be used to put critical pedagogy into practice in order to empower students.

Lankshear, Peters, and Knobel (1996) argued that "critical pedagogy is most definitely a viable educational enterprise within cyberspace. Indeed, many of its foundational concepts and principles are made more explicit and more relevant within educational expanses of cyberspace" (p. 149). The authors examined "information, knowledge, and understanding" in cyberspace within the framework of critical pedagogy (p. 178). In the domain of information, critical pedagogy emphasizes the critical analysis of information and how it becomes associated with social practice. In the domain of knowledge, the legitimization and regulation of knowledge in cyberspace is examined. In the domain of understanding, critical pedagogy stresses the self-reflection of online learners and meta-cognitive awareness. In conclusion, critical

pedagogy in cyberspace improves “the prospects of individual and collective action aimed at transforming social practices and relations” (p. 185).

The very nature of distance education requires that students participate in what is an increasingly important technological aspect of modern society. However, studies by various researchers have demonstrated that not everyone has equal access to computers or computer technology, exacerbating inequities of the past. For example, Camp (1998) found that the number of women entering the field of computer science is shrinking. Damarin (1989) noted that “computers are changing the relationship of young women to society” (p. 16). She also emphasized the need to empower students, especially girls, to work with computers in order to improve their economic status. Fiore (1999) pointed out that girls learn differently than boys and that there are aspects of instruction that need to be emphasized in order to make becoming computer literate “appealing to girls” (p. 13). Aspects that she described as especially significant include:

(1) low frustration levels; (2) story lines that appeal to girls; (3) celebration of girls; (4) collaboration rather than competition; (5) challenging and complex activities; (6) exploration and lack of closure; (7) graphics; (8) rich, reality based visuals and audio; (9) personal exploration; and (10) interactive communication. (p. 11)

Stone (1999) provided a true story of a male psychiatrist who, while on the internet, was taken for a woman, prompting him to take the opportunity to further explore the experience of conversing online as a woman. Stone’s experience demonstrated not only that people can hide their true identity while online, but that working online gives people a chance to relate in a new, possibly less gender-dominated domain. Thus,

distance education provides a unique chance to evaluate students by their words and work, without being influenced by their dress or physical characteristics.

### Effective Classroom Teaching Methods

In order to decide what elements of teaching and learning are the most effective in online courses, it was necessary to analyze traditional teaching methods that seemed to be the most effective, and then decide which of these could also be incorporated into online courses. Grasha (1994) discussed that teaching styles fall into five categories: “expert, formal authority, personal model, facilitator, and delegator” (p. 142). In a traditional lecture class, the teacher is usually seen as an expert and this style seemed to work well with large, lower level undergraduate classes. In the formal authority style, the teacher provides feedback in order to improve student outcomes based on certain standards, criteria, and rules that meet teacher expectations. In the personal model, teachers present themselves as a model to be emulated and encourage students to learn by observation and hands-on activities. The teacher who uses the facilitator style encourages students to direct their own learning and improve their knowledge by asking questions and investigating solutions. Finally, with the delegator style, teachers give the students the opportunity to work independently or in collaboration with their peers without interference. Grasha pointed out that:

... teaching style represented a pattern of needs, beliefs, and behaviors that faculty displayed in their classroom. Style also was multidimensional and affected how people presented information, interacted with students, managed

classroom tasks, supervised coursework, socialized students to the field, and mentored students. (p. 142)

Teachers adopt these styles in diverse combinations in order to meet the needs of their students and create effective learning environments.

Furthermore, Bulger, Mohr, and Walls (2002) pointed out that effective teachers must have mastered the information that is to be taught, as well as have the skills to teach the material. The authors referred to the four aces that enhance lifelong learning and an educator's manner of teaching. The first of the four aces was "outcome," which provides students with directions to help them identify what they need to learn and the process to accomplish learning (Ace 1: Outcomes section, para. 8). The study indicated that "outcomes enable teachers to assess student learning as a measure of their own instructional effectiveness," and "use designated outcomes as a basis for the establishment of curricular alignment" (Ace 1: Outcomes section, para. 8). Curricular alignment ensures that the assessment strategy and teaching methods will help the students achieve their outcomes. The second ace of effective teaching was "clarity of instruction," which provides students with lucid "directions and explanations" while presenting "alternate perspectives to alternate senses" (Ace 2: Clarity section, para. 10). Furthermore, teachers should design their courses in a way that links new concepts with students' previous knowledge. The third ace of effective teaching was "engagement," which promotes students to learn by practice and hands-on experience (Ace 3: Engagement section, para. 13). Teachers must create a collaborative learning environment that includes two-way instruction. Educators

should use the concept of engagement in order to “facilitate the development of the knowledge, skills, and attitudes that will enable the student to accomplish the previously identified lesson outcomes” (Ace 3: Engagement section, para. 13). The final ace of effective teaching was “enthusiasm,” which creates a positive influence on the students’ learning since the teachers are excited about their subject (Ace 4: Enthusiasm section, para. 15). Instructors motivate learners by referring to students by name, expressing excitement about the subject, and supporting scholars in their learning environment. The authors concluded that these four aces “can enhance student learning and be used as a vehicle for continual self-examination to improve [a teacher’s] instructional effectiveness” (The Final Hand section, para. 24).

Bienz (2005) completed a study of undergraduate university students taking the required subjects for an Associate’s Degree in Liberal Arts. The purpose of the study was to find out what students considered to be the most important elements of an effective course. The results of Bienz’s study showed that “challenge-quality and difficulty” were of utmost importance to many of the students (p. 56). Although the students found the class assignments difficult, they also stated that the instructors were challenging, motivating, encouraged critical thinking skills, and held high expectations for them. In addition, students found the classes which incorporated a lot of interactive discussions were their favorite. These discussions required students to actively participate in the class, which resulted in the use of higher thinking skills and a feeling of belonging to a group.

McDaniel and Hair (2003) discussed how teaching can be most effective. The authors identified three significant elements for effective teaching. The first element for effective teaching was “clarity of expectations” and required the instructor to precisely define what was expected of students (para. 1). Well-organized instructors included their “expectations and course objectives” in a syllabus (Clarity of Expectations section, para. 1). Course objectives needed to meet these four criteria:

- Student-focused
- Clearly stated
- Realistic
- Deal with cognitive learning. (Clarity of Expectations section, para. 4)

The authors stated that the second element of effective teaching was “presentation skills” (para. 1). Good teachers continually update resources and incorporate new material into courses. Choosing appropriate methods for delivering information is paramount. Feedback and questions are also important to ensure that students understand the material. Learning is enhanced by providing students with examples, as well as hands-on activities, guest speakers, group work, and field trips. The last element for effective teaching was “rapport with students” (para 1). When teachers became acquainted with students and gave value to students’ interests, good teacher/student relationships were formed. For the best learning results, teachers encouraged students to come into their offices, and to call or e-mail them, as well as have students feel at ease in the classroom. In addition, the authors gave examples of how educators could talk about themselves in the classroom. Teachers set the stage for positive learning, for example, by telling jokes that related to the class, telling comical

stories from their lives, and making fun of themselves. Furthermore, the authors emphasized that educators be “empathetic and understanding” in forming relationships with and motivating their students, as well as “being fair,” and “using positive reinforcement” (Rapport with Students section, para. 3).

The University of British Columbia (1999) faculty established seven principles and practices for effective teaching. These principles are used as a model for “designing courses and curriculum, mentoring undergraduate students, and supervising graduate students” (para. 4). The first principle is: “sets clear goals and intellectual challenges for student learning” (Principle One section, para. 5). Teachers need to identify clear goals, objectives, and concepts in order to enhance student learning and help students understand the expectations of the course. The second principle is: “employs appropriate teaching methods and strategies that actively involve learners” (Principle Two section, para. 6). Applying this principle encourages effective teaching methods and student participation, as well as evaluating the student in conjunction with the desired learning outcome. The third principle is: “communicates and interacts effectively with students” (Principle Three section, para. 7). Educators motivate students through collaboration and giving value to their interests. In addition, instructors need to evaluate their students fairly in order to develop a strong learning environment. The fourth principle is: “attends to intellectual growth of students” (Principle Four section, para. 8). Students need to know how teachers will assess them. For example, instructors need to support student learning by observing students’ achievements and providing them with opportunities for further

learning, if deemed necessary. The fifth principle is: “respects diverse talents and learning styles of students” (Principle Five section, para. 9). An effective course should consider various learning styles and different cultural backgrounds. Moreover, educators should provide stimulating activities so that the students can explore different learning environments. The sixth principle is: “incorporates learning beyond the classroom” (Principle Six section, para. 10). Effective teachers connect students to resources outside the classroom and give students opportunities to apply their learning in different ways. The final principle is: “reflects on, monitors, and improves teaching practices” (Principle Seven section, para. 11). Outstanding instructors encourage students to provide them with feedback on teaching practices.

Young and Shaw (1999) defined teachers’ effectiveness through the students’ perceptions. Their study was conducted on students who recently participated in a college or university course. The authors provided the participants with “high-inference items garnered from the teaching effectiveness literature that have shown to be strong correlates of teaching effectiveness” (p. 671). The researchers found that “effective communication, a comfortable learning atmosphere, concern for student learning, student motivation, and course organization were found to be highly related, as a group, to the criterion measure of teacher effectiveness” (p. 682). In conclusion, the authors described the effective teacher as responsible and reliable for developing a successful class which enhanced student learning.

Terosky (2005) conducted a study of 17 university professors in the United States who work with undergraduate students. She provided some examples of

effective practices that professors could utilize in order to improve their teaching. One of these examples was that teachers should be “taking charge” of their professional career and teaching (p. 193). In other words, they should be more “active” in their own learning process (p. 194). Terosky suggested that professors should get involved in “the creation of professional development for teaching and career management; developing communities of people who encourage taking teaching seriously; adopting other professors’ strategies for taking teaching seriously; negotiating with academic administrators about workload issues” (p. 194).

Ugwu (2005), in her search for effective teaching strategies for diverse students, found that interactive instruction and student self-reflection worked well for students of various cultures. She stated that while faculty members develop plans for their classes before the class begins, the plans should be flexible enough to allow students to contribute to the course development, and successful courses must be interactive. Further, the results of Ugwu’s study produced three main themes of effective teaching strategies: “critical thinking and connecting learning to reality,” “active learning/teaching,” and “understanding diversity” (p. 132). She found that effective courses, regardless of subject matter, linked classroom learning to everyday experiences that provided students a way to relate the class to their lives. Ugwu reported that faculty made use of active learning/teaching in a variety of methods, including “collaborative writing projects that required students to work together and to hold each other accountable” (p. 135). Faculty used several strategies to help their students understand diversity, such as talking about their culture, sharing perceptions

and values, and noting ways in which their cultures are similar and ways in which they are dissimilar.

Dryden et al. (2003) completed a study on effective teaching based on student feedback at the University of Arizona. Over 600 students were surveyed about what they considered to be qualities of an effective teacher. Most students responded with the following words, “passionate, caring, enthusiastic, engaging, funny, clear, positive, friendly, mentor, interested, involved, helpful, flexible, approachable, and consistent”

(p. 2). The authors found good teaching resulted when an instructor:

- Is passionate about what he/she teaches
- Is willing to help students
- Applies class materials to real life
- Encourages class participation, discussions, and group work
- Is flexible and willing to meet with students outside of class
- Uses humor in class
- Knows how to use different types of media
- Encourages learning that is interactive, hands-on, individualized
- Relates to students; understands conflicts
- Uses multiple teaching strategies
- Encourages feedback
- Is organized and well prepared
- Uses examples
- Encourages students to do well
- Is knowledgeable and has experience in the field
- Paces the class well. (p. 3)

Ebro (1977) studied teachers who won the Alumni Distinguished Teaching Award at Ohio State University in order to identify characteristics of effective teaching. The author found that effective teachers “manifested a variety of instructional strategies. They initiated ideas and information, demonstrated processes, asked questions and clarification, clarified ideas and information, listened and

responded to students” (pp. 148-149). The Office of Faculty and TA Development at Ohio State University (2001) claimed that Ebro’s results are parallel to the findings in similar studies. Their list included: starting class immediately, staying on-topic, and making sure that the students understand the material. High-quality professors have a sense of humor, good interaction with the students, and provide students with a comfortable, safe classroom environment. Another important factor related to effective teaching is the necessity for teachers to obtain feedback from students. Thereby, teachers are able to revise and improve their styles of teaching. Possible ways to gather feedback are through students’ written or oral evaluations, videotapes of the class, and peer comments.

Adams and Pierce (1994) examined factors that they considered to be effective teaching characteristics. These factors included the knowledge and use of pedagogical theory, the willingness to revise and modify their teaching methods, being well prepared and flexible, using self-evaluation to improve upon their methods, and employing various methods for motivating students. The authors concluded that there are many different aspects that are important to effective teaching. However, the characteristics listed above seemed to be most relevant.

Nine components of competency for effective teaching at the university level were identified by Barrett, Daniels, Jasman, Martin, and Powell (1997). These components are arranged into two groups. The first group included five components central to effective teaching, including:

1. Provide a clear and empathetic learning environment

2. Promote active student involvement
3. Cater [to] students' learning [styles]
4. Assist students to identify the outcomes of their learning
5. Engage in self-development. (p. 5)

The second group included four components fundamental for teachers' leadership roles in teaching. The four components stated that effective teachers:

6. Demonstrate consistent exemplary practice in teaching
7. Play a key role in the professional development of colleagues
8. Take a leadership role in programme and/or unit development
9. Promote quality in teaching and learning in the university and in the discipline. (p. 5)

The authors emphasized that the first group were essential in order to support the effectiveness and the responsibility of teaching. The second group presented core elements for effective teacher leadership, which helped teachers to guide and train their peers.

Donald (1998) named several elements for positive teaching sessions. These elements included “conceptual content, structuring sessions, content reinforcement, planning gains, treat students as human beings, treat yourself as a human being, ensure regular attendance, obtain feedback, give students feedback, and have a good time” (pp. 2-4). Conceptual content refers to clearly identifying the objectives of the lessons. Structuring sessions means taking into consideration the time, facilities, and materials that are necessary for getting the point across. Content reinforcement is best achieved by putting the learning into practice. Teachers need to provide students with problem solving based activities in small groups to encourage feedback. Planning for student gains is important in order that students have a broad overview of course structure. For

example, teachers offer students a description of skills and topics to be covered. Treating students as human beings requires the teacher to use the student's name, thereby promoting participation and attendance in the class. Also, when teachers treat themselves as human beings, they explain to the students that they may not have an answer for each question, but will seek to obtain the proper information. Ensuring regular attendance improves student success. Feedback is important to teachers for evaluating their teaching methods. Giving students feedback through routine quizzes and homework will help students learn more effectively. Finally, have a good time with students and make learning enjoyable.

Hativa, Barak, and Simhi (2001) conducted a study to determine what constituted an "exemplary teacher" (p. 700). Their findings showed that superior teachers use multiple teaching strategies, give consistent feedback, have a sense of humor, respect their students, and make course materials relevant to students' lives. In order to accomplish the above, exemplary teachers are:

well prepared and organized, present the material clearly, stimulate students' interest, engagement, and motivation in studying the material through their enthusiasm/expressiveness, have positive rapport with students, show high expectations of them, encourage them, and generally maintain a positive classroom environment. (pp. 701-702)

Kember and Gow (1994) pointed out that various teaching orientations impacted student learning. In a questionnaire for university professors, the authors defined two specific teaching approaches: "knowledge transmission" and "learning facilitation" (p 59). The goal of knowledge transmission is to impart subject matter to the students, whereas, learning facilitation emphasizes the need for critical thinking

and problem solving. The results of the study implied that student learning outcomes depend on the type of teaching orientation that is used. The authors suggested that:

... the methods of teaching adopted, the learning tasks set, the assessment demands made, and the workload specified are strongly influenced by the orientation to teaching. In departments where the knowledge transmission orientation predominates, the curriculum design and teaching methods are more likely to have undesirable influences on the learning approaches of the students. Departments with a greater propensity toward learning facilitation are more likely to design courses and establish a learning environment that encourages meaningful learning. (p. 69)

After reading and analyzing the articles above, I noticed that some specific strategies for effective teaching were repeated frequently. Some of the noteworthy techniques are: *clarity* (Barrett et al., 1997; Bulger et al., 2002; Dryden et al., 2003; Hativa et al., 2001; McDaniel & Hair, 2003; University of British Columbia, 1999), *engagement* (Adams & Pierce, 1994; Barrett et al., 1997; Bulger et al., 2002; Dryden et al., 2003; Hativa et al., 2001), *enthusiasm* (Bulger et al., 2002; Dryden et al., 2003; Hativa et al., 2001), *multiple types and opportunities for feedback* (Donald, 1998; Dryden et al., 2003; Hativa et al., 2001; McDaniel & Hair, 2003; Ohio State University, 2001; University of British Columbia, 1999); *flexibility* (Adams & Pierce, 1994; Dryden et al., 2003; Ugwu, 2005), *an appropriate sense of humor* (Dryden et al., 2003; Hativa et al., 2001; McDaniel & Hair, 2003; Ohio State University, 2001), *use of multiple teaching methods* (Adams & Pierce, 1994; Dryden et al., 2003; Hativa et al., 2001; McDaniel & Hair, 2003; Ugwu, 2005; University of British Columbia, 1999) and *being well prepared and organized* (Adams & Pierce, 1994; Donald, 1998; Dryden et al., 2003; Hativa et al., 2001; McDaniel & Hair, 2003;

Ohio State University, 2001; Young & Shaw, 1999). Although there are many other important teaching strategies, those listed above, if utilized by teachers, can give them a strong base to build upon. The question is: Can these same teaching methods be applied effectively to online courses?

### Effective Online Teaching Methods

There has been on-going research regarding the effectiveness of online teaching and learning. There seems to be a consensus that online education can be as effective as traditional courses, although there is still considerable debate about this issue mostly by those who have either not tried it or who have attempted to use face-to-face methods in online classes with no adaptation. Before deciding what constitutes an effective online course, educators need to be aware of the most valuable teaching strategies used for traditional courses, and restructure these strategies to conform to the technological aspects of an online course. Currently, educators maintain a variety of viewpoints regarding the best online teaching practices, but there is some agreement on specific aspects necessary for improving the value and quality of online courses.

Jona (2000) stated that “the reason most of our education systems aren’t effective is because they are based on a flawed model of how people learn” (p. 1). Jona examined the way that people think and learn and how online classes fit into this scheme. The author pointed out many problems with traditional learning environments, including: passive learning, memorization of “lists of concepts,

principles, or theories” in the abstract without practical application, and “irrelevant subject matter and inappropriate assessment” (p. 3). Jona further pointed out that online courses are not automatically better than traditional courses. They are not automatically effective. “No one stops to notice that they are built on the same dubious educational model as the classroom version of the course they are supposed to replace and improve upon” (pp. 3-4).

Jona (2000) described three basic principles of an effective learning environment: “learning by doing, learning from mistakes, and learning from stories” (pp. 4-5). Although these principles are well known, they are not always applied. The author presented “Goal-based scenarios: A framework for developing effective online courses” as a means of ensuring that these principles are applied to online classes (p. 5). Goal-based scenarios allowed students to “learn by doing” (p. 5). The author presented an example from a business writing class for non-native English speakers. The assignment asked students to respond to typical business scenarios, thus learning business culture and English writing skills. Jona also gave an example of a ‘simulation-based course,’ which was an introductory psychology course. In this course, the teacher used role-play, with students assigned “the role of a developmental specialist working at a child development research center” (p. 9). Throughout the course, students were using hands-on techniques to develop the skills of a real developmental psychologist. The students were expected to investigate a variety of issues related to the development of a real child. They then had to submit a report of their findings and receive feedback.

The simulation-based course described in the previous paragraph was more effective than the traditional lecture-based class. The students had opportunities to connect with the real world and to examine their hypotheses. One can see how valuable this course was to the student in gaining real-life knowledge and experience when compared to taking copious notes, memorizing them, and then regurgitating them later on in an exam. Jona (2000) provided eight principles for designing an online course similar to the examples above. These were: “think carefully about what the course should cover,” “organize what you teach in a way that makes sense to learners,” “put the learner in control,” “only teach at the appropriate moment,” “avoid blind choices,” “situate learning in authentic contexts,” “provide a rich set of resources and support to your learners,” and “use the most appropriate course structure and delivery mechanism” (pp. 11-13). Jona indicated that educators could gain valuable insight when designing their classes by using these principles.

Rosenfeld (2005) designed a study that measured student academic success and course completion rates in online distance courses versus traditional classrooms at Indian River Community College. The researcher concluded that there was no significant difference between student achievement in either distance learning or traditional classrooms. However, the author also found that there is a significant difference between group demographic statistics, such as age, gender, and race, and the degree of success that students achieved. Finally, the completion rates in traditional classrooms were found to be higher than in distance learning classes. The researcher determined that the subject matter had the most impact on student

achievement and completion rates. Some subject areas require abstract thinking and a teaching presence to explain complex ideas, such as mathematics, while other areas require memorization, such as history. The researcher indicated student achievement was higher in history than the other subjects because memorization doesn't require explanations or demonstrations of conceptual understanding.

Research by Neuhauser (2002) compared two sections of the same course, one online and one traditional face-to-face (FTF) instruction taught by the same instructor. The challenge of the study was to provide the same class materials and effective learning activities as well as assessment methodologies. The results of the study showed no significant differences in “test scores, assignments, participation grades, and final grades” (p. 99). In addition, the study suggested that activities used in face-to-face courses can be shifted to the online course with similar learning results. Furthermore, Neuhauser stated that “ninety-six percent of the online students found the course to be either as effective or more effective to their learning than their typical face-to-face course” (p. 99). The author suggested that user-friendly “software, the internet activities, and e-mail” enhance students' perceptions of online courses (p. 106). However, the discussion activities were rated as less effective in online than face-to-face courses. The results of the anonymous survey did not take into account the relationship of learning styles with the effectiveness of the learning activities. There were some variables that influenced students, such as “motivation, family, and work commitments,” that may have contributed to the course style preferences (p.

111). The overall result was that “the quality of online learning is as effective as FTF learning” (p. 112).

Morris and Zuluaga (2003) performed a study in Australia comparing traditional Instructional Technology (IT) courses on-campus vs. 100% online courses. They found that a higher percentage of students did well in the online courses than in the on-campus courses. The authors investigated, through surveys and interviews, why the online courses were more successful. Morris and Zuluaga discovered that “the most important determinant of online student learning outcomes is frequent student/staff interaction” (p. 354). Many of the teachers of the on-campus classes were surprised by this outcome. They were under the impression that face-to-face teaching was more effective. The online professors credited their success to several elements of online classes. These elements included: the ratio of instructors to students increases in online classes, the role of online teachers is seen as mentors rather than traditional tutors, there is more teacher-student interaction than in the on-campus classes, affirmation is more consistent in online courses than in traditional courses, and feedback is more timely than is common in campus classes. The authors stated that “frequent problem/solution email between students and staff can benefit learning more than weekly one (staff) to many (students) tutorial classes” (p. 353).

Benbunan-Fich and Hiltz (2003) also emphasized collaboration and contact with professors as being essential for improving learning outcomes. The study presented some suggestions for teachers that consist of being accessible online to interact with students and creating an online learning community. The authors

described collaboration as “learner-centered rather than teacher-centered” which lessens anxiety for students when interacting with their teachers and peers (p. 299). In addition, collaboration included group discussions, shared and differing viewpoints, and assisted in the clarification of understanding. Furthermore, the authors advocated other types of research regarding specific courses such as the “use of qualitative or case study data” in addition to the use of student surveys (p. 14).

Dominguez and Ridley’s (2001) study focused on the “course itself” (rather than the online students) and the preparation of students for future performance in other courses (p. 15). The study found that the “discipline makes a difference in the effectiveness of online versus traditional course prerequisites” (pp. 18-19). A comparison of management and non-management students suggested “that the relative advantage of online is negative for management enrollments and positive for non-management courses” and showed those in management scored statistically lower in online classes than non-management students (p. 18). The authors concluded that “discipline-related differences may really exist. Greater understanding of the phenomenon awaits future study” (p. 19).

Another important issue related to the quality of online courses is the subject of discussion. In an article written by Heydenrych (2000), he examined “the implementation of online learning technologies at higher education institutions, with the accent on the needs of society and the role of business” (Introduction section, para. 1). His concern was that because businesses provide the technology for education, they also tended to want to provide the online course materials. He mentioned that

some online courses were being taught by inexperienced temporary staff who were adept with computers, but were not qualified teachers. In addition, teachers familiar with the content had to spend a lot of extra time learning the new technology in order to be able to compete for jobs, which created a disservice to students as well as teachers. Students are paying for a quality education, but may be receiving an inferior one. Heydenrych concluded his article with this statement:

It is apparent that the implementation of online technologies to provide learning opportunities, either at higher education institutions or private concerns, may lead to academic insecurity, low-quality learning content and online imperialism, manipulation of job market needs and, last but not least, society being deprived of the liberal arts input which would produce quality citizens. (p. 12)

In order to deal with this issue of unqualified staff, many studies are being conducted to define what constitutes an effective online course. Schrum and Hong's (2002) research study pointed out seven important dimensions for creating a quality online course including "access to tools; technology experience; learning preferences; study habits and skills; goals or purposes; lifestyle factors; and personal traits and characteristics" (p. 57). In addition, this study recommended various online teaching techniques, such as collaborations, encouraging all participants to become involved, constant interactions, flexibility, and fewer technology requirements. The study also showed that the more students feel comfortable with technological tools, the more they can focus on their learning. Instructors should provide students with technical support, such as providing resources (e.g., CD or video) for solving problems and introducing the online environment.

Furthermore, online courses can meet students' abilities and learning styles by providing collaborative learning opportunities, such as chat rooms and conference calls to complete their work in a social environment. Schrum and Hong (2002) stated that the "educators suggested that giving some flexibility was a good way to help students study on their own" (p. 62). However, it was difficult for the instructors to see how their students were progressing with given materials without regularly posting questions. Motivation was an important element that encouraged students to work harder and reach the goals that they had set for themselves. There were different factors that prevented students from completing their course, including work, childcare, lack of time, and complex lives; the study concluded, however, that "most importantly, there is agreement that potential students have a need to understand the qualities and characteristics of online learning" (p. 66).

The Illinois Online Network (2006) pointed out the importance of teachers adapting multiple teaching strategies to meet the needs of diverse learning styles in an online class. Some of the strategies recommended by the Illinois Online Network were: the use of "learning contracts, lectures, discussion, self-directed learning, mentorship, small group work, projects, collaborative learning, case study, and forum" (Online Courses And Multiple Instructional Strategies section, p. 3). Online teachers should choose teaching strategies that will be most effective for achieving the learning objectives and be willing to change their role to that of a facilitator, thus giving students more responsibility for their own learning process.

According to the Illinois Online Network:

Online learning environments permit a full range of interactive methodologies, and instructors have found that in adapting their courses to online models, they are paying more attention to the instructional design of their courses. As a result, the quality, quantity, and patterns of communication students practice during learning are improved. (Online Courses and Multiple Instructional Strategies section, para. 2)

The Collaborative Reading Education and Distance Education (CREADE) project faculty (2002), provided a list of criteria for online courses that are aligned with the standards of various educational associations, such as the International Reading Association, the National Council for the Accreditation of Teacher Education, and the Oregon Department of Education. The CREADE faculty stated that the syllabi of online courses should include a focus on diverse student populations, such as low-income districts, inner-city students, and English language learners. The CREADE faculty also stressed the need for novice online instructors to complete teacher training before teaching online. They advised teachers to collaborate with other instructors on strategies, lessons, learners, and successes. CREADE also suggested that teachers should provide clear expectations of what they want students to achieve if they are going to be successful in the class. Some of the suggestions for ensuring the quality of online courses included: requiring student participation and integrating it into student evaluation and grading, encouraging students to use “real-life examples” in their assignments, providing frequent feedback by commenting on student postings, and generating additional questions for their reflection (p. 8).

DeVoogd, Loveless, and Yelland (2000) studied intern teachers in California who were enrolled in an online reading course. One of the technological tools for the course was an online bulletin board. The students (intern teachers) used the bulletin board to interact with their peers, and express their ideas and opinions. The teachers used the bulletin board to provide assistance for students who had questions about topics or issues. According to the authors, the online reading course was developed using critical pedagogy theory. As a result, the online instructors encouraged the students to state their beliefs, to use their “active voice” and to participate in class discussions (p. 5). Compared to a traditional classroom setting where not all students are engaged in discussions, the online course required all of the students to actively participate.

Olson and Wisner (2002) defined web-based instruction as any educational or training program using the internet. Their study pointed out that the effectiveness of online instruction has received little investigation and “web-based instruction is still in an early stage of implementation” (p. 4). The authors argued that key instructional features of web-based instruction should include that the students be able to manage their learning environment, their responses to others, and their access to educational materials. Some of the advantages of using web-based instruction include the ability to facilitate online courses, to assist students to meet learning objectives, to increase effective interaction and collaboration, and to build a successful learning community. Olson and Wisner examined 47 studies of undergraduate Web-based courses published from 1996 to 2002. The studies reviewed qualities of effectiveness for Web-

based instruction with “reference to four key features: 1) degree of interaction in the course; 2) measurement of learning outcomes; 3) experimental design used in evaluating the course; and 4) extent of Web use throughout the course” (p. 7).

Ehrlich (2002) investigated several elements that were identified by Moore (1991) for successful online courses. These elements included:

... learner-to-interface (access to and competency with the specific technology employed), learner-to-content (appropriateness of the course material and delivery vehicle considering the objectives and learners), learner-to-instructor (types of communication and feedback, access and support...), and learner-to-learner (types of communication and feedback, support systems, and procedures for dialogue...). (p. 49)

Graduate students who participated in this study enrolled in an advanced instructional design course at Northeastern Illinois University. In order to examine the students’ perspective, the researcher interviewed participants at the beginning, middle, and end of the course. The reason for these interviews was to get a participant’s perspective of the online classes. In the *learner-to-interface* interaction, the students developed projects and communicated with experts. The study found that if the students were comfortable knowing how to use technology, they were more successful in completing the course. Of the participants, 90% suggested that “additional orientation and hands-on experience” should be included in online courses (p. 49). In the *learner-to-content* interaction, the instructors needed to modify the content of the course to make it suitable for distance learning. In *learner-to-instructor* interaction, the instructors offered guidance for students, as well as monitored their progress in the course. In addition, “guidelines for discussion, availability, and how feedback will be provided”

was established by the instructor (p. 52). In the *learner-to-learner* interaction, the instructors played an important role in facilitating discussions between the students. Beforehand, the instructors made the decision about the types of technology that they would use to encourage collaborations and active discussions. Teachers found that when the students felt that they could share their thoughts and ideas, they were more involved in the problem-based learning. Students gradually transformed their learning styles from independent study to collaborating with other students' ideas. The study concluded that there are many factors that play a part in distance learning, such as the students' experience with technology, access to equipment needed, and interactions with one another. Finally, as Moore (1991), in his discourse on distance education theory, pointed out:

There are no quick or ready-made answers to the question of how much dialogue or structure is needed and desirable for effective learning. Nevertheless, addressing this question is likely to provide a better basis for making decisions about when and how to use media and other resources than any other strategy available at the present time. (p. 5)

A key characteristic found by Lapadat (2002) for enhancing the effectiveness of online courses was interactive writing. Lapadat felt that teachers should develop interactive writing to provide opportunities for thoughtful participation for their students, because "the act of writing in online conferences may foster higher order thinking for reasons that have to do with the relationships between writing and cognition" (p. 8). Lapadat also noted that several researchers considered social presence to be important. The anonymity of online courses can be liberating or alienating; however, some research showed that "men and higher status participants"

tended to contribute more in online discussions (p. 3). Nonetheless, students in general tended to try and create a community for communications with other people.

Additionally, students said that they “spend a great deal of time preparing for and participating in asynchronous discussions, and describe the experience as helpful to their learning” (p. 4).

Richardson and Swan (2003) also believed that social presence has an effect on student outcomes and satisfaction. The authors stated that “of the empirical evidence that does exist, very little of it examines the social aspects and/or benefits of online learning” (p. 71). In addition, the authors concluded:

Research is needed to determine the extent that perceptions of social presence influence student satisfaction, student motivation and other attitudinal factors as well as students’ actual cognitive and affective learning. From the instructors’ perspective, research needs to be conducted to determine the extent of the influence of social presence on teacher effectiveness ratings and instructor satisfaction with courses taught. (p. 81)

Picciano (2002) focused his study on student performance in an online course “in terms of student interaction and sense of presence” (p. 22). He stated that although there are approximately two million students taking online courses, there is still a question about “the effectiveness of online courses particularly in relation to individual student needs, perceptions, and student-outcome[s]” (p. 21). The author went on to say that in an online course “the simplest definition of presence refers to a student’s sense of being in and belonging in a course and the ability to interact with other students and an instructor although physical contact is not available” (p. 22).

Picciano (2002) made a distinction between presence and interaction. He said that although a student may interact in an online course, he may not actually feel that he is a part of a group or class (presence). In order to prove his point, he mentioned “a survey of 3,800 students enrolled in 264 courses” (p. 22). The survey indicated that the students were more satisfied when their grade reflected a higher percentage for discussion rather than exams. Picciano concluded that “what is critical here is that presence in an online course is fundamentally a social phenomenon and manifests itself through interactions among students and instructors” (p. 24). Picciano’s study concluded that a strong relationship exists between “the quality and quantity of their [students] interaction and their perceived performance in an online course” (p. 32).

It should be noted that the assessment of participant involvement in distance learning has improved. In the past, assessments were limited to questionnaires and evaluating student assignments; now it has been expanded via observation of students’ collaborations. This improvement has been brought about by the switch from an individual learning process to a communal one in which teachers use Computer Mediated Communication (CMC).

Henri (1992) presented three components for evaluating CMC. These components are: “a framework defining the dimensions of the analysis; an analytical model corresponding to each of these dimensions; and a technique for the analysis of message content” (p. 123). The first element was the framework, which “has five dimensions: participative, social, interactive, cognitive, and metacognitive” (p. 124). The second element was an analytical model that includes three levels of educator

message content. These levels are: “what is said on the subject or theme under discussion; how it is said; and the processes and strategies adopted in dealing with it” (p. 123). The last element was “the actual analysis of the messages,” which included multiple units of meaning analyzed along “interactive, cognitive and metacognitive dimensions” (pp. 133-134). In conclusion, Henri stated that his intention was to provide educators with a method that is practical and easy-to-use while producing results that are realistic.

In 2001, Herrington, Herrington, Oliver, Stoney, and Willis, established a set of guidelines for developing quality online courses. Having looked at the research done to date, the authors concluded that although many researchers had developed a variety of evaluation instruments to determine the effectiveness of online courses, these instruments were often lengthy and difficult to institute. To correct this problem, they developed a short checklist to “provide a means for consistent assessment and evaluation of online learning materials” (p. 266). The checklist is based upon the following critical elements:

- Pedagogies, the learning activities which underpin the unit;
- Resources, the content and information which are provided for the learners;
- and
- Delivery strategies, issues associated with the ways in which the course is delivered to the learners. (p. 266)

Herrington et al. provided a breakdown of each of the above critical elements. The quality of pedagogy can be assessed using the following factors: “authentic tasks, opportunities for collaboration, learner-centered environments, engaging, and meaningful assessments” (p. 267). The authors also stated that the course required

good delivery strategies, defined as: “reliable and robust interface, clear goals, directions and learning plans, communication, appropriate bandwidth demands, equity and accessibility, and appropriate corporate style” (p. 269). Herrington et al. concluded that “the next stage in the process will be to apply the instrument to existing online units to determine its effectiveness” (p. 269).

Wright (2003) presented a very simple list-like set of criteria for evaluating the effectiveness of online courses. These criteria were based on the experiences of the members of the Instructional Media and Design Department at Grant MacEwan College. The list noted many different criteria for evaluating online courses, such as “general information, accessibility, organization, language, layout, goals and objectives, course content, instructional or learning strategies and opportunities for practice and transfer, learning resources, evaluations, and overall issues” (pp. 1-9). General information refers to information that learners obtain in order to excel in the class, such as description of the class, suggested resources, and learning objectives. Accessibility means that the learners can easily locate the information. For example, teachers can design their course to be user friendly by using icons and detailed tables as well as by providing key words and a glossary. Good organization requires that the course material be differentiated into easily distinguished units and sub-units that are related to each other. Suitable language for the learners is clear, familiar, and easy to understand; and the writing style is in a positive manner. The layout is structured to maximize learning with graphics, objects, text, and typeface that are legible and clear. Goals and objectives are clearly defined at the beginning of the class and before each

lesson. The outcomes include different levels, such as critical thinking, problem solving, and performance skills. Furthermore, the content is appropriate and associated to the learning objectives. Effective learning strategies allow students to practice new skills, proceed at their own pace, and repeat lessons as necessary. Teachers also provide learning resources that are “accessible, appropriate, and accurate” (p. 8). The evaluation system includes examples of assignments that demonstrate teachers’ expectations. Although these criteria were “developed to assist educators in evaluating the effectiveness of online courses, they may also be used as guidelines for course developers” (p. 1).

While universities are researching the effectiveness of online courses, corporate businesses are also focusing on how to improve e-learning for their employees. According to Strother (2002), corporations such as IBM, Ernst and Young, and Rockwell Collins have invested large amounts of money in the development of new online courses. Although some have proved successful and cost-effective, not all businesses have had the same result. In order to deal with this issue, Strother alluded to Kirkpatrick’s model of training, which can be used in a classroom or online for evaluating the effectiveness of delivery. Donald Kirkpatrick, who was president of the American Society for Training and Development, used four progressive levels of evaluation: level one—student reactions, level two—student learning, level three—transfer of learning to the job, and level four—results of business outcomes.

Strother (2002) stated that, in an e-college.com survey of 1,002 students, most of the student reactions (level one of Kirkpatrick’s model of training) about e-learning

were positive. In the same survey, 85% of the trainers felt that their students performed as well in the online classes as students taking a traditional course. Strother mentioned in a number of studies that businesses should use “pretests and posttests” for measuring Kirkpatrick’s level two—student learning (p. 5). From previous research studies, Strother pointed out that “the findings demonstrate that even with no instructor or face-to-face interaction, there are no significant differences in the amount of content learned” (p. 5). In order to evaluate level three of Kirkpatrick’s model, transfer of learning to the job, Strother recommended the use of surveys to determine customer response. According to Strother, one way to measure Kirkpatrick’s level four, results of business outcomes, was for businesses to compare the volume of sales before and after training. If the volume of sales had increased, then the training was considered successful. Strother mentioned that Philips “Return on Investment” (ROI) calculation could be added as a fifth level of evaluation to Kirkpatrick’s model, which involves “converting productivity and quality improvements to monetary values” (p. 9).

Both in education and business, students have had positive reactions to the flexibility and convenience of online classes. However, the measurement of learning outcomes is still an issue that needs further study. Sonwalkar (2002) addressed this issue. His focus was to create an assessment scale that was objective and valid, and could be used for all types of online courses. The author found that “the pedagogical effectiveness of an online course can be defined as ... [the] summation of learning styles, media elements, and interactivity” (p. 20).

In addition, Sonwalkar (2002) proposed that five major areas of evaluation be included: “(1) content factors, (2) learning factors, (3) delivery and support factors, (4) usability and human factors, and (5) technological factors” (p. 20). The author advocated that content had to be of high quality. Learning factors must include “concept identification, pedagogical styles, media enhancement, interactivity with the educational content, testing and feedback, and collaboration” (p. 20). The objectives of the course needed to be well defined by instructors. The administration of a user management module for delivery support was suggested. The quality of the program design affected the usability of the course. The technological factors influenced how many students were able to use the website at the same time. The research indicated that “widespread use of these tools could guide and motivate online education developers, universities, and training centers towards the creation of educational systems marked by measurable success” (p. 21).

In summary, after analyzing the various research studies related to effective online teaching methods, the researchers seemed to agree on some of the same criteria for improving online learning. The seven concepts that were repeated most often were: *student/staff interaction and collaboration* (Benbunan-Fich & Hiltz, 2003; Collaborative Reading Education and Distance Education (CREADE), 2002; DeVoogd et al., 2000; Ehrlich, 2002; Herrington et al., 2001; Lapadat, 2002; Morris & Zuluaga, 2003; Olson & Wisher, 2002; Picciano, 2002; Schrum & Hong, 2002; Sonwalkar, 2002), *student directed learning/active learning* (Collaborative Reading Education and Distance Education (CREADE), 2002; Illinois Online Network, 2006;

Jona, 2000), *prompt feedback* (Benbunan-Fich & Hiltz, 2003; Ehrlich, 2002; Jona, 2000; Morris & Zuluaga, 2003; Sonwalkar, 2002), *technology (access to/experience with/user-friendly)* (Ehrlich, 2002; Heydenrych, 2000; Neuhauser, 2002; Schrum & Hong, 2002; Sonwalkar, 2002; Wright, 2003), *teacher-facilitator/mentor* (Collaborative Reading Education and Distance Education (CREADE), 2002; Ehrlich, 2002; Morris & Zuluaga, 2003; Illinois Online Network, 2006; Olson & Wisner, 2002), *learning communities* (Benbunan-Fich & Hiltz, 2003; Ehrlich, 2002; Lapadat, 2002; Olson & Wisner, 2002; Picciano, 2002), and *clear goals and objectives* (Herrington et al., 2001; Schrum & Hong, 2002; Wright, 2003). However, different terminology was used by the researchers for the same concept; and the results of the studies were dependent on the context and sample of the population being studied. Although concepts such as social presence, diverse learning styles, and authentic tasks are not emphasized as much in the literature as the criteria listed above, some of the researchers considered them to be very important, as well. Teachers should be aware of these concepts and incorporate them into their classes.

In order to develop a clear definition of what constitutes an effective online course, it was necessary to study the literature. After compiling a list of criteria that best demonstrated successful online courses, it was necessary to align these criteria with key principles of critical pedagogy theory. This process resulted in the following definition of, and criteria for an effective online course.

## Definition of an Effective Online Course

The teacher in an effective online course provides expert course design and delivery, implements appropriate assessments, and encourages collaboration. Students are given the opportunity to direct their own learning, gain experience with technology, improve their critical thinking skills and apply them to real-life situations. In addition, they gain knowledge about themselves and the world around them, while mastering the course materials.

## The Criteria of Effective Online Courses Based on Critical Pedagogy

In the process of establishing the criteria for effective online classes, it was necessary to examine the OSU Extended Campus' Suggested Elements for Review of Online Instruction (2004b). Although these criteria are “not designed to be rigid or prescriptive, but rather to be informative, helpful, and constructive,” the specific review standards in the OSU assessment tool overlap with the criteria considered essential in this study (p .1). Therefore, although this study emphasized slightly different elements than those suggested by OSU's review standards, the overall tone is very similar and directed at measuring analogous objectives. Both criteria have been influenced by literature and established by best practices.

### *A. Instructional Design and Delivery*

In order to provide online students with an effective course, it is important for online teachers to analyze the instructional design before using it. This analysis will help to ensure that the course will meet the students' needs. In a successful class, instructional design and delivery provide students with clearly stated expectations and strategies for meeting these expectations, as well as plenty of regular, useful feedback and opportunities for collaboration. Traditional and online classes pose similar problems concerning good instructional design; thus online teachers must consider all the basic elements of good course design and then ensure that they are applied well to the online situation.

According to WebCT Newsletter (2006), when designing an online course, the teacher should identify the needs of the students, "get up-close and personal," "set clear objectives," "engage students in hands-on activities," "make [the] online course a global experience," "be a facilitator, not a dictator," "speak up," "create a library of course reference materials," use multiple assessment strategies, and be available for students via e-mail and a dedicated chat room. These strategies can be applied in both traditional and online classes; however, using them in online courses ensures that students separated by distance get involved, speak up, and participate in hands-on activities.

In addition, online teachers must consider the age and educational level of their students, how much technological experience they have, why the students are taking

the course, and what prior knowledge the students bring to the course. The description of these concerns presents an image that is clearly aligned with critical pedagogical theory. Once the teacher has successfully implemented an effective course design, the teacher should provide students with many opportunities to communicate, interact, and collaborate with their peers as well as with the teacher. Furthermore, according to guidelines developed for California State University- Chico (2004), teachers should provide students with numerous “visual, textual, kinesthetic and/or auditory activities to enhance student learning” (Rubric for Online Instruction, category 3). A major part of instructional design for the teacher is deciding what students are expected to accomplish in the course and how to measure their accomplishments. Therefore, the teacher must decide on student learning outcomes and align them with effective assessment strategies.

Johnson (2004) designed her class instruction with critical pedagogy in mind. Although she applied the following strategies in a traditional classroom setting, they could easily be transformed for an online setting. First and foremost, she wanted to ensure that her instruction was fair, flexible, and met both the needs of the students and her goals and objectives for the class. Rather than use the traditional method of designing assignments, she had the students work in groups and create their own assignments and projects. She facilitated and guided the students throughout the process, but they did the work. By requiring the students to interact and collaborate with their peers, she empowered them to take ownership of their own learning. In

addition, Johnson used multiple teaching strategies and set clear expectations for her students. All these strategies could be easily adapted for online courses.

### *B. Student Learning Outcomes*

Online teachers, like those working in a traditional classroom, must clearly state in their syllabi the skills that are required to achieve the outcomes, and how these skills will be measured during the course. For each task required of the students, instructions and teacher expectations should be clear and concise. For example, online learning outcomes should be written ahead of time and worded something like this, “at the end of the course, the student will be able to ...” According to Lamley (2005), a good source for writing clear learning outcomes is Bloom’s Taxonomy. Bloom provides teachers with specific verbs for identifying different learning outcomes, such as comprehension, analysis, and evaluation. Teachers should not confuse learning outcomes with learning objectives. As Lamley stated “a learning outcome must describe how students will *demonstrate* that they know and understand what you have taught” (Backwards Design section, para. 2).

In addition, student online learning outcomes center on what the student gains from the course, not on what the teacher covers. Teachers keep the number of learning outcomes to a minimum of what they realistically hope to accomplish in the term. Most importantly, online outcomes must be measurable in order to be assessed in a valid manner.

Outcomes can be assessed based on their content as well as on their clarity. According to critical pedagogy, outcomes should reflect critical thought and evaluation on the part of the student, rather than being restricted to rote memorization. Kanpol (1997) stated that an outcome, “to appreciate and understand others,” which required students to understand themselves and others, has “democratic possibility” (p. 142). Requiring students to think critically about their world makes the sum of the learning greater than the parts.

### *C. Assessments*

Assessment of student work is probably the most important aspect of teaching. There are many forms of assessment, including observation, exams, class projects, and portfolios. Each of these forms can be measured through the use of rubrics, scoring guides, and other evaluation methods. Without valid assessment tools, teachers and students would be at a great disadvantage. Teachers would be unable to ensure that students are meeting the learning outcomes of the course. Students would not know what the teachers expected of them. While planning assignments, educators must also decide how they are going to assess the work. Assessments in online courses are similar to those in traditional classrooms. However, the forms of assessment should be carefully developed to fit the unique structure of online learning. In online courses, the assessment should be even more clearly stated than in traditional courses. For example, how participation in Blackboard or other discussion venues will be assessed

needs to be described clearly in the syllabus. In the Indiana Higher Education Telecommunication System (2006), the Working Group of the Indiana Partnership for Statewide Education (IPSE) pointed out that in online courses “a systematic approach to assessment engages techniques for measuring prior learning, intended outcomes and value added, and provides for documentation of what learners know, and what they can do as a result of learning experiences” (Assessment of Student Outcomes section, para. 1).

Critical pedagogy also plays an important part in validating online assessment. Critical pedagogy theorists believe that students should be required to reflect on their own work as a part of the assessment process. Keesing-Styles (2003) stated that:

... the examination of critical pedagogy in relation to assessment strongly supports an approach where students are active participants in the assessment process and in the generation of assessment criteria. Assessment becomes a more powerful contributor to the learning process if students are empowered to participate in this way, and assessments are subsequently more likely to reflect the diversity of students and realities of their lives if the students themselves are engaged in a dialogic process of criteria generation. (Everyday Life and Powerful Students section, para. 8)

#### *D. Student Empowerment*

Shulman and Luechauer (1991) stated that in order to create empowered students, teachers “must create an atmosphere that promotes autonomy, personal responsibility, continuous learning, and the ability to cope with change” (p. 3).

Teachers can empower their students by giving the students the responsibility to lead discussions, explain to their peers the content that has been covered, and present a

class project online. Students are empowered when the teacher listens to the students, the teacher gives a variety of assignments to choose from, and students are given freedom to express themselves. Students also feel empowered when they have the opportunity to share their cultural backgrounds and their philosophy in the discussion.

According to Morihara (1999):

... if university web courses were designed to encourage dialogue and meaning-making, if learners had choices about topics, resources, and applications, if learners' opinions, ideas, and experience were valued—in short, if learners were treated more like adult peers, it seems that both the satisfaction in teaching and the joy in learning would expand. (pp. 127-128)

According to Palloff and Pratt (2001), another way to empower students is to educate them about the differences between online learning versus learning in a traditional classroom. This included explaining teacher expectations and how teacher/student roles differ in online classes from those of traditional classes. For example, in most online classes, the students are expected to be more actively involved and proactive in gaining their education, than in a traditional course.

From the perspective of critical pedagogy, positive interactions between teachers and students start a process in which students learn about themselves and their world. According to Wink (2005), through the realization of their own potential, students are able to “transform their own self-image and discover who they are and can be and thus create the future for all of us” (p. 115).

### *E. Social Presence*

Tu and McIsaac (2002) stated that “social presence is a measure of the feeling of community that a learner experiences in an online environment” (p. 131). Social presence can also be defined as the interactions between participants, which is necessary in order to create a warm, comfortable learning environment. Social presence creates connections between learners, and it increases their motivation to learn. In a successful class, the social presence of all participants is felt.

Creating social presence in an online course is much more difficult than in a traditional setting. Obviously, when students spend hours online, without much interaction with the professor or peers, they can feel bored and/or alienated. In order to overcome this problem, online teachers need to develop methods to assist their students to achieve social presence. According to Mykota and Duncan (2007), “recommendations for the effective use of online learning recognize that instructors must deliberately structure interaction patterns to overcome the potential lack of social presence of the medium” (p. 157). In addition, Garrison, Anderson, and Archer (2000) pointed out that “the primary importance of this element [social presence] is as a support for cognitive presence, indirectly facilitating the process of critical thinking carried on by the community of learners” (p. 4). Teachers working with online classes have developed various methods to increase the social presence of their students. For instance, some teachers have their students post a short introduction of themselves for the teacher and other students to read. These introductions help to facilitate

student/student and student/teacher interactions later in the course. Furthermore, as students get to know each other online, they gain valuable feedback on course assignments, problems with the technological aspects of the course, and expectations of the teacher, as well as opinions from other students expressing ideas from other points of view. This exchange of ideas can provide valuable insight into dealing with a world full of diversity. In order to encourage social presence, the teacher should show a caring attitude toward his/her students, give prompt feedback on deadlines and assignments, and base a percentage of the grade on student interaction and collaboration, making clear to the students the amount of expected interaction.

The idea of social presence is strongly advocated in critical pedagogy theory. When online teachers encourage their students to interact, they are promoting the idea of self-worth and improved self-esteem. They are, in essence, giving their students a voice. According to McLaren (1994):

A student's voice is not a reflection of the world as much as it is a constitutive force that both mediates and shapes reality within historically constructed practices and relationships of power. Each individual voice is shaped by its owner's particular culture history and prior experience. (p. 227)

### *F. Critical Thinking Skills*

Schafersman (1991) defined critical thinking as “reasonable, reflective, responsible, and skillful thinking that is focused on deciding what to believe or do” (Definition of Critical Thinking section, para. 1). An effective teacher will encourage problem solving and critical thinking. The teacher can accomplish this by asking open-

ended questions that require students to explain how they arrived at their answers. Class assignments allow students to express their opinions and evaluate alternative possibilities, before making conclusions about the material. Halpern (1999) pointed out that “there are identifiable critical thinking skills that can be taught and learned, and when students learn these skills and apply them appropriately, they become better thinkers” (p. 70).

However, one dilemma faced by both online teachers and those working in a traditional classroom is that many undergraduate students are entering college with poor critical thinking skills. According to Leshowitz, DiCerbo, and Symington (1999),

Unschooling in the processes of inquiry, it is hardly surprising that many students do not know how to seek evidence for claims or evaluate data so as to extract meaningful conclusions in their effort to make informed decisions and solve problems. (Introduction section, para. 3)

In addition, Tsui (2002) stated that “many consider the level of critical thinking displayed by students to be inadequate” (p. 740). In order to increase the level of critical thinking, MacKnight (2000) suggested that both online students and instructors may need training and support in relation to the use and assessment of critical thinking skills. The author provided some effective strategies for instructors to use in online course discussions, including keeping class discussions focused, posing questions that require higher-order thinking skills, and making students responsible for their answers.

Critical pedagogy emphasizes the importance of critical thinking in our system of education. Students who reflect on their own learning and who make decisions

based on their reflections are using critical thinking skills. Burbules and Berk (1999) stated that:

Critical Thinking and Critical Pedagogy authors would argue that by helping to make people more critical in thought and action, progressively minded educators can help to free learners to see the world as it is and to act accordingly; critical education can increase freedom and enlarge the scope of human possibilities. (p. 46)

### *G. Alignment*

Alignment in an online setting is as fundamentally important as alignment in a traditional classroom. Alignment ensures that teachers and students work cooperatively to achieve the same goals. This requires that teachers design courses with student interests and skills in mind. A successful class is organized so that all of the goals and outcomes are aligned in a way that they reinforce one another.

According to Biggs (2003a):

The ‘alignment’ aspect refers to what the teacher does, which is to set up a learning environment that supports the learning activities appropriate to achieving the desired learning outcomes. The key is that the components in the teaching system, especially the teaching methods used and the assessment tasks, are aligned with the learning activities assumed in the intended outcomes. (p. 2)

In an online class, the teacher must also be sure that the students have the technical skills for taking the course. Furthermore, the teacher must ensure that class requirements and class activities are in alignment with student proficiency and with the technical capabilities of available hardware. Teachers must be aware of and apply the National Educational Technology Standards. This can be difficult, as online

classes will usually have a diverse population, with some students who have little technological experience. For example, many online students are older than average, or are from countries with less access to technology. Teachers must take this into consideration when planning their method of instruction.

Furthermore, Biggs (2003b) stated some principles of alignment, which interrelate and work cooperatively with each other. These principles should be aligned and applied toward the same goal of deep comprehension. As effective educators, we should take into consideration the following:

- 1- The curriculum that we teach.
- 2- The teaching methods that we use.
- 3- The assessment procedures that we use, and methods of reporting results.
- 4- The climate that we create in our interactions with the students.
- 5- The institutional climate, the rules and procedures we have to follow. (p. 26)

From the critical pedagogical viewpoint, teachers working with online classes need to address the concept of alignment. The main elements of this concept such as personal and cultural freedom, the power to create change in society, and positive interactions, should be aligned with instructional design, learning outcomes, and all other aspects of an online course. Giroux (1989) stated that:

A critical educator can demonstrate his/her moral courage through a content that gives real meaning to ethical action while allowing students to read, debate, and align themselves with moral discourses brought to bear on the issues that become a legitimate object of discussion. (p. 67)

## METHODOLOGY

### Evaluation Research

The methodology used for this research was evaluation research. Evaluation research is useful for assessing the quality of ongoing programs. According to Gall, Gall, and Borg (2005), evaluation research is “the process of making judgments about the merit, value, or worth of any component of education” (p. 453). There is always a need for professional educators to evaluate their curriculum and educational practices and strive to improve their quality. When there is limited experience in a new or developing area of education, it is important to increase knowledge and determine the effectiveness of the particular program’s components. Fink (1995) also affirmed that evaluation research is “conducted to determine the extent to which... [a] program is effective and efficient in influencing the outcomes of learning” (p. 10).

Evaluation research can take two forms, formative evaluations or summative evaluations. Mathison (2005) observed that the summative evaluation is used for reporting “on” the program while the formative evaluation is used to report “to” the program (p. 402). In other words, formative evaluations occur *during* the program development, and summative evaluations occur *after* the completion of the program. Gall et al. (2005) pointed out that summative evaluations will help to “determine whether the programs, methods, or materials are effective” (p. 460).

This study was a summative evaluation of online courses in the College of Liberal Arts at Oregon State University, and this research measured the effectiveness of a program that had already been developed. Summative evaluations are usually conducted by an outside or external evaluator who poses questions regarding the program. The Division of Research Evaluation and Communication, National Science Foundation (1997) described summative evaluations as including investigation into the following questions:

- To what extent did the project meet its overall goals?
- Was the project equally effective for all participants?
- What components were the most effective?
- What significant unintended impacts did the project have?
- Is the project replicable and transportable? (p. 11)

Answers to these questions can help evaluators to direct their focus and data collection in order to determine the effectiveness and value of a program. According to Sanders and Sullins (2006), summative evaluators are external and “are most effective because of their independence and ability to step back to take an objective look at the big picture” (p. 9). This information can be used by educators to make decisions about continuing, improving, and/or modifying a program’s design.

Using evaluation research, a researcher can investigate the effectiveness of different aspects of educational curriculum, such as instructional programs, methods, strategies, and materials. Such research can provide a basis for decisions that are significant in the evaluation of current educational practices. Gall et al. (2005) also stated that “a well-done evaluation study is a valuable aid because it helps educators and policymakers weigh a wider range of factors that are relevant to a major decision”

(p. 453). In addition to decision making, Worthen and Sanders (1987) stated that there are nine other possible purposes for evaluation reports:

- To demonstrate accountability
- To convince
- To educate
- To explore and investigate
- To document
- To involve
- To gain support
- To promote understanding
- To promote public relations. (p. 342)

These various purposes should be determined before the program evaluation begins.

The external evaluators can assist in defining these purposes as well as collecting, analyzing and interpreting the data. The purpose of this study was to explore and investigate the effectiveness of online learning in the OSU College of Liberal Arts and to design an assessment tool that supported instructors in their web course design and delivery.

Evaluation research can be qualitative, quantitative, or both; a mixed methodology combines qualitative and quantitative approaches. This study used both qualitative and quantitative methods to gather information and analyze data.

According to the Division of Research Evaluation and Communication, National Science Foundation (1997), “there is a growing consensus among evaluation experts that both qualitative and quantitative methods have a place in the performance of effective evaluation. Both formative and summative evaluations are enriched by a mixed method approach” (p. 17). By using statistical measures and narrative reports, the researcher looked for agreement and disagreement between the two types of data.

Currently, OSU Extended Campus (2004b) makes available to all online instructors a document entitled “Suggested Elements for Review of Online Instruction.” This document lists suggested elements for review, such as “learning outcomes, course content and academic development, interactions with learners, learning resources and supporting materials, assessment and measurement, course technology, and student support standards and learner support” (pp. 1-9). In addition to taking into account the above-mentioned elements, the researcher incorporated critical pedagogy theory into criteria that was used for developing an assessment tool to evaluate the effectiveness of online learning.

There is some overlap in the description of the process of evaluation research. McNeil, Newman, and Steinhauser (2005) pointed out that the process of evaluation research includes: establishing criteria for assessing program quality, gathering pertinent data, analyzing and interpreting the results, and presenting the final report. Fink (1995) further explained that a high-quality program evaluation would include the following components:

1. Posing questions about the program
2. Setting standards of effectiveness
3. Designing the evaluation and selecting participants
4. Collecting information
5. Analyzing data
6. Reporting the results. (p. 6)

These procedures clearly outlined step-by-step guidelines for implementing and directing this research design.

## Research Questions

Since the purpose of this study was to investigate the effectiveness of online learning based on the theory of critical pedagogy, the researcher posed the following questions:

1. Based on the theory of critical pedagogy, what assessment tool can be developed to evaluate online courses from instructor and student perspectives?
2. According to instructor and student responses to questions based on the theory of critical pedagogy, how effective are online undergraduate courses?
3. Is there a significant difference between the students and the instructors in their perceptions of the online courses?
4. Are there correlations between the criteria of effectiveness used in the assessment tool?
5. What constitutes an effective online course based on instructor perspectives, student perspectives, and researcher observations?

In order to answer these questions effectively, factors for measurement were developed. The effectiveness of online courses was determined by using the strength of agreement measurement in the presence of the criteria of effectiveness derived from critical pedagogy theory.

## Criteria of Effectiveness

From the literature review, the researcher established seven criteria to measure the effectiveness of online courses. These criteria were aligned with the philosophy of critical pedagogy theory and had equal importance in determining the effectiveness of online learning. See Table 1. for criteria of effectiveness.

Table 1.

### *Criteria of Effectiveness*

<i>Criteria</i>	<i>Definition</i>
A. Instructional Design and Delivery	Instructional strategies and methods for presenting course content and developing curriculum, including clearly designed goals and objectives
B. Student Learning Outcomes	Statements which specify what a student understands and/or is able to do after completing an educational course
C. Assessments	A systematic approach to determining the quality of student learning by evaluating student work based on specific course standards or instructor expectations
D. Student Empowerment	Students' freedom to challenge dominant beliefs, state their opinions, and take ownership and responsibility for their learning
E. Social Presence	Students in a learning community expressing themselves emotionally and socially through positive interactions and creating a sense of belonging within the group

Table 1. (Continued)

*Criteria of Effectiveness*

<i>Criteria</i>	<i>Definition</i>
F. Critical Thinking Skills	Higher order thinking and problem solving of real world situations requiring students to analyze, synthesize, interpret, and evaluate information in order to support their final conclusion
G. Alignment	Aligning and organizing different components, such as learning outcomes, instructor goals, course assessments, student interests and abilities, in order to ensure agreement within the course design

These criteria were used as guidelines to formulate the survey statements in order to measure the online learning effectiveness.

### Methods of Data Collection

This section describes the methods used in collecting data, including the various instruments. The method of data collection was a mixed methodology of quantitative and qualitative techniques. The survey instruments consisted of the *Instructor Reflection Survey* and the *Student Reflection Survey* and included close-ended Likert scale statements (quantitative data) and open-ended questions (qualitative data). See Appendices A and C. These instruments were used to measure the factors

that contributed to the effectiveness of online courses from instructor and student perspectives.

Quantitative research is defined by Gall et al. (2005) as “inquiry that is grounded in the assumption that features of the social environment constitute an objective reality that is relatively constant across time and settings,” while qualitative research is defined as “inquiry that is grounded in the assumption that individuals construct social reality in the form of meanings and interpretation, and that these constructions are transitory and situational” (p. 555). The research indicated that using both methods enhanced the data collection and improved the researcher’s understanding of the findings. According to the Division of Research Evaluation and Communication, National Science Foundation (1997) “the validity of results can be strengthened by using more than one method to study the same phenomenon. This approach— called triangulation—is most often mentioned as the main advantage of the mixed method approach” (p. 16). Using different methods of data collection helps to provide a more in-depth analysis of the effectiveness of online courses. In addition, each method of data collection has its own limitation, and by incorporating more than one method, the researcher mitigated any weak areas. Mixed methodology enriched this study by utilizing numerical data, written narrative, and observational data to reflect on meaningful patterns of human behavior and experience.

Quantitative information was collected from the close-ended Likert scale statements and demographic data in the survey, while qualitative information was gathered from the open-ended questions. Additional qualitative information was

derived from non-participant observation techniques. According to the Division of Social Psychiatry (1998) at UCLA’s Neuropsychiatric Institute, non-participant observation is defined as a situation where researchers “spend time among the research subjects only to collect observations but do not significantly interact with subjects” (para. 1). The advantage of using non-participant observation is that the observer can collect information about interactions and behaviors without interference with the process. The Division of Research Evaluation and Communication, National Science Foundation (1997) pointed out that:

By directly observing operations and activities, the evaluator can develop a holistic perspective, i.e., an understanding of the context within which the project operates. This may be especially important where it is not the event that is of interest, but rather how that event may fit into, or be impacted by, a sequence of events. (p. 24)

This researcher’s non-participant observations consisted of observing the Blackboard online learning environment for the classes that participated in the study. The methodology of data collection was applied as shown in Table 2.

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Table 2.

*Mixed Methodology*

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<i>Quantitative</i>	<i>Qualitative</i>
Surveys:	Surveys:
A. Close-ended Statements:	A. Open-Ended Questions :
1. Online Student Reflection Survey	1. Online Student Reflection Survey
2. Online Instructor Reflection Survey	2. Online Instructor Reflection Survey
B. Demographics	B. Non-Participant Observation

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## *Surveys*

The surveys were reviewed by the OSU Survey Research Center and were evaluated by professors in the field of online learning. In addition, the surveys were reviewed and approved by Oregon State University Institutional Review Board (IRB). The data was collected from a variety of Liberal Arts online courses using the *Online Instructor Reflection Survey* (Appendix B) and the *Online Student Reflection Survey* (Appendix D). Participants were able to access these surveys on questionpro.com. Questionpro is an application designed to assist the researcher in creating and administering surveys online.

The *Online Instructor Reflection Survey* included demographic information, scaled effectiveness criteria, background and teaching experience regarding teaching online courses, and open-ended questions. See Table 3. for instructor survey components. The *Online Student Reflection Survey* included demographic information, scaled effectiveness criteria, experience with computers and technology, and open-ended questions. See Table 4. for student survey components.

Table 3.

*Online Instructor Reflection Survey Components*


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Demographic Information	One question related to faculty rank and status
Scaled Effectiveness Criteria	21 randomly organized statements related to the seven criteria of effective online courses
Background and Teaching Experience	Five questions related to teaching in traditional classroom and online learning
Open-Ended Questions	Eight open-ended questions related to attitudes, feelings, and opinions about online teaching experiences

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Table 4.

*Online Student Reflection Survey Components*


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Demographic Information	Three questions related to age, gender, ethnicity Four questions related to student enrollment status
Scaled Effectiveness Criteria	21 randomly organized statements related to the seven criteria of effective online courses
Experience with Computers and Technology	Two questions related to computer use, experience with technology, and internet access
Open-Ended Questions	Three open-ended questions related to attitudes, feelings, and opinions about the online learning experience

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Likert scale design was used for the survey which included 21 statements related to the components of effective online learning. Three statements were developed and randomly organized for each of the seven criteria of online course effectiveness (Instructional Design and Delivery, Student Learning Outcomes, Assessments, Student Empowerment, Social Presence, Critical Thinking Skills, and Alignment). See Appendices B and D. After the surveys were designed, a statistician reviewed them and made recommendations. Based on these recommendations, the middle (or neutral) choice was dropped creating a forced choice. In addition, two scale steps were added increasing the number of options from 4 to 6. Therefore, the Likert scale was changed from (*Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree*) to (*Strongly Agree, Moderately Agree, Agree, Disagree, Moderately Disagree, and Strongly Disagree*). Studies also support these modifications. For example, Birkett (1986) stated that for a Likert scale “reliability tended to be highest with the questionnaire having six response categories” (p. 488). Furthermore, the number of responses is evenly distributed between the positive and negative ends of the continuum. Page-Bucci (2003) pointed out that in the Likert scale “the number of choices on the scale should be evenly balanced to retain a continuum of positive and negative statements with which the respondent is likely to agree or disagree although the actual number of choices can be increased” (Reliability and Validity section, para. 4). In addition, according to Trochim (2001):

It is also possible to use a forced-choice response scale with an even number of responses and no middle neutral or undecided choice. In this situation, the

respondents are forced to decide whether they lean more towards the agree- or disagree-end of the scale for each item. (p. 147)

### *Non-Participant Observation Instrument*

A Non-Participant Observation Instrument was designed based on the *Online Instructor Reflection Survey* and the *Online Student Reflection Survey*. The instrument included a data gathering format correlating to each statement in the questionnaire. Each class was observed independently and the data gathered was reported on this form. This instrument was used to ensure the internal validity of the data gathered from the close-ended statements in the instructor/student surveys. In addition, the researcher observed the Blackboard courses in order to determine the level of interaction between the students and between the students and the instructor.

### Reliability and Validity of Instruments

There are many considerations that are significant in obtaining valid and reliable data. The initial survey was developed based on components from the literature review that explore a variety of teaching methods in relation to critical pedagogy. Furthermore, useful elements from the OSU Extended Campus (2004b) publication “Suggested Elements for Review of Online Instruction” were considered in establishing the criteria for the survey. OSU Extended Campus, after an extensive literature review of professional organizations [Sloan Consortium (Sloan-C), Western

Cooperative in Educational Technology (WCET), and National University Telecommunications Network (NUTN)], compiled seven elements that support best practices in online instruction. OSU Extended Campus welcomes any suggestions and recommendations for improving this tool as well as feedback on the effectiveness. The purpose of this study was to provide additional helpful information to improve the effectiveness of online courses at OSU.

After developing the survey, it was reviewed and revised by the Survey Research Center at OSU. The questions were reviewed for clarity and consistency. In addition, wording, ordering, and organization were evaluated throughout the survey. Words and concepts were scrutinized to ensure the appropriateness for the undergraduate level of education, and irrelevant questions were deleted. Modifications were made based on recommendations from the reviewer.

In addition, the survey and the content validity were reviewed and evaluated by three experts in the field of online learning. These experts were chosen because they have teaching experience in the area of web-based instruction. This review helped to ensure that the instrument measured what it was intended to measure and was relevant to the objective of the survey, thus, giving a valid picture of an effective online course. The experts were asked to appraise the statements and judge whether or not they were appropriate and straightforward. Any statements that weakened the instrument validity were removed. The surveys also were reviewed and approved by the Oregon State University Institutional Review Board.

Furthermore, in the overall design of the survey, multiple measures were used. According to Aneshensel (2004), “the use of multiple measures of a construct is an essential element in the assessment of both validity and reliability” (p. 9). In the close-ended questions of the survey, three statements were used to determine the presence of each criterion of effectiveness. For example, in order to measure the degree of Social Presence, the following three options were provided: “My instructor encourages me to post a self-introduction on Blackboard,” “My instructor provides opportunities for positive interactions with other students,” and “My instructor helps me to feel part of the learning community.” By providing multiple measurements for the same criteria, the survey became more valid and reliable.

Moreover, in order to check the internal validity of survey responses, the researcher used the technique of non-participant observation of the Blackboard courses. According to Gall et al. (2005), “observations are more objective than surveys because they do not depend on research participants’ self-report” (p. 181). These observations of responses, reactions, and interactions helped to determine the validity of students’ responses. The researcher used these measures to determine the consistency of the answers to statements 1-21. For example, students may indicate that they disagreed with the statement “My instructor encourages me to post a self-introduction on Blackboard.” But at the same time the non-participant observation indicated that the instructor did, in fact, encourage the students to introduce themselves. This dichotomy was a sign that the student answer was not reliable and did not reflect what was happening in the course. Another example was if the student

disagrees with the statement “My instructor provides opportunities for positive interactions with other students,” the researcher checked the validity of the student’s response by observing in the structure of the course whether or not the instructor encouraged collaboration. In addition, non-participant observation allowed the researcher to see in-depth the nature of teacher-to-student and student-to-student interactions. Morihara (2006) described this experience:

To some extent [the researcher] can examine the type of assignments and questions as well as any focus on student-student interaction in the syllabus and know that the underlying structure for good student-student interaction is there. However, without examining the type of posts and the level of interaction (e.g. thoughtful feedback rather than just “cheerleading”), [the researcher] won’t be able to really tell how effective an online class is. (Personal Communication, emails, 2006)

## Population

According to the OSU Extended Campus website (2004a), Oregon State University is one of the top 10 land grant universities in the United States. It is a member of the Oregon University System. The focus is on teaching, research and outreach for the state of Oregon. The OSU Office of Institutional Research (2008) reported that, in the school year 2006-2007, OSU had 19,362 students enrolled, of whom 15,829 are undergraduates and 3,001 are graduate students. There are 10,165 male students and 9,197 female students enrolled; 2,806 of the students are minority and 897 are international students. The vast majority of OSU students are Oregon residents.

In addition to the traditional courses available to students on-campus, OSU has an expansive program called the OSU Extended Campus, which offers many online courses. According to the Extended Campus website (2004a), Extended Campus is in the process of expanding its size and range of services and intends to increase its student diversity, attracting older students and a more racially diverse student mix. Extended Campus has five main values, “Accountability, Diversity, Integrity, Respect, and Social Responsibility” (p. 4). Extended Campus provides a wide variety of online courses in at least 50 areas of study as well as online undergraduate and graduate degree programs. Jeter and Bell (2005) stated that the students enrolled in Extended Campus come from all 50 states, as well as 12 foreign countries. The age of the average Extended Campus student is 36 and approximately 65% are women.

OSU consists of 11 academic colleges. The researcher chose the College of Liberal Arts (CLA) for this study because it is different from other major programs. It offers students a unique opportunity to design a plan of study which mixes and matches courses from 13 different departments. The broad flexibility and interdisciplinary style creates a program of study that meets multiple needs and interests. According to the College of Liberal Arts (2006) website, the mission of the CLA is to give students “a well-rounded education that prepares them for a variety of experiences and careers... [and] the ability to think critically. Graduates who can think analytically and communicate effectively are in demand everywhere in today’s job market” (para. 3). CLA graduates are employed in diverse career fields, such as

writers, supervisors, attorneys, teachers, entrepreneurs, and designers in the areas of public relations, business, government, publishing, and computer applications.

According to the OSU Office of Institutional Research (2008), there were 4,350 student credit hours in the College of Liberal Arts through OSU Extended Campus for Fall Term 2006. This academic unit (Liberal Arts) enrolled the largest number of OSU students taking online credit hours. The student credit hours that were taken through the OSU Extended Campus academic unit of Liberal Arts accounted for nearly half (48%) of the total number of Extended Campus undergraduate credit hours. The CLA offers many online courses in diverse subjects, such as Anthropology, Economics, English, History, Political Science, Psychology, and Women's Studies.

The type of sampling used in this study is called availability sampling. All instructors who were teaching online undergraduate courses in the CLA were invited to participate. Students enrolled in the online courses of instructors who agreed to participate in the study were given the opportunity to complete the survey. Participants for the study volunteered; hence, making themselves available. According to the Columbia University, Institute for Social and Economic Research and Policy (2003), "availability sampling is a method of choosing subjects who are available or easy to find" (Availability Sampling section, para. 1). This method meets the IRB requirements that all participation is voluntary.

## Data Analysis

The effectiveness of online courses was determined by using a strength agreement measurement in the presence of the seven criteria of effectiveness derived from critical pedagogy theory. The data was collected from surveys and observation instruments. The researcher made the assumption that all non-responders are random. The steps for analyzing the data for this study included organizing the data and applying statistical analysis (quantitative data), identifying categories and patterns (qualitative data), and interpreting the results. See Table 5. through Table 9. for data collection and analysis procedures.

In this study, the independent variable (explanatory variable) included the criteria of effectiveness (instructional design and delivery, student learning outcomes, assessments, student empowerment, social presence, critical thinking skills, and alignment) and the dependent variable (response variable) was the level of effectiveness of online courses. This is in alignment with the explanation found in Gall et al. (2005) in which the independent variable is defined as the variable “that is hypothesized to cause an observed difference,” and the dependent variable is the “variable in which the difference is observed” (p. 185).

### *Quantitative Data*

The researcher measured instructor and student responses to Likert scale statements on the *Online Instructor Reflection Survey* and *Online Student Reflection*

*Survey*. The researcher also compared instructor and student perspectives with respect to the presence of each criterion in the online courses; as well as examined the correlation patterns between the criteria of effectiveness that were used in the assessment tool. Statistical analysis was used to provide a meaningful interpretation of numerical data.

Using an interval measure for analyzing data from Likert scales can be unsuitable (Cohen, Manion, & Morrison, 2000; Jamieson, 2004; Pell, 2005). If the Likert scale is treated as an interval scale, the inherent assumption is that the intervals between the values are equal. Jamieson argued that:

The legitimacy of assuming an interval scale for Likert-type categories is an important issue, because the appropriate descriptive and inferential statistics differ for ordinal and interval variables and if the wrong statistical technique is used, the researcher increases the chance of coming to the wrong conclusion about the significance (or otherwise) of his research. (p. 1217)

Moreover, Tastle, Russell, and Wierman (2005) stated that studies regularly “assign a numerical value to each Likert category, and then take a weighted average to get some general overall value that can be used for comparative purposes. Such efforts are fraught with error, since Likert scales are ordinal measures” (p. 1). Jamieson further argued that “the intervals between values cannot be presumed equal” and as a result must be treated as an ordinal level of measurement (p. 1217). For example, according to Tastle and Wierman (2006b), “to suggest that the average of agree and strongly agree is agree and a half makes no sense” because the “the numbers are little more than another way of labeling the categories” (p. 6). A similar statement, using more common terminology, such as describing a group as neutral when feelings vary

between strongly positive and strongly negative can clearly distort reality. Therefore, in this study, Likert-type statements were analyzed as an ordinal scale (not as an interval scale) and the responses were ranked on a scale of 1- 6 to determine the degree of agreement (*Strongly Agree, Moderately Agree, Agree, Disagree, Moderately Disagree, and Strongly Disagree*).

Tastle et al. (2005) introduced a new method called the consensus measure to analyze data from ordinal scales like the Likert scale. This method is:

a useful tool in understanding dispersion of ordinal data [because] by transforming the unit interval values to percentages ... the consensus measure can be interpreted to possess the same information as a weighted standard deviation measure, except that it is much easier to understand and utilize dispersion when represented as a percentage. (p. 6)

The consensus measure is a practical tool that is developed from a fundamental theory of information by Shannon (1948). According to Tastle and Wierman (2005), consensus is “a general agreement among the members of a given group” (p. 385). In addition, Szmidt and Kacprzyk (2003) stated that “consensus is traditionally meant as a full and unanimous agreement” (p. 837). However, since this narrow idea is rarely achieved “it would make more sense to speak about a distance from or a degree of consensus” (p. 837). Tastle and Wierman (2006a) stated that “using this [consensus] measure, investigators can easily determine the proximity of ordinal data to consensus (agreement) or dissention” (p. 487). Moreover, a significant advantage of using this method as pointed out by Tastle, Wierman, and Dumdum (2005) was that “as the number of participants increases in size, the consensus measure should not be affected” (p. 99).

Furthermore, additional research has been done by Tastle and Tastle (2005) to extend the consensus measure to create a targeted consensus. The authors stated that the consensus measure can be extended by “fixing the mean value to a predetermined focal point and then calculating the measure” (p. 2). Hence, Tastle (2007) explained that:

By pre-establishing SA [Strongly Agree] as the target and assigning it a value of 1... the measure creates a targeted consensus... In fact, if one calculates the targeted consensus for each of the 5 or 7 or x Likert categories, the  $cns = cns(t)$  for one. (Personal Communication, emails, 2007)

Later the targeted consensus was re-named “agreement.” The calculation for the agreement measure was changed from a calculation of the mean of the frequency distribution, to the use of the median. Tastle (2007) stated that “when dealing with ordinal scales it is not conceptually ‘pure’ to calculate means, for a mean is a ratio scale calculation. The median or mode is the more justifiable way to go” (Personal Communication, emails, 2007). The agreement measure indicates the strength of agreement as to the presence of the seven criteria of effectiveness derived from critical pedagogy theory.

Using the agreement measure, the researcher analyzed and summarized the data into four phases for instructor and student surveys. The first phase was to produce a summary of individual scores, Intrapersonal Consensus (Cns) and Intrapersonal Targeted Agreement Cns(t), for each individual statement grouped by the effectiveness criteria. The second phase was to produce a class level summary of instructor and median student targeted agreement scores and consensus, in which the

statements were organized according to the criterion of effectiveness. This statistical data was utilized for calculations in the third phase, a department level summary which included data from every student and instructor in a particular department. In this phase, like the others, the data was organized based upon the seven criteria of effectiveness. The fourth phase was the college level summary, which combined data from all students and instructors in the college to provide a broad overview.

After completing the Tastle et al. (2005) analysis of the consensus data from the instructor and student responses to Likert scale statements, next the analysis of the significance of differences between student and instructor perceptions, and the correlation between the criteria of effectiveness were completed. The researcher determined whether there was a significant difference between instructor and student evaluation scores regarding the presence of all seven criteria. The Sign test was used to analyze the data for each criterion. According to Gosling (1995), the Sign test is a non-parametric test that is used for testing the hypothesis between the two dependent populations. In addition, de Sa and de Sa (2003) stated that “an important advantage of the sign test is its broad applicability to ordinal data” (p. 176). The result of the test was considered significant when  $p \leq 0.1$ . Thus, for each category, there were seven simultaneous tests. The researcher utilized the Bonferroni adjustment (Clark-Carter, 1997; De Muth, 2006; Hill & Lewicki, 2006), so that  $0.1/7 = 0.0143$  was the per-test Type I error rate. This mathematical adjustment was made to correct for the simultaneous inference error rate. The statistical hypotheses were:

$H_0$ : Instructor and student evaluation scores for one criterion are in agreement.

$H_1$ : Instructor scores are higher than students' scores.

For each class, the researcher determined whether instructor scores were higher, lower, or the same as the class median. In making calculations for the Sign test, tied scores were dropped. If instructors' scores were no different from the student scores, in accordance with the Null Hypothesis, instructor scores would have an equal chance of being higher or lower than the median of the class, in every class. In the Alternate Hypothesis ( $H_1$ ), the instructors would score themselves higher. If the Alternate Hypothesis were true, instructors' scores for each class would tend to be higher than student median scores, which is more frequently than chance alone would justify.

Furthermore, the researcher investigated whether there are correlations in the way teachers as a group or students as a group responded in the survey. Two sets of 21 possible pair-wise correlations (7 criteria of effectiveness) were investigated for statistical significance: one for the teachers and one for the students. It was expected that correlation relationships existed among responses in the seven criteria for each group. In order to assess inter-dependencies between each pair of criteria, Pearson Product Moment Coefficients with tied-adjusted rank values were calculated for teachers as a group and students as a group; this calculation is the same as the Spearman Rank Correlation Coefficient test (Sheskin, 2004; Zimmerman, 1994). The results of the test were considered significant when there was an experimental-wise error rate of 0.1, or  $p \leq 0.10$ . Once again, to adjust for 21 simultaneous pair correlation tests, Bonferroni's corrections were used (Clark-Carter, 1997; De Muth, 2006; Hill & Lewicki, 2006). Thus,  $0.1/21 = 0.00476$  became the per-comparison Type I error rate

for each correlation test of a pair of criteria. The statistical hypothesis for each pair was:

H<sub>0</sub>: Student or instructor responses indicate no correlation in a given pair of criteria.

H<sub>1</sub>: Student or instructor responses indicate a correlation in a given pair of criteria.

For each class, a combined student agreement score was calculated based on the responses of all students in a class for each criterion. Then, with one score per class, per criterion, all classes' scores were ranked for each criterion. Each class would receive one rank from closest to targeted agreement, to responses furthest from the targeted value of *Strongly Agree*. When more than one class has the same targeted agreement score, tied-adjustments must be made in order to use the Pearson Product Moment Coefficient. The rank adjustment was computed so that tied scores carried an equal weight; scores tied with the same number are counted, and then the first possible rank for that score was combined with the last possible rank. The result of these calculations was then averaged. For example, if the first three scores are ranked one to three, and the subsequent four scores are tied, the first possible tied-rank would be four and the last would be seven; consequently, four and six are added and divided by two to give a tied-adjusted rank of 5.5 for the four tied scores.

The Pearson Product Moment Coefficient was then calculated on the tied-adjustment ranks over each possible pairing from the seven criteria. According to Sheskin (2004) and Zimmerman (1994), when the Pearson Product Moment

Coefficient was used with tie-adjusted rank values instead of the numerical scores, it produced equivalent results to Spearman's rank order correlation coefficient. For each pair, the researcher gets one Spearman Rank Correlation Coefficient:

$$r = \frac{\sum \chi\gamma - \frac{(\sum \chi)(\sum \gamma)}{n}}{\sqrt{\left[ \sum \chi^2 - \frac{(\sum \chi)^2}{n} \right] \left[ \sum \gamma^2 - \frac{(\sum \gamma)^2}{n} \right]}}$$

In order to perform a statistical test for each possible pair chosen from the seven criteria, a two-sided t-test was conducted to transform the Spearman Rank Correlation Coefficient into a t-statistic:

$$t = \frac{r_s \sqrt{n-2}}{\sqrt{1-r_s^2}}$$

A similar process was followed for instructor responses to find if they responded similarly across the seven criteria, with one exception. Since there was only one instructor per class, there was no need to combine targeted agreement scores at the class level, as in the student case.

### *Qualitative Data*

The researcher gathered qualitative data from non-participant observations (Appendix E) and from the open-ended questions in the survey instruments (Appendices B and D). Labuschagne (2003) pointed out that the "criterion for qualitative research focuses on identifying and documenting recurrent accurate and

consistent (homogenous) or inconsistent (heterogeneous) features as patterns, themes, world views, and any other phenomena under study in similar or different human contexts” (p. 103). The data was collected into a database and divided, reduced, and coded into meaningful categories in order to accurately identify critical components and draw any possible conclusions.

According to the Division of Research Evaluation and Communication, National Science Foundation (1997), qualitative data “can be analyzed and synthesized from multiple angles depending on the particular research or evaluation questions being addressed” (p. 62). Based on the research questions to be addressed, the researcher evaluated the qualitative data by comparing the instructor and student views of an effective online course. Then the researcher investigated possible correlations between demographics, and background and experience with technology, and looked for significant relationships and patterns.

Quantitative and qualitative data were summarized according to the five research questions developed for this study. The sources of data and the methods of analysis were identified and presented in Table 5. through Table 9. in the following:

Table 5.

*Data Collection and Analysis (Question One)*

<i>Research Questions</i>	<i>Source of Data/Information</i>	<i>Method of Analysis</i>
1. Based on the theory of critical pedagogy, what assessment tool can be developed to evaluate online courses from instructor and student perspectives?	Literature review of critical pedagogy and best teaching practices in traditional and online learning.	Synthesis of the findings into seven criteria of effectiveness: Instructional Design and Delivery, Student Learning Outcomes, Assessments, Student Empowerment, Social Presence, Critical Thinking Skills, and Alignment.

Table 6.

*Data Collection and Analysis (Question Two)*

<i>Research Questions</i>	<i>Source of Data/Information</i>	<i>Method of Analysis</i>
2. According to instructor and student responses to questions based on the theory of critical pedagogy, how effective are online undergraduate courses?	<p>(Quantitative Data) Close-ended responses to 21 Likert-type statements from <i>Online Instructor Reflection Survey (Q7)</i> and <i>Online Student Reflection Survey (Q6)</i>. (Appendices B and D)</p> <p>(Qualitative Data) Non-participant observation of the online learning environment using Instrument (Appendix E)</p>	<p>a. Likert-type statements were treated as ordinal data. Consensus and targeted agreement measures were determined.</p> <p>b. Data Analysis Phases: 1. Individual level summary 2. Class level summary 3. Department level summary 4. College level summary</p> <p>c. Observations were classified and organized and used for internal validity checks.</p>

Table 7.

*Data Collection and Analysis (Question Three)*

<i>Research Questions</i>	<i>Source of Data/Information</i>	<i>Method of Analysis</i>
3. Is there a significant difference between the students and the instructors in their perceptions of the online courses?	(Quantitative Data) Close-ended responses to 21 Likert-type statements from <i>Online Instructor Reflection Survey (Q7)</i> and <i>Online Student Reflection Survey (Q6)</i> . (Appendices B and D)	Sign test was used to analyze data at the class level. The test was considered significant when $p\text{-value} \leq 0.10$ . Statistical Hypotheses: $H_0$ : Instructor and student evaluation scores for one criterion are in agreement. $H_1$ : Instructor scores are higher than the student scores.

Table 8.

*Data Collection and Analysis (Question Four)*

<i>Research Questions</i>	<i>Source of Data/ Information</i>	<i>Method of Analysis</i>
4. Are there correlations between the criteria of effectiveness used in the assessment tool?	(Quantitative Data) Close-ended responses to 21 Likert-type statements from <i>Online Instructor Reflection Survey (Q7)</i> and <i>Online Student Reflection Survey (Q6)</i> . (Appendices B and D)	To assess the correlation between each pair of criteria the Pearson Product Moment Coefficient with tied-adjusted rank values was computed to analyze the data. The test was considered significant when the Type I error rate was 10% ( $p\text{-value} \leq 0.10$ ). Statistical Hypotheses: $H_0$ : Student or instructor responses indicate no correlation in the given pair of criteria $H_1$ : Student or instructor responses indicate a correlation in the given pair of criteria.

Table 9.

*Data Collection and Analysis (Question Five)*

<i>Research Questions</i>	<i>Source of Data/ Information</i>	<i>Method of Analysis</i>
5. What constitutes an effective online course based on instructor perspectives, student perspectives, and researcher observations?	<p>(Qualitative Data)</p> <p>a. Instructor and student responses to open-ended questions as follows:</p> <ul style="list-style-type: none"> <li>- For instructors — Q8, Q9, Q10, Q11, Q12, Q13, Q14, and Q15.</li> <li>- For students — Q7, Q8, Q9, Q10, Q11, Q12, Q13, Q14, Q15, and Q16.</li> </ul> <p>(Appendices B and D.)</p> <p>b. Non-participant observation of the Blackboard online learning environment using the Non-Participant Observation Instrument (Appendix E)</p>	<p>Data was coded, reduced, and displayed in a comprehensive format using interpretational, reflective, and structural analysis.</p> <p>(Appendices F and G)</p>

## Limitations

There were some limitations in this research study. One of the potential limitations was a hesitation on the part of the instructors in having their course(s) evaluated. This issue had the potential for inhibiting instructors from being willing to participate in the assessment of their course effectiveness. In order to solve this problem, the researcher ensured confidentiality in the study itself and anonymity in the publishing of the results. The courses were coded in order to guarantee that the information would remain private. In addition, the researcher informed the instructors that the purpose of the study was to identify the strengths and weaknesses of *online learning* and not to pass judgment on the instructors.

The researcher chose the web survey design because it fit the nature of the study whose participants are online learners. Even though web surveys have been identified as having a low response rate, the researcher hoped to mitigate this lack of response by sending pre-notice and follow-up emails to instructors and students. The researcher requested that course instructors encourage their students to complete the survey; often students will be motivated if someone they know and respect requests something of them. In addition, many studies have shown that incentives can increase the response rate significantly. For example, one of the studies that Dillman (2007) mentioned was James and Bolstein's study which "reported a 12 percentage point increase (52% to 64%)" when cash incentives were used (p. 168). Therefore, cash prizes in the form of OSU Bookstore gift certificates were offered as incentives to the

participants. Any student who completed the survey was eligible to enter the drawing for these prizes.

### Protection of Human Subjects Procedures

The researcher submitted this study to the Oregon State University Institutional Review Board Office of Sponsored Programs and Research Compliance to ensure that the study adequately protected the human participants.

The subjects remained anonymous; all responses were confidential. Participants' names and identities were not associated with any research data. The data was coded with ID numbers for instructors, students, and classes. All survey responses were collected on the QuestionPro website. This site guaranteed privacy for personal information collected on the internet through a licensing agreement with TRUSTe®, an independent, nonprofit organization. There was no risk to any participant.

The participants were not paid for completing the survey. The only direct benefit was a drawing that offered prizes to student participants as an incentive. The purpose of this drawing was to motivate student response. A potential future benefit might be improvement in online learning instruction.

Each participant was asked to complete the online survey which included open- and close-ended questions at their convenience. Potential participants did not lose any rights if they chose not to participate. All responses were voluntary, and the respondent had the right to stop or withdraw at anytime without penalty. Because the

survey was in an online format, participants were notified of the purpose and benefits of the study as well as their rights and any associated risk before they were allowed to respond to the questionnaire. All participants indicated their willingness to participate by clicking the “I Agree” button found at the end of the online consent form.

## RESULTS of DATA ANALYSIS

### Introduction

The purpose of this study was to determine the factors that contribute to the effectiveness of online learning. Based on the principles of critical pedagogy, seven criteria (Instructional Design and Delivery, Student Learning Outcomes, Assessments, Student Empowerment, Social Presence, Critical Thinking Skills, and Alignment) were established as a basis for the development of survey instruments. These instruments consisted of the *Student Reflection Survey*, *Instructor Reflection Survey*, and *Non-Participant Observation Instrument*. The study examined whether or not there was a significant difference between instructor and student perceptions of the online courses. Moreover, the researcher explored the correlation between the criteria used in the assessment tool. Finally, teacher and student perspectives and researcher observations were considered in determining what constituted an effective online course.

The methodology used in this study was evaluation research using a mixed methodology that included qualitative data from open-ended questions and non-participant observations, as well as quantitative data from close-ended statements. The study analyzed the data using consensus and targeted consensus measurements established by Tastle et al. (2005). Since some of the class sizes were low, the alpha-level for significance was set at 0.1 (rather than 0.05) in order to decrease the

probability of finding erroneous significance (Gangestad, Haselton, & Buss, 2006; Yang, 2006).

This chapter presents the results from the study in the following order. First is a description of the participant sampling and response rates. Second is the descriptive data from the online surveys. Finally, the research questions were examined in light of the study's findings.

### Participant Sampling and Response Rate

An invitation to participate in the study was extended to 61 online instructors teaching in the College of Liberal Arts at Oregon State University. Of the 61 online instructors, 29 instructors agreed to participate in the research study, yielding a response rate of 47.5%. This response rate is higher than the instructor response rate for the survey conducted by OSU Extended Campus (Ecampus). According to Ecampus (2006b) and (2007a), their instructor response rate was 43% in 2006 and 44% in 2007. Some of the online instructors who were teaching more than one class offered to include both courses in the study. To be consistent with the study design, the researcher chose one class per instructor; the one with the largest number of student responses was included. There were 746 students registered in the online courses that comprised this study. The number of responses received was 182, which yields a response rate of 24%. This response rate is close to the response rate for the

survey conducted by Ecampus. According to OSU Extended Campus (2007c), their student response rate was 22% in 2006 and 32.6% in 2007.

## Descriptive Data

### *Online Instructors*

The *Online Instructor Reflection Survey* gathered descriptive data from the instructors in order to look for correlations between teaching experience and course effectiveness. Instructors were asked about their teaching experience, course development experience, and faculty ranking.

The instructors were asked how long they had been teaching at OSU and how long they had been teaching the course under investigation in this research. The results of these questions (2 and 3 in the *Online Instructor Reflection Survey*) indicated instructors' teaching experience. The results are summarized in Table 10. None of the instructors who participated in this research were teaching for the first time, although 17% said this was the first time they had taught this class. At the other end of the spectrum, none of the instructors had been teaching the class involved in the study for over 20 years. Thus, for the most part, the instructors who participated in this research study have had some teaching experience, but they would not appear to be ready for burnout. Approximately 83% of the instructors had between one and ten years of teaching experience at OSU. Additionally, 86% of instructors had less than five years of experience teaching the specific online courses being examined in this study.

Interestingly, 62% of the instructors taught at OSU for between one and five years, while 69% of instructors had taught the course being examined in this study between one and five years.

Table 10.

*Instructors' Teaching Experience*

<i>Number of Years</i>	<i>Teaching this Specific Online Course at OSU</i>		<i>Teaching Experience at OSU</i>	
	#	%	#	%
Less than one year	5	17.24	0	00.00
1 year to less than 2 years	9	31.03	8	27.59
2 years to less than 3 years	3	10.34	3	10.34
3 years to less than 5 years	8	27.59	7	24.14
5 years to less than 10 years	3	10.34	6	20.69
10 years to less than 20 years	1	03.45	2	06.90
20 years or more	0	00.00	3	10.34
Total	29		29	

The results of Question 6 of the *Online Instructor Reflection Survey* provided information about the instructors' experience in designing online courses. This information is summarized in Table 11. Course development experience data demonstrated that many of the instructors involved in this research had only begun to develop online courses. Seven of the 28 instructors reported that they had developed only one course. More than 57% of the instructors had developed less than four online courses. Although a majority of the instructors had developed one to three courses, a substantial percentage of teachers have designed six or more classes.

Table 11.

*Online Course Development Experience*

<i>Number of Courses Developed</i>	<i>Number of Instructor Participants Who Have Developed Online Courses at OSU or Elsewhere</i>	<i>Percent</i>
1 course	7	25.00
2-3 courses	9	32.14
4-5 courses	2	07.14
6 or more courses	10	35.71
Total	28	

In Question 16 of the *Online Instructor Reflection Survey*, instructors identified their faculty ranking. Their responses are summarized in Table 12. Five (17.9%) selected Other from the options and provided the following classifications for themselves: Teaching Assistants, Professional Faculty, and Adjunct/Courtesy appointments. The most startling results were that almost 68% of the respondents are Instructors.

Table 12.

*Faculty Rank of Online Instructors*

<i>Faculty Rank</i>	<i>Number of Instructor Participants</i>	<i>Percent</i>
Professor	2	07.14
Associate Professor	0	00.00
Assistant Professor	2	07.14
Instructor	19	67.86
Others	5	17.86
Total	28	

### *Online Students*

The *Online Student Reflection Survey* gathered descriptive data from students both to provide background information on the respondents and to compare them with the broader OSU population. The survey asked about students' enrollment status, academic status, and the number of online courses they had completed. The survey also inquired into the number of online courses in which students were enrolled Fall term 2007, and demographic questions, such as gender, age, and ethnic background.

The results of Question 2 of the *Online Student Reflection Survey* provided information about the enrollment status of students. Interestingly, about two-thirds of the online respondents were full-time students. See Table 13.

Table 13.

#### *Online Student Enrollment Status*

<i>Enrollment Status</i>	<i>Number of Student Responses</i>	<i>Percent</i>
Full-Time = (12 Credits or more)	122	67.03
Part-Time = (Less than 12 credits)	60	32.97
Total	182	

Question 3, of the *Online Student Reflection Survey*, asked for a breakdown of students' total completed credit hours. The results indicated the academic standing of survey respondents. This data has been juxtaposed with information provided by OSU Ecampus which delineates the total number of students by academic rank in online courses during Fall term 2007. This information is summarized in Table 14.

Comparisons of the two surveys demonstrate that the academic rank of the student respondents to the *Online Student Reflection Survey* was quite similar to the Ecampus survey respondents from all online students during Fall term 2007. A slightly smaller percentage of the students who responded to this survey, 16.48% as compared to 20.71% were freshmen and sophomores. Because the two studies had somewhat different categories for upperclassmen, the results are not exactly parallel; nonetheless the results are similar. Student respondents in this study who were upperclassmen totaled 83.52% while 79.29% of the Ecampus respondents were upperclassmen.

Table 14.

*Academic Status of Student Participants*

<i>Online Student Reflection Survey</i>		
<i>Class Standing</i>	<i>Number of Student Responses</i>	<i>Percent</i>
Freshman (0-45 completed credits)	13	07.14
Sophomore (46-90 completed credits)	17	09.34
Junior (91-134 completed credits)	51	28.02
Senior (135-180 completed credits)	63	34.62
Super Senior (180+ completed credits)	38	20.88
Total	182	

<i>OSU Extended Campus (2007e) Survey</i>		
<i>Class Standing</i>	<i>Number of Student Responses</i>	<i>Percent</i>
Freshman	288	06.09
Sophomore	692	14.62
Junior	1437	30.37
Senior	2315	48.92
Total	4732	

Question 4 of the *Online Student Reflection Survey* asked the students the number of online courses they had completed prior to Fall 2007. Table 15. shows the response results. A full one quarter of the students responding to this survey had not taken any online classes before this term. Interestingly, the options that received the next two highest responses were 1-2 courses, and at the other extreme, 9 courses or more.

Table 15.

*Number of Online Courses Completed*

<i>Online Courses</i>	<i>Online Courses Completed Through Summer 2007</i>	<i>Percent</i>
None	47	25.82
(1-2) courses	42	23.08
(3-4) courses	23	12.64
(5-6) courses	18	09.89
(7-8) courses	11	06.04
9 courses or more	41	22.53
Total	182	

Question 5 of the *Online Student Reflection Survey* asked students how many online courses they were taking Fall Term 2007. The results are summarized in Table 16. The vast majority of the students were taking just one or two courses; surprisingly however, eight students were taking five or more classes,

Table 16.

*Number of Online Courses Taken Fall Term 2007*

<i>Online Courses</i>	<i>Number of Online Courses Taken Fall Term 2007</i>	<i>Percent</i>
1 course	69	37.91
2 courses	48	26.37
3 courses	26	14.29
4 courses	31	17.03
5 or more	8	04.40
Total	182	

Question 17 of the *Online Student Reflection Survey* posed questions about the computer programs students used. This information is summarized in Table 17. The question began with an option to check all of the following four programs they used: Word, PowerPoint, Excel and Publisher. Additionally, students were given the opportunity to provide the names of other programs. At first glance, it may seem impressive that 179 of the 182 students used Word; however, it is important to note that three of these students did not use Word. Additional software programs were used by 17.6% of the students, who named the programs and gave additional information about them. The students mentioned a wide variety of programs that can be organized into a few broad categories. Students said that they used a variety of drafting and design programs. Several students made a point of noting that they are familiar with most any Mac software program. A number of students mentioned working with a variety of different word processing programs and some further said that they chose to use non-Microsoft programs. Several students revealed that they work with image manipulating or web design programs. Students also mentioned using a wide variety

of specialty programs. Only a few students mentioned web browsing or email programs, which suggest that some programs are so ubiquitous that they are barely worth mentioning. Additionally, only four students mentioned working with video or sound programs.

Table 17.

*Experience with Computer Programs*

<i>Computer Programs</i>	<i>Number of Student Responses</i>	<i>Percent</i>
Word	179	98.35
PowerPoint	114	62.64
Excel	108	59.34
Publisher	26	14.29
Other	32	17.58
Total	182	

Question 18 of the *Online Student Reflection Survey* asked students for a more general reflection of their computer experience. The results are summarized in Table 18. Although the vast majority of the students reported that they felt at least moderately proficient, a few students reported feeling less proficient.

Table 18.

*Level of Experience with Computers*

<i>Level of Experience</i>	<i>Number of Student Responses</i>	<i>Percent</i>
Expert	21	11.54
Proficient	107	58.79
Moderately Proficient	46	25.27
Somewhat Proficient	7	03.85
Not Proficient	1	00.55
Total	182	

Question 19 and 20 of the *Online Student Reflection Survey* recorded gender and age of the online student. This information is summarized in Figure 1. According to Ecampus (2006a), “the average age of our distance student is 36 years old, and about 70% of our students are female.” The Ecampus data shows some similarity to the data from this study. Most of the student participants were female (65%), but the majority of students were between the ages of 18 and 30 (74%), which is slightly younger than the Ecampus average.

Figure 1.

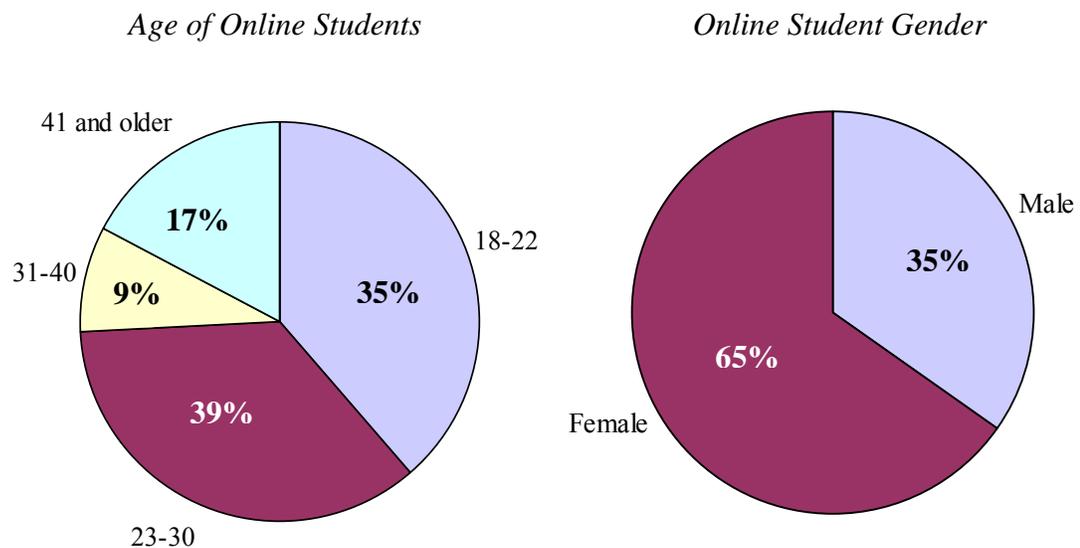


Table 19. summarizes the data from Question 21 of the *Online Student Reflection Survey* which recorded the ethnicity of students. Of the respondents, 81% indicated they are non-Hispanic white. The answers with the next most common responses were “Decline to Respond” and “None of the Above.” The additional comments provided for the latter response indicated that it, like the former, was used

to avoid answering this question. Thus, 9.9% of the respondents to the *Online Student Reflection Survey* declined to define their ethnicity which is comparable, but a little lower than the 11.7% of students enrolled in CLA, who provided that response to Ecampus. The responses to the two surveys are not easily comparable because the response options were not identical. However, it appears that the respondents to the *Online Student Reflection Survey* were proportionally less diverse and more solidly non-Hispanic white than those who responded to the Ecampus survey.

Table 19.

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*Ethnic Background of the Online Student*

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*Online Student Reflection Survey*

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<i>Ethnic Background</i>	<i>Total Number of Student Responses</i>	<i>Percent</i>
Decline to respond	10	05.49
American Indian or Alaskan Native	3	01.65
Asian	2	01.10
Black, Non-Hispanic	2	01.10
Hispanic	6	03.30
Pacific Islander	3	01.65
White, Non-Hispanic	148	81.32
None of the Above	8	04.40
Total	182	

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*OSU Extended Campus (2007e) Survey for the CLA*

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<i>Ethnic Background</i>	<i>Total Number of Student Responses</i>	<i>Percent</i>
Decline to respond	85	11.74
American Indian or Alaskan Native	19	02.62
Asian	31	04.28
Black, Non-Hispanic	26	03.59
Hispanic	43	05.94
International	5	00.69

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Table 19. (Continued)

<i>Ethnic Background of the Online Student</i>		
<i>OSU Extended Campus (2007e) Survey for the CLA</i>		
<i>Ethnic Background</i>	<i>Total Number of Student Responses</i>	<i>Percent</i>
White, Non-Hispanic	515	71.13
Total	724	

## Research Question One

1. Based on the theory of critical pedagogy, what assessment tool can be developed to evaluate online courses from instructor and student perspectives?

In the literature review of critical pedagogy and best teaching practices in traditional and online learning, the researcher discovered that few tools were available for assessing online learning. Therefore, the researcher chose from the most frequently represented characteristics of effective teaching to create a standard measurement tool. Seven characteristics of effectiveness were identified. As reported in this study's review of the literature, the recurring criteria of effectiveness included: Instructional Design and Delivery, Student Learning Outcomes, Assessments, Student Empowerment, Social Presence, Critical Thinking Skills, and Alignment. For each criterion, three statements were established and a Likert Scale was utilized to measure levels of agreement. These seven criteria of effectiveness were used to develop a series of 21 Likert-type statements.

Each criterion was measured by three Likert-type statements, which appeared in a slightly modified form in the two surveys. These statements were randomly distributed throughout the surveys to increase validity. Students and instructors responded to the statements with responses that varied from *Strongly Agree* through *Strongly Disagree*. The statements for Instructional Design and Delivery examined whether the course structure and materials were well organized, made use of a variety of visual, textual, and/or auditory activities, and were appropriate and up-to-date.

Student Learning Outcomes were assessed by examining the learning outcomes outlined in the syllabus and reviewing the tasks required to complete the class to see if the outcomes were clearly defined, and that sufficient time was allowed. For the assessment criterion, the statements evaluated the following criteria from both the instructor's and students' points of view: grading was clearly explained, assignments were of appropriate difficulty, and assignments received feedback within a reasonable timeframe. Student Empowerment was measured using the following three criteria: students were free to express themselves, students had opportunities to share cultural background, and students had a voice in how they were graded. Social Presence was measured by the following criteria: students posted a self- introduction on Blackboard, were given opportunities for positive interaction with other students, and felt part of a learning community. The criterion of Critical Thinking Skills was measured using the following criteria: students were required to think in-depth; analyze, synthesize, and interpret information; and to problem solve. Lastly, Alignment was measured by assessing the following criteria: assignments reflected student interests and abilities, learning outcomes were in agreement with the course requirements, and course assessments were in agreement with the course content and learning objectives. To read the surveys see Appendices A and C (p. 258 and p. 285).

The responses to these statements were evaluated by the consensus and targeted consensus measurements introduced by Tastle et al. (2005) to analyze the responses from ordinal Likert scale data. Thus, the data was primarily evaluated in terms of consensus within each of the seven criteria, but instructor and student

responses were independently analyzed. These two measures compliment each other. Consensus measures the degree of clustering within single criterion (e.g., Instructional Design and Delivery) while target consensus measures how closely responses came to a targeted response. Consensus levels were measured both intrapersonally and interpersonally by the degree of clustering around the three statements for each of the seven effectiveness criteria. In addition, responses to statements were evaluated by their proximity to the target consensus, *Strongly Agree*. Responses were also analyzed using the Sign test to determine if there were significant differences between student and instructor perceptions of these courses. Finally, the Pearson Product Moment Coefficient with tie-adjusted rank values was used to verify correlation between each criterion pair.

These statements were reviewed for reliability and validity by the OSU Survey Research Center and experts in the field of online learning. In addition to Likert-type statements, the survey requested demographic and background information about instructors and students. These questions allowed the researcher to investigate whether survey respondents were representative of the OSU online population; further, they allowed the researcher to determine the importance of computer literacy and experience, with students' perceptions of online courses.

Moreover, the Likert-type statements and descriptive data were supplemented by open-ended questions designed to elicit more information about instructor and student experiences in online courses. Finally, as a means of increasing validity, survey responses were complemented by the researcher's observations of course

design and discussion board interaction. These observations provided the researcher with further information and insight that was useful in analyzing survey responses.

## Research Question Two

2. According to instructor and student responses to questions based on the theory of critical pedagogy, how effective are online undergraduate courses?

In order to measure the effectiveness of online courses, seven criteria essential to critical pedagogy were established. After determining these criteria of effective undergraduate courses, three Likert-type statements were written for each criterion, and surveys were developed to measure effectiveness from the perspective of both faculty and students. The responses to the two surveys were analyzed together to provide a balanced view of course effectiveness. The *Student Reflection Survey* was made available online via a link posted on each course's Blackboard site. The researcher was dependent on the instructors' assistance with posting these links and informing students about the survey. Because of this, the surveys were available for different periods in each of the classes. The survey response rate was influenced by this discrepancy; surveys that were posted early had the highest response rate.

The three Likert-type statements that correlated to each of the criterion were randomly assembled to improve validity. The raw data from student and instructor surveys were analyzed in Excel. Results from student and instructor surveys were analyzed independently. In an effort to evaluate the most effective courses, the targeted agreement was set at *Strongly Agree*. Data was analyzed to determine whether there was intrapersonal and/or interpersonal consensus. The Likert-type statements were treated as ordinal data.

In attempting to analyze the effectiveness of online courses, the researcher made use of both quantitative and qualitative data. The quantitative data was analyzed by organizing it in different ways, and then the data was interpreted in light of the researcher's observations. The raw data from the surveys were first organized at an individual level summary, which provided detailed information about how individual instructors and students responded to the seven criteria. At this individual level, it was possible to distinguish and visualize individual responses to criteria and their intrapersonal consensus and targeted consensus scores. Sorted at this level, initial analysis of patterns is not possible from the data. The observation of all instructor and student responses and the recognition of individual outliers is possible, however. See Appendix H (p. 329).

At the next level of summary, the class level summary median student scores were calculated, so that it was easy to compare instructors' responses with their students. The compression of the data also made it feasible to compare responses from one class to responses in another. In addition, at this level of summary, the responses to the survey could compare with the researcher's perspective on the classes derived from non-participant observation. See Appendix I (p. 372).

The third level of organization was sorting the data by department. In the literature review, the researcher noticed claims that some subject areas were more appropriate than others for online courses. For example, Rosenfeld (2005) determined that subject matter had the most impact on online completion rates, and postulated that teaching complex ideas had "significantly lower achievement and completion rates"

than teaching courses that required memorization and were based on factual information (p. 91). Although this study conducted at OSU was limited to courses within the College of Liberal Arts, the subjects of the courses varied from economics and foreign language, to history and philosophy. Thus, sorting the data from the surveys by department provided a means of evaluating course effectiveness by subject. Overall, the median scores for the courses in each of the departments were very similar. The slightly lower scores received by one department (Department 3) were the result of extenuating circumstances. On the other hand, the slightly higher student response scores received by departments (Department 5 and 6), were probably the result of good instructional design and delivery in the former case and very active and engaging discussions in the latter. See Appendix J (p. 384).

In the final level, all the data from the College of Liberal Arts was summarized, so that the median scores were clearly visible, and the outliers were invisible. This organization highlighted the overall similarity between instructor and student survey responses. The responses to the statements emphasizing social presence, however, were somewhat of an anomaly. In their response to social presence statements, students had a high degree of consensus. They rated their access to social presence at *Strongly Agree*, considerably higher than their instructors' ratings. See Appendix K (p. 389).

The data summarized in Appendices H, I, J, and K provides an interesting perspective into online courses, but analyzing the displayed data becomes even more meaningful when considered in combination with insights gained from non-participant

observation. Fortunately, only one class did not allow non-participant observation. In several cases, non-participant observation provided interesting insight. One example involved a case in which an instructor was not given credit for accommodations the instructor made to the class after technical circumstances caused problems for many in the class. In Class 11, the instructor allowed the students extraordinary input into redesigning class procedures; nonetheless, only half of the students rated their Empowerment responses as *Strongly Agree*. In Social Presence (Criterion 5), the scores were lower, although they had several active discussions and their instructor took their complaints seriously. Furthermore, in Instructional Design and Delivery, the students were also low, although the course appeared as well designed as most of the other courses involved in this study. In another example (Class 13), students were given additional input in class procedures, but this input did not produce a positive Empowerment rating.

In the reverse of the above cases, students in Class 19 gave credit for an attribute that was not literally present. One of the statements for evaluating Social Presence was “students are encouraged to post a self-introduction on Blackboard.” However, in one course, student introductions were sent directly to the instructor rather than posted on the discussion board. The students in that course rated this statement with the high score of *Strongly Agree*, but the instructor disagreed with the statement because the students did not post their self-introductions on the Blackboard, sending them to the instructor instead.

The evaluations in Critical Thinking presented another interesting phenomenon. Although, at the college level, students rated the requirement for Critical Thinking a little bit higher than their instructors, in a few cases, instructors rated Critical Thinking substantially lower than their students' ratings. In several of these cases (Class 6 and 20), the posted requirements and assignments suggested that students had more honestly evaluated the courses, and that critical thought was actually necessary for successfully completing the course. Further, the non-participant observation of these courses suggested that instructors may have downplayed the role of critical thought because students did not live up to their expectations. In one case, survey responses to open-ended questions suggested that students were not grasping course concepts or thinking logically. In other cases, the teachers' lower evaluations of critical thinking may have been due to the courses' reliance on multiple choice evaluations.

An analysis of the data from the class summary level in conjunction with non-participant observation revealed that actively involved instructors tended to rate themselves lower than their students' ratings. The actively involved instructors tended to fully participate in the discussion board, allow students to speak freely, provide students with immediate feedback, and use a variety of instructional strategies. Further, students tended to evaluate actively involved instructors slightly more positively than those who were inactive. The evaluation scores of actively involved instructors, whose syllabi failed to thoroughly address one of the surveys' seven criteria, were not penalized. For example, the syllabus for Class 17 had no specifically

listed student outcomes, yet the students *Strongly Agreed* that the course met the criterion for effectiveness regarding Student Learning Outcomes. This dichotomy, between what was actually on the syllabus and the students' perceptions, suggests that students felt comfortable asking the instructor for clarification, and that they were able to develop an understanding of the courses requirements. Furthermore, the students rated the class very close to the targeted agreement except in Instructional Design and Delivery, which they rated lower because the course made no use of alternative media.

In a further anomaly, as pointed out above, students appear to have responded to the Likert statements based on an emotional response to the course as a whole, while instructors seem to have taken the survey's statements very literally. Thus, students were comfortable rating a course's Student Learning Outcomes high even if there were no listed outcomes; on the other hand, instructors occasionally scored a criterion in their courses poorly because they did not explicitly meet the demands of one of the Likert statements. For example, a majority of instructors did not acknowledge that their students had a voice in how they were graded. Thus, instructors failed to take into consideration that they often provided a variety of assignment options, and that they provided their students with the information needed to succeed if the students did their part. On the other hand, the students were much more willing to accept their responsibility and admit that they had a voice in determining their grades.

Overall, the students were relatively positive in their course evaluations; all criteria were evaluated within 80% of *Strongly Agree*. The three criteria that students

rated the lowest were Empowerment (Criterion 4) 83% , Instructional Design and Delivery (Criterion 1) 84%, and Alignment (Criterion 7) 85%. Non-participant observation did not allow the researcher to adequately analyze student evaluation of Alignment because the evaluation of this criterion demands a critique of exams and course materials to which the researcher did not have access. Despite instructors' efforts to engage their students, the students rated the statement concerning their instructors' attempts to engage their interests with only 35% of *Strongly Agree*. This relatively low score may reflect a number of students who were taking courses required for their degrees. In addition, the scores for Empowerment were relatively low because of responses to the statement that students had a voice in their grade.

Instructional Design and Delivery also received relatively low scores. Unlike the other criteria, the responses to this criterion seemed undeservedly positive. Non-participant observation suggested that Instructional Design and Delivery was the weakest course component, yet students did not critically evaluate this criterion, unless they were dissatisfied with other aspects of the course. Design and delivery were inconsistent both within individual courses and even more dramatically from one course to another. In the open-ended questions, a few students noted these inconsistencies posed a problem. While instructors cannot be expected to use identical course design, courses should be internally consistent and instructors should explain their course's design, preferably using Blackboard's Announcement feature, which can be easily found. In addition, course designs frequently failed to consider technological limitations, and even more frequently failed to use a wide variety of

technological options. Students commonly requested more video lectures and audio material. Many students wrote critical comments in the open-ended section, but nonetheless, positively rated their courses including the Instructional Design and Delivery criterion.

### Research Question Three

3. Is there a significant difference between the students and the instructors in their perceptions of the online courses?

The Sign test was applied to analyze the data across all the courses for each criterion. The Sign test is a non-parametric test used for testing the hypotheses between two related samples (Gosling, 1995; de Sa & de Sa, 2003). The test was considered significant when p-value (Type I error rate)  $\leq 0.1$ . The reason for setting this limit, at the higher end of the normal cutoff for statistical significance, was that the sample sizes were very low (Gangestad et al., 2006; Yang, 2006). Further, the analysis of the results from this survey employed the Bonferroni correction, which reduced the chances of finding a significant result erroneously. For each criterion, the Bonferroni comparison adjustment error rate is the alpha-level divided by the number of criteria, thus  $0.1/7 = 0.014286$ . For each criterion, the researcher analyzed the null hypothesis ( $H_0$ ) that instructor and student evaluation scores for one criterion are in agreement, using the Sign test. The alternate hypothesis ( $H_1$ ) was that instructor scores are higher than the student scores. Table 20. shows the criteria names linked to their numbers.

Table 20.

*Criteria Name Linked to Criteria Number*

<i>Criteria Name</i>	<i>Criteria Number</i>
Instructional Design and Delivery	1
Student Learning Outcomes	2
Assessments	3
Student Empowerment	4
Social Presence	5
Critical Thinking Skills	6
Alignment	7

Among the 29 classes the following table shows how many times instructors rated their courses higher in each of the seven criteria than their students' ratings:

Table 21.

*Comparison of Instructor and Student Rating*

<i>Number of classes</i>	<i>Criteria</i>						
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>
Number of classes that instructors rated higher than the median student rating	11	11	12	9	8	8	17
Number of classes that median student rating was higher than the instructor's rating	11	8	9	12	12	12	8
Classes with tied rating	7	10	8	8	9	9	4
Total Classes	29	29	29	29	29	29	29

By using a binomial test to compare instructor scores with the class median for each criterion, the following results were obtained:

Table 22.

*The Relationship between Instructor and Student Rating*

<i>Criterion</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>
One-sided p-value	0.5841	0.3238	0.3318	0.8083	0.8684	0.8684	0.0539

All the p-values were above 0.014; therefore, none of the ratings are statistically significant. Students and instructors were largely in agreement and rated the classes very similarly. Thus, the null hypothesis cannot be rejected. There is evidence, however, to suggest that instructors did rate their own courses higher than students in the seventh category, that of Alignment. But once again, because of the small sample size, there is insufficient power to detect the significance of the differences. Nonetheless, the results from this survey suggest that future large scale studies may find that instructors do rate their courses higher than students (especially in relation to Alignment, criterion 7).

## Research Question Four

4. Are there correlations between the criteria of effectiveness used in the assessment tool?

It was expected that student or instructor answers would tend to be correlated across the survey. The null hypothesis ( $H_0$ ) for the correlation test of each pair was that: student or instructor responses indicate no correlation in a given pair of criteria, while in the alternate hypothesis ( $H_1$ ) student or instructor responses indicate a correlation within a given pair of criteria. Pairs of criteria are said to have a correlation when the two variables vary in tandem. The correlation can be either positive or negative.

In this study, paired correlations were assessed based on targeted consensus, the degree to which respondents chose an answer close to *Strongly Agree*. There were seven criteria used to evaluate the effectiveness of the online learning. Each criterion was paired with one of the other seven criteria, resulting in 21 paired comparisons. In order to assess whether there was a correlation among student answers, across the seven categories, the overall targeted agreement score for each class was computed using a formula that took into consideration all of the possible targeted agreement scores, and then the combined score was ranked. Then, correlation was calculated using Pearson Product Moment Coefficient with tied-adjusted rank values.

Finally, to ensure the validity of the analysis, the experimental error rate was set at 0.1; the Bonferroni adjusted, Type I error rate for each was  $0.1/21 = 0.004672$ .

In other words, pair correlation was deemed significant if p-value for the associated test was less than or equal to 0.004672. The correlation was deemed insignificant if p-value was greater than 0.004672. Table 20 shows the criteria names linked to their numbers.

Table 20.

*Criteria Name Linked to Criteria Number*

<i>Criteria Name</i>	<i>Criteria Number</i>
Instructional Design and Delivery	1
Student Learning Outcomes	2
Assessments	3
Student Empowerment	4
Social Presence	5
Critical Thinking Skills	6
Alignment	7

Results for all 21 pair comparisons are summarized in Table 23.

Table 23.

*Student 21 Pair Comparisons Using Pearson Product Moment Coefficient with Tied-Adjusted Rank Values*

<i>Pair Criteria Comparisons</i>	<i>Correlation Coefficient</i>	<i>p-value</i>
1 vs. 2	0.804741	0.000000142*
1 vs. 3	0.811823	0.000000905*
1 vs. 4	0.677833	0.0000535*
1 vs. 5	0.787879	0.000000391*
1 vs. 6	0.660099	0.0000977*
1 vs. 7	0.807389	0.00000012*
2 vs. 3	0.928079	0.000000000000043*
2 vs. 4	0.716256	0.0000125*
2 vs. 5	0.819660	0.0000000535*
2 vs. 6	0.783744	0.0000005*

Table 23. (Continued)

*Student 21 Pair Comparisons Using Pearson Product Moment Coefficient with Tied-Adjusted Rank Values*

Pair Criteria Comparisons	Correlation Coefficient	p-value
2 vs. 7	0.867488	0.00000000113*
3 vs. 4	0.727586	0.00000774*
3 vs. 5	0.84405	0.00000000877*
3 vs. 6	0.834483	0.0000000185*
3 vs. 7	0.93399	0.000000000000139*
4 vs. 5	0.596945	0.00063*
4 vs. 6	0.673399	0.0000624*
4 vs. 7	0.683251	0.0000441*
5 vs. 6	0.812515	0.0000000865*
5 vs. 7	0.791574	0.000000316*
6 vs. 7	0.848276	0.00000000622*

\* Significant Correlations (p-value lower than 0.004762)

As can be seen in Table 23, all correlations were significantly positive. The correlation coefficient values are all greater than 0.5 indicating a strong positive correlation and the p-values are substantially lower than 0.004762, which marks statistical significance with the experimental-wise error rate at 0.1\*. Obviously, all the pair comparisons indicated a strong positive correlation among student responses to survey questions. This strong positive correlation indicates the null hypothesis should be rejected in favor of the alternative hypothesis.

Likewise, instructor responses were assessed to determine whether the instructors' answers were similarly correlated. Results for the instructors' 21 pair comparisons are summarized in Table 24.

Table 24.

*Instructor 21 Pair Comparisons Using Pearson Product Moment Coefficient with Tied-Adjusted Rank Values*

<i>Pair Criteria Comparisons</i>	<i>Correlation Coefficient</i>	<i>p-value</i>
1 vs. 2	0.207058	0.281156
1 vs. 3	0.368674	0.049069
1 vs. 4	-0.015093	0.938060
1 vs. 5	0.061016	0.753203
1 vs. 6	0.229916	0.230207
1 vs. 7	0.424069	0.021869
2 vs. 3	-0.08446	0.663131
2 vs. 4	-0.05718	0.76827
2 vs. 5	-0.04344	0.822946
2 vs. 6	0.064582	0.739259
2 vs. 7	0.265261	0.164317
3 vs. 4	0.302588	0.110608
3 vs. 5	0.280024	0.14122
3 vs. 6	0.238781	0.212231
3 vs. 7	0.176049	0.360972
4 vs. 5	0.469898	0.010111
4 vs. 6	0.502748	0.005443
4 vs. 7	0.068618	0.723579
5 vs. 6	0.273765	0.150706
5 vs. 7	0.081478	0.674361
6 vs. 7	0.546583	0.002156*

\* Significant Correlations (p-value lower than 0.004762)

The values in Table 24 show the pair comparisons of the instructor responses to the seven criteria; the table demonstrates correlations that were not statistically significant, aside from those found in the pair comparison between Critical Thinking and Alignment (6 vs. 7), which was statistically significant\*. Pair comparisons of instructor responses, unlike those of student responses, exhibit a negative correlation in the comparisons between Instructional Design and Delivery and Student

Empowerment (1 vs. 4), and Student Learning Outcomes compared with three other criteria, Assessments, Student Empowerment, and Social Presence (2 vs. 3), (2 vs. 4), (2 vs. 5), though they are not statistically significant.

Thus, in the case of instructors the null hypothesis cannot be rejected except in the case of the relationship between Critical Thinking and Alignment (6 vs. 7). While the p-values for all comparisons except Critical Thinking and Alignment were above 0.004762, the p-values in the shaded rows were reasonably close to 0.004762, the cutoff for statistical significance. These comparisons were between Instructional Design and Delivery and Assessments (1 vs. 3), Instructional Design and Delivery and Alignment (1 vs. 7), Student Empowerment and Social Presence (4 vs. 5), and Student Empowerment and Critical Thinking Skills (4 vs. 6). Thus, these criteria may actually be correlated, although the correlation cannot be detected due to the small sample size in this study, of only 29 classes. In a larger scale study, correlation among these pairs may be detectable. The instructors' answers to this survey did show that the categories Critical Thinking and Alignment were positively correlated.

## Research Question Five

5. What constitutes an effective online course based on instructor perspectives, student perspectives, and researcher observations?

In keeping with one of the greatest principles of critical pedagogy, the last element of the questionnaire was open ended and designed to incorporate the thoughts and opinions of all who were involved in this study. With so many participants from a variety of backgrounds, it was crucial to know their perspectives and opinions, while covering a broad spectrum regarding the questions of how an online learning environment might be developed. Defining what constitutes an effective online course by using the words of those who participated in the course, with the help of a researcher observer, maintains the ideals of critical pedagogy and allows for presenting the online learning environment at OSU not only to be understood as it is, but as it has the potential to be.

Given the broad nature of questions and subject matter, there is no way to cover all of the responses individually, some of which are conflicting. Rather, the research has been focused on trends and ideas which are recurring, or would improve the socio-political environment vital to enhancing learning in accordance to critical pedagogy. Some of these include the way in which online courses can be accommodating to many teaching and learning styles, but given technological hurdles, it is hard to accommodate everyone. Many participants indicated that the effective online class provided a variety of supporting media. Another interesting dichotomy of

perspective was the way in which students tended to view the instructor as the most important element to providing a successful learning environment, while the teachers tended to view the course structure, objectives, and communication mediums as the most important. These are just a few examples of the ways in which the seven elements give fresh insight into the composition of a successful online course, and the ways in which critical pedagogy can enhance that environment.

### *Online Instructors*

Through the course of the study, the researcher was able to get many instructors' perspectives regarding their online courses. The instructors shared their values and beliefs about the criteria necessary to establish a successful course. They provided information about the greatest online benefits and drawbacks, the effect of the web on teaching styles, the re-evaluation of the traditional classroom, and the assessment techniques. In addition, the instructors presented some of the critical components of effective online courses, as well as suggestions and thoughts of how to improve online courses at OSU.

### *The Greatest Benefits of Online Courses*

Instructors were asked in Question 8 what they believed were the greatest benefits of online courses. The researcher provided instructors with up to four benefits to choose from and an option to add additional thoughts. These benefits included

being accessible, flexible, student-centered, and collaborative. The instructors were able to choose more than one response. The results showed the following, from most popular to least popular: flexibility 32% (27 responses), accessibility 31% (26 responses), student-centered 14% (12 responses), and encouraging collaboration 13% (11 responses).

Eight instructors (10%) added comments in addition to the benefits mentioned in the questionnaire. Instructors commented that online courses promote “student-ownership,” “self-direction,” and “discipline” for students within their own education development (Survey response to Instructor Q8). One instructor reported that students in his online courses have a more intimate experience with the course material, with the instructor, and with the class, in general, than they do in a traditional classroom. Another instructor stated that “students seem much more articulate and engaged in the material” (Survey response to Instructor Q8).

Online courses give returning and non-traditional students the flexibility to access educational curriculums that fit their schedules and personal lives. Students who learn better through the online courses now have an opportunity to earn a degree. Online programs are available to a wide demographic and geographic area, which potentially increases the diversity in the students’ educational experience.

An instructor noted that the online format encouraged and required students to participate frequently in engaging and deliberative discussions with their instructors and peers. In addition, instructors can work one-on-one with each student through Blackboard discussions, emails, and interactive chat. One instructor acknowledged, “I

know my online students much better than face-to-face students” (Survey response to Instructor Q8). Because of a wide variety of web resources, instructors have the opportunity to explore course ideas and concepts in greater depth than face-to-face classes, which helps teachers to “re-evaluate their pedagogies” for more effective instruction (Survey response to Instructor Q8).

### *The Greatest Drawbacks of Online Courses*

The instructors were asked in Question 9 what they thought were the greatest drawbacks of online courses. The researcher provided instructors with up to four drawbacks to choose from and an option to add their additional thoughts. These drawbacks included being isolated, having a lack of face-to-face interactions, being time intensive, and having a lack of technological skills for students and/or faculty. The instructors were able to choose more than one response. The results showed the following, from most popular to least popular: lack of face-to-face interactions 37% (21 responses), isolation 21% (12 responses), lack of technological skills for students and/or faculty 14% (8 responses), and time intensive 8.77% (5 responses).

Thirteen instructors (19%) provided additional drawbacks to those provided in the questionnaire. Instructors noted that if students were not self-directed and self-disciplined, online courses could be particularly difficult. Students could easily get behind in their course work, especially if they did not connect with the instructor or understand the online format. Some of the instructors indicated it was difficult to

identify these students; consequently, these students were more likely to drop the course or perform poorly. Some instructors reported that students in online courses seem more inclined to confuse education with entertainment by expecting a computer class to be easy, like watching a movie. Students seem to think that they can complete online courses with less investment of time and effort than is required for face-to-face courses. One instructor also noted that students may forget that they are taking a course because they do not have to attend a class.

Considering the issues of technology, one instructor's primary concern was that other instructors do not have the necessary technological skills to design their courses. This instructor believes that other instructors do not have the training to effectively use Blackboard. Further, not all students have access to the same technology, and instructors do not necessarily have the skills to ensure that all students are able to access all of the material. In addition, this instructor mentioned that instructors do not know the technological standards.

Instructors expressed the idea that teaching online courses is more time consuming than teaching traditional courses because communication via email or discussion boards requires more time than communication conducted during a face-to-face class. Additionally, instructors expressed concerns about their general understanding of how to design an effective course. One instructor mentioned that it is a challenge to "design better methods of strengthening student self-esteem online," and another instructor even asked the question "How do you create a learning community?" (Survey response to Instructor Q9)

### *Web Impact on Teaching Methods or Styles*

The instructors were asked in Question 10 about how the web has affected their teaching styles (not including the technological aspects). Out of 29 instructors who responded, 24% (7 responses) reported that teaching online courses had no impact, while 76% (22 responses) reported that the online classes did have an impact on their teaching styles. Some of the ways in which this changed was in the way instructors prepared for class, what teaching tools and materials they chose for the class, and the way in which the student/teacher is more relaxed online than is typical in a traditional classroom.

Online teaching can be more time-consuming, as it requires daily interaction: “7 days a week as opposed to a couple of hours a week” (Survey response to Instructor Q10). Several instructors noted that online teaching requires precise attention to the wording in all course related materials, as well as clear directions for use of online technologies. Specifically, instructors emphasized that they spent more time helping some students to understand the materials. Instructors must closely monitor student output and respond if the instructor sees the student “floundering” (Survey response to Instructor Q10). Others mentioned that they have to prepare all the online materials in advance as compared to traditional courses, where instructors can add last-minute information or alter materials during the class presentation. This advanced preparation allows students to access “ample materials” related to the course, including reference materials, activities, maps, rubrics, and grading scores (Survey response to Instructor

Q10). In addition, one instructor stated that for online teaching “I think more modularly now, of systems in modular forms” (Survey response to Instructor Q10).

One instructor discussed that the teaching methods did not change, but the online instructor has to work harder to foster a stronger personality and style in the online experience. Opportunities to interact with students are more flexible because the interaction can be “anytime day or night” (Survey response to Instructor Q10). Furthermore, an instructor commented that “the diversity of students (age, location) creates the need for a different tone of communication and teaching approach” (Survey response to Instructor Q10). Another instructor noted that “when lecturing in person, one can alter the lecture to fit the personalities of the students. That is not possible in an on-line course; one size has to fit all” (Survey response to Instructor Q10).

Some instructors appreciate the “broader integration of materials” that online courses provide, such as video clips, web links, and audio lectures (Survey response to Instructor Q10). These tools expose students to different perspectives and worldwide resources. Instructors provided students with a variety of resources to access information and improve comprehension.

In general, several instructors indicated that interaction with online students is “more relaxed” than in their traditional classrooms (Survey response to Instructor Q10). The advantages to online courses are that instructors can be “more thoughtful” in their responses (Survey response to Instructor Q10). One instructor gave more thought to clarifying written communication when describing course outcomes and

objectives for students. Many instructors noted that they “rely more heavily on e-mail” to interact with individual students than they do in their conventional courses (Survey response to Instructor Q10). Therefore, the instructors “develop strong relationships” with the students without face-to-face-communication (Survey response to Instructor Q10). One instructor expressed that communication with students occurs in a “more intellectually intimate way” than in traditional classrooms because it is easier to provide “feedback in a far shorter span of time” (Survey response to Instructor Q10). Some instructors use less group communication than in their traditional classrooms and instead encourage more reflection from individual students. In addition, one instructor stated the challenge of not being able to use “vocal intonation or body language” to explain a course concept, and without those tools, written communication becomes even more important (Survey response to Instructor Q10).

### *Issues That Have Caused the Re-evaluation of the Traditional Classroom Teaching Methods*

The instructors were asked in Question 11 about any teaching issues that might have developed while working online that caused the re-evaluation of their traditional classroom teaching. Out of 29 instructors who responded, 48% (14 responses) reported no issues while 52% (15 responses) reported some issues. Most studies about online courses have described the way that traditional curriculums can impact the development of online course design; however, the reverse is also true— online teaching which uses technology and web resources can also impact traditional course

design. Some teachers have found ways in which their online teaching experiences have shifted the way in which they teach their on-campus courses. They find that the availability of online resources, the unique nature of online communication, and the extensive use of written communication have all caused them to re-evaluate their teaching in the traditional classroom.

Some instructors acknowledged the vast number of web resources and materials. Since the instructors have to locate and define online resources that are relevant for their online classes, they are more knowledgeable about what resources are available for traditional classes. Several instructors stated that they now incorporate more web resources, web-based assignments, and online multimedia technologies in the traditional classes. The diversity of assignments and activities helps address the need for variety in student learning. One instructor pointed out that “having all materials online helps students who do not feel the lecture format is helpful” (Survey response to Instructor Q11). With so many resources, it compels the instructor to be more organized in their lecture summaries and handouts.

Online learning increased the instructors’ awareness of the importance of students’ interaction with their classmates. The instructors are choosing to incorporate more technology in their traditional classrooms. One instructor stated:

I’m greatly impressed by the discussion room participation. In classroom discussions the exchange is far too frequently between student and professor—not between student and student. I may start to include discussion board assignments as part of my regular teaching. (Survey response to Instructor Q11)

One instructor noted “the need for both concise and cumulative information” for online students has encouraged the same for on-campus students (Survey response to Instructor Q11). Another instructor suggested that unclear written instructions can cause misunderstandings, with the solution being to “continually edit and update” the written materials in all courses (Survey response to Instructor Q11). One instructor appreciated the “student’s written reflection” in the online course, and therefore, this instructor will use more free writing in the traditional classroom (Survey response to Instructor Q11).

### *Assessment Tools for Evaluating Online Courses*

The instructors were asked in Question 12 what assessment tools would be used for evaluating online courses. It is necessary for all teachers to receive feedback and evaluate their course and their progress. Online courses are no different. Assessment tools could be improved through course evaluations and peer assessment, though some teachers expressed that these were not always as effective in an online environment as on campus. They were uncertain of ways to improve these methods and expressed concerns.

There were several suggestions to improve the course evaluation. One instructor said that “I always encourage students to fill out the Ecampus online course evaluation at the end of each term” (Survey response to Instructor Q12). Another instructor suggested that the evaluation should be mandatory. In addition, a number of

instructors recommended the use of student surveys or student interviews during the term or even six months after the course is over.

One instructor suggested that “the best assessment tool is the instructor’s attention to what is going on in the course” (Survey response to Instructor Q12). This method includes a review of student work, such as monitoring assignments, Blackboard discussions, projects, and quizzes. Another instructor commented that “whether a student liked the instructor or course matters less than the work they were able to produce. Can a student communicate coherently, professionally, visually, verbally, and to a global audience?” (Survey response to Instructor Q12) Furthermore, one instructor stated that “student evolution” is “the only way to properly measure the effectiveness of ANY course” (Survey response to Instructor Q12). The idea of student evolution means that a student’s knowledge base changes frequently during the term.

Six instructors expressed that they did not know the specific answer to this question and suggested this is a good topic for further exploration. One instructor suggested that the tools to assess the effectiveness of online and on-campus courses are not so different, although some specific questions should be changed, such as the reference to office hours.

Two instructors shared their experience about the current assessment tools. One of them suggested that most assessment tools are “heavily loaded toward [assessing] entertainment” and “not designed to assess learning achievement” (Survey response to Instructor Q12). Most assessment tools do not focus on student

knowledge, both before and after class, and are “not designed to assess the unique contributions of online learning” (Survey response to Instructor Q12). The other instructor pointed out that “more than a traditional course, the proof of effectiveness is really in what the students do with their knowledge in their lives” (Survey response to Instructor Q12).

Several instructors suggested that the “quality matters review” is a tool that can be used for online course evaluation. Instructor peer review allows professional input and enrichment (Survey response to Instructor Q12). In addition, student evaluations provide additional feedback. One instructor stated that:

students should be asked to assess the instructor’s level of commitment to the material, to the ideas generated by the material, to the level of discussion and feedback, and to the overall manner in which the instructor comports herself during the term. (Survey response to Instructor Q12)

### *Critical Components of Effective Online Courses*

The instructors were asked in Question 13 to identify the critical components of effective online courses. It is a given that teachers and learners face certain obstacles, such as the lack of face-to-face communication, when the learning environment is moved online. Therefore, there are certain components which are critical to the success of an online course. Instructor availability, clear directions, interaction and communication, a dynamic curriculum, and technical accessibility all contribute both to learning and the ease of use in an online course.

A number of instructors indicated their desire to design curriculum that will get students involved in the learning. One instructor stated that the use of engaging materials, thought-provoking questions, and a variety of quizzes and exercises will generate motivation and enthusiasm for learning. Another instructor pointed out that some online courses focused intensively on memorization, and instructors “must use creative techniques to involve students in activities that immerse them in the subject matter” (Survey response to Instructor Q13). One instructor thought that it is important to provide “lots of assignments, both reading and writing, and opportunities for creative extra credit and discussion with the instructor and other students” (Survey response to Instructor Q13). Some instructors indicated that the online course should not limit students to sitting in front of computers, but should also get them involved in real world experiences.

The course materials, instructions, and grading systems must be “organized, well written, and up-to-date,” while assignment deadlines should be “frequent and firm” (Survey response to Instructor Q13). An effective course curriculum requires that the assignment expectations should be directly connected to the goals and objectives of the course, as well as to the assessment itself. Moreover, online courses should be designed for the “diverse learning goals” of the students (Survey response to Instructor Q13). One participant stated that “my course includes freshman through seniors, plus graduate students; students who just want a C and a multiple choice exam (which my chair required when I started) and students who want to write and express themselves, etc” (Survey response to Instructor Q13).

In order to increase the students' motivation, it is necessary for instructors to create materials that are easy for the students to access. Many instructors emphasized the importance of providing clear instructions on assignments, quizzes, due dates, course objectives, and discussion groups. This clarification also involves instruction regarding access to audio and visual aids, web resources, and technological requirements. One instructor focuses on developing "high-quality, up-to-date course content" that is "easily accessible to students," while "avoiding technology that is too difficult and presentations that require use of sophisticated technology" (Survey response to Instructor Q13). In addition, another instructor commented that students should also have fast internet connections to be able to download and review the materials quickly and efficiently. Students should also come to online courses with proficient technological skills.

Several instructors highlighted the significance of providing an open environment for discussion. An active discussion environment is a "boon to a class, and to the learning of all" (Survey response to Instructor Q13). The discussion board gives students the opportunity to explore ideas beyond what is planned in the curriculum. One instructor stated a preference for providing weekly discussions to increase the interaction between the participants; another instructor encourages "student involvement several times per week" (Survey response to Instructor Q13). Effective instructors should oversee the "students' negotiation of the learning environment" (Survey response to Instructor Q13). Another instructor suggested "asking directed, topic-related prompts, and offering cogent, on-topic, follow-up

questions,” and the discussion assignments should be “a major graded component,” so students will be motivated and encouraged to participate (Survey response to Instructor Q13).

In successful discussions, the instructors indicated that students have responsibilities, as well. Students should be willing to interact, and they should feel free to share information about themselves. Students and instructors should act professionally and respond to each other in a timely manner.

Instructors pointed out that it is important to be available to students. Instructor availability means providing “timely and personal feedback on course content, and technical help should be readily available if [the] students need it” (Survey response to Instructor Q13). One instructor noted that “students need to feel there are people on the ‘other side’ of the computer” (Survey response to Instructor Q13). Another instructor commented that, unlike traditional classroom teaching, online teaching is “a lifestyle occupation rather than ... a normal teaching job” (Survey response to Instructor Q13). This participant believes that online instructors need to have the desire to be available most of the time, welcome student contact, and work closely with individual students.

### *Suggestions on How to Improve Online Courses at OSU*

The online learning environment is dynamic, and changes occur frequently. In Question 14, instructors made many suggestions for how online courses could

improve, such as ironing out the technical glitches that riddle Blackboard, or making the prescribed course structures less rigid. There was a strong desire for more interaction and the development of a community of online professors. There were a few instructors who did not feel fully qualified to answer the question.

Some instructors recommended that online platforms should be user-friendly and easy to operate. Blackboard is good, but it is sometimes difficult to upload outside web information, like visual and audio content. One instructor found difficulties with designing tests. For instance, if a test is designed so that only one question can appear on the screen at a time, it becomes very time consuming for students to go back and forth between questions. Another instructor commented on testing problems on Blackboard, by stating that:

I wish there [was] a way to fix some of the problems with Blackboard. It's better than it used to be, but 10-20 times a term it shuts down on someone while they are taking a test, and I have to clear their exam (in which no answers were saved), extend the deadline, and have the student take the whole test again. One poor student had this happen twice on his final exam. (Survey response to Instructor Q14)

One other instructor listed several reasons why Blackboard is difficult to navigate.

“One cannot see the entire thread, and the Spell Check function is, well, lousy. Also, every time one opens a post, one must scroll down just to read the post” (Survey response to Instructor Q14). The instructor suggested requiring students to take mandatory tutorials on how to use Blackboard and the ONID system.

Instructors need to be knowledgeable of online courses. Many believed that Ecampus should provide more training for instructors. One instructor stated that:

Most of what I have learned about using online technology has come from person-to-person consultation during visits to campus (even though on-campus staff sometimes seems impatient with faculty who are inexperienced with technology—probably a generation gap thing). EC needs to use online methods to teach tech improvements to a course. Each online instructor should have an EC consultant who works with the instructor on one course improvement a term, e.g. how to download and integrate publisher packages. (Survey response to Instructor Q14)

Mandatory training sessions for the new instructors was also recommended. Another individual suggested that there should be more interaction between the online instructors:

In some meetings of online instructors, I've heard comments that gave me the impression that some instructors may see online teaching as putting materials on the web with little facilitation of the learning process required. More interaction between online faculty [members] would be helpful. (Survey response to Instructor Q14)

One instructor voiced some frustrations with the course design team, by stating that:

I have not enjoyed working with the development team because of unprofessional communications, strange expectations, and misrepresented pay amounts in the MOU [Memorandum of Understanding]. In addition, I don't believe innovative ways of developing a course are allowed. (Survey response to Instructor Q14)

This instructor felt that it is important to provide more flexible course development options. One individual recommended that the structure and organization of courses should not be mandated.

Online instructors are expected to have resources that are equivalent to on-campus instructors. Therefore, one instructor suggested that online instructors need

more appropriate salaries. The instructor stated that “I have to buy my own computer and provide my own office, so a per-student pay is not the same reward system as on-campus instructors who moonlight but use university facilities and equipment” (Survey response to Instructor Q14).

In addition to training the instructors, there were suggestions for helping students. Regular reminders from Ecampus could assist students in staying on track with courses. Students should also be informed that the syllabi for the courses are located on the Ecampus website, so they can see the expectations for the course before registering. One instructor claimed that students think online courses are “easy,” but online courses take more time because it is necessary to read all the posts on the discussion board to “absorb the pedagogy” (Survey response to Instructor Q14). Another instructor suggested that students take their courses more seriously.

Some instructors expressed that they do not have any suggestions for improving online courses because they are still learning how to teach their own courses, and do not have enough experience to offer advice. One instructor answered that it is “tough to generalize as a whole as I’m really only familiar with my own [course],” and another instructor stated that “I don’t know, I am still figuring out what works best for my own course” (Survey response to Instructor Q14). Finally, one participant stated that the researcher of this study is “on the right track by assessing in this manner. On-line courses are relatively new; it will take a few years of assessment and ethnographic work with students and instructors to fine-tune these courses” (Survey response to Instructor Q14).

*Instructors' Thoughts, Feelings, and Questions about Online Courses at OSU*

Question 15, at the end of the survey, provided an opportunity for the online instructors to express any additional thoughts, feelings, or questions they may have had about teaching online. The responses were varied, given the broad nature of the question. These responses included comments regarding online teaching, communications, technical difficulties, and fair monetary compensations.

Many instructors like to teach online because it suits their teaching styles, they like the community of learners who tend to choose online courses, and they enjoy the relaxed learning atmosphere. Instructors have stated the following: “teaching online seems to have been designed for me,” “I enjoy it a lot,” “online teaching has been enjoyable and productive,” and “may online learning continue until the electricity goes out forever!” (Survey response to Instructor Q15). Instructors gave some detailed explanations as to why they enjoyed their courses:

- I love the constant interactions, the ongoing questions and conversations from the students. I love working from home. I find the experience to be totally to my liking. I want to become really good at it. (Survey response to Instructor Q15)
- In the beginning I liked the idea of teaching online...I now am convinced that it is ... so well-suited to my teaching style and to my interests..., that I cannot imagine not teaching online...it is labor intensive, but it does not feel labor intensive...it feels alive, as though each class will constitute a new community of learners who will always be connected by the internet...it is a form of community that I did not know existed until I started teaching online. (Survey response to Instructor Q15)
- OSUE's [OSU Extended Campus] staff does a terrific job at supporting course instructors through the relevant department without assuming undue

control over the course. They work to insure the course is up to the reputation they seek to uphold, but allow the instructors room to teach. [I give my] sincerest kudos for my experience with OSU. (Survey response to Instructor Q15)

On the contrary, there are instructors who prefer to teach on campus more than online. Instructors revealed several negative aspects of online teaching. One instructor found it odd that students who enrolled in on-campus courses were also taking online courses, as well. The instructor believes that “personal, face-to-face interaction between student and professor and between student and student is optimal” (Survey response to Instructor Q15). Another instructor talked about feeling detached from the process of preparing the course:

While not every instructor would feel this way, I do best when I am very hands-on with the technical aspects of the course. I’d far rather do the work of getting stuff up on the site than just hand the material off to the tech folks, if I know how to do it. (Survey response to Instructor Q15)

A number of instructors felt disappointed by the lack of face-to-face communications. One instructor found it frustrating to know that s/he will probably never get to meet the students. Another instructor commented that online communication is not effective for some students. The instructor also had trust issues when communicating online because “it is hard to tell if a student is being truthful” (Survey response to Instructor Q15). One instructor, who only teaches online now, depends on the relationships with other faculty members that were formed while the instructor worked on campus. The instructor pointed out that the “instructors who are off campus without those relationships might have a tough time of it” (Survey response to Instructor Q15).

A few instructors mentioned issues with the testing and grading process. One individual complained that online instructors were not provided with testing support, such as assistants to help with the grading in the large classes. As a result, the online instructors must “cut down on the expectations or move to standard testing, rather than use projects as deliverables” (Survey response to Instructor Q15). Another instructor discussed technical problems, such as students getting “locked out” of tests or tests “shutting down” (Survey response to Instructor Q15).

Some instructors commented that Ecampus did not pay enough for the instructors. One of the participants claimed that the instructors had not received any pay increases in at least five years, and they did not get “paid the first month of each term” (Survey response to Instructor Q15). The instructor was also concerned about balanced pay between the administrators and the instructors, in proportion to the amount of time that each puts into the job. In addition, instructors voiced dissatisfaction about the pay-per-student system because instructors of small classes often have to work as hard as instructors with large classes, but get paid less. Another instructor expressed that s/he enjoys teaching online, but higher payment might encourage other instructors to also teach online.

### *Online Students*

In order to gain a well-rounded understanding of online courses, especially from the principles of critical pedagogy, means including the thoughts and perspectives of students involved in the courses. In general, students viewed their instructor's role as the main component in creating an effective course. They provided information about the helpful elements in their current courses, the greatest online benefits and drawbacks, the effect of the web on learning styles, and the reasons for taking their courses. In addition, the students presented some of the critical components of effective online courses, as well as suggestions and thoughts of how to improve their current courses—and courses, in general, at OSU.

#### *Elements That Students Find Helpful in Current Online Course*

The purpose for gathering this information was to better understand what improves the learning environment of an online classroom. Asking students what improves their overall educational experience is the best way to gain insight into what might enhance their digital classroom environment. Students were asked in Question 7 what they found most helpful for their learning process. The students mentioned a wide variety of course traits as being especially helpful; however, these traits addressed a limited number of core issues. Student responses have been grouped into the following categories: course organization, online interaction, feedback, opportunity to access diverse learning tools, flexibility, and assignments.

Students expressed satisfaction with how their online courses were organized. Student responses indicated that they appreciated the situation where the written documents were available throughout the duration of the course. Some students reported that the layout, assignments, exercises, and discussion board activities worked well together. Moreover, organizing coursework into weekly modules made requirements easily comprehensible. The online format made it easy for students to keep current about all course requirements and thus to achieve their goals in the course. Students also expressed an appreciation for classes organized around a variety of media. One student also liked the immediate feedback available via online quizzes. Many students mentioned that they appreciated courses with intriguing topics. In addition, another student noted that the course was designed to help understand various learning styles; this knowledge could then be applied to other coursework.

Students reported that interaction with their peers as well as their instructors was an important and useful component of their online courses. Students emphasized the availability of their instructor as being very important. This response might indicate that students find an available instructor especially important when they cannot see an instructor. Student responses indicated that they want to feel comfortable contacting their instructor and to know their questions or concerns will be dealt with quickly. Students indicated that they liked to have options: email, phone, or chat rooms for contacting their instructor; and that they appreciated immediate assistance with their difficulties. One response stated that “instructor participation on the discussion board helps to bring up additional relevant topics,” providing students

with a broad view of the course topic, so that it feels “like a real class” (Survey response to Student Q7). In addition, students valued the online interaction and the insight it gave them into the personality of their instructors because it helped them interpret course instructions and feedback. Of course, students appreciated interaction with teachers who displayed a good sense of humor and expressed a desire for their students to be successful.

Students’ positive comments about online interaction were not limited to their instructors; students also responded positively about interaction with their peers. One of the students commented that “in a classroom setting, students’ voices may not be heard due to time constraints and other people dominating the discussion,” but in an online course all students have the opportunity to express their opinions and hear other perspectives (Survey response to Student Q7). In weekly Blackboard discussions, students not only had the opportunity to receive information from the instructor, but also from other students, and to observe the instructor’s evaluation of the students’ responses. In addition, students were able to reflect on their weekly topics, review what had been covered, and assist each other.

There were many characteristics of instructor feedback that students appreciated, especially important were timely feedback, quality comments, and the number of instructor responses. Students considered instructor feedback a most helpful technique for student learning. Instructors provided feedback on assignments, gave written evaluation of essays, facilitated interaction on the discussion board, and

offered explanations on how and why the assignments were graded in a specific manner. Students also reported that feedback did not come just from the instructor, but from other students as well. Students appreciated “the amount of feedback that is required by all the students,” as well as by the instructors “to see many other students’ points of view” (Survey response to Student Q7).

By reading student comments, the researcher has learned the significance of the course structure. The degree to which the course made use of the available technologies greatly influenced the perception of student learning and progress. Students emphasized the importance of having a variety of sources and diverse learning tools. Examples of the variety of learning aids discussed included: visual and auditory material, lectures, textual material, and web pages. The students were able to select from a variety of materials that best suited their learning styles.

Having a variety of tools and resources provides students with the means to study the topic in detail using the tools that are best suited to them. For instance, students with vision problems can enlarge the text, and with a special program, materials can even be read out loud. In addition, providing students with various types of media can create a simulated classroom experience. One of the students described this:

The instructor records a short video lecture of the information that we are covering. In addition, [the instructor] has TV programs on the blackboard covering the subject. Then we have discussion, reading, and homework assignments. The combination of all of these things make the learning environment better. (Survey response to Student Q7)

Survey results indicated that the lecture was one of the students' favorite tools. Students said that they appreciated printed and audio or video lectures, and they also liked a synthesis of the text assignments. Multiple lecture formats were beneficial for students because one of the approaches would suit their learning style. Online lectures were convenient because students were able to access them anytime from their computers.

In addition, students found their textbooks a very helpful component of their online courses. One student even indicated that the textbook was the one good element of the course. In some cases, however, textbook websites provided additional supportive options which students valued, such as practice quizzes, PowerPoint presentations, and glossaries. A participant explained the profound effect that an instructor's choice of books had on learning:

I am learning about a topic that is poignant and reading books that benefit my personal growth, books that I would not read, had they not been necessary for the class ... but I am learning a lot and it's helping me understand much about the history in the making that I am a part of, and also the history that inevitably made me who I am today. (Survey response to Student Q7)

Another participant emphasized that the best way for online students to learn is to implement activities, such as reflections and interviews, which force students to use what they have learned from the textbooks.

Scheduling flexibility was one of the elements that students reported finding very appealing and liberating. One student wrote that she preferred "being able to go over the course materials in my own time, rather than being tied down to a specific on-

campus class schedule” (Survey response to Student Q7). Another student described, how helpful it was to have time to discuss and interpret the course materials, stating that “it’s much easier for me to come up with a coherent argument after I’ve had a bit of time to ruminate on it than if it’s expected of me immediately after reading it” (Survey response to Student Q7). Students reported that online instructors allow them the freedom to work at their own pace within the time frame of the course.

Some students expressed a preference for the homework and grading options that were given in their online course. For example, one student noted the benefits of having weekly assignments based on each chapter. Other students said that questions and quizzes for each week helped students to think “outside the box” and apply them to course objectives (Survey response to Student Q7). These assignments assisted students in their attempts to stay on track and provided them with a feeling of confidence that they had comprehended the material. Students also liked to have multiple opportunities for mastering homework assignments because it allowed them to improve their grades and learn from their mistakes. In addition, students showed interest in homework that required them to interact with each other by posting comments and responses on the discussion board. Furthermore, students reported learning benefits when instructors assigned tasks to be completed from outside resources that complemented textbook material. Students also enjoyed the opportunity to do their own research and investigate topics beyond the stated course objectives.

### *The Greatest Benefits of Online Courses*

Question 8 asked the students what they believed were the greatest benefits of online courses. The researcher provided students with up to four benefits to choose from and an option to add additional thoughts. These benefits included being accessible, flexible, student-centered, and collaborative. The students were able to choose more than one response. The results showed the following, from most popular to least popular: flexibility 41% (172 responses), accessibility 31% (130 responses), student-centered 12% (53 responses), and encourage collaboration 11% (47 responses).

Twenty students (5%) added comments in addition to the benefits mentioned in the questionnaire. Some students said that one of the advantages of online courses was that all students have equal opportunities to participate and to be recognized by others. A couple of students, for example, cannot dominate online discussions the way they can in a traditional classroom with a 50-minute time limit. Online discussions give students anonymity to interact without being judged on their “appearance or accent,” and this perhaps allows peers to take each other seriously (Survey response to Student Q8). Online courses may be beneficial to students who are too shy or nervous around other classmates to speak out, so they may collaborate with more confidence.

In addition, students provided examples of how the flexibility of online courses was advantageous to their learning. Online courses allowed students the time to think before posting and interacting in the discussion. The courses were available for

assessing 24 hours a day so that those with busy schedules could fit course work in with home and work responsibilities. One student expressed the experience by stating that:

Online courses are great for me because it allows me to live a somewhat normal life and not have to give up everything for school. I can even take a day off as long as I get my work done for the class ... it's good for people who don't have the luxury of being on campus and the time to devote to that style of learning. (Survey response to Student Q8)

Finally, the flexibility of online courses allows non-traditional and returning students a chance to continue their education comfortably, at their own pace.

### *The Greatest Drawbacks of Online Courses*

Question 9 asked the students what they thought were the greatest drawbacks of online courses. The researcher provided students with up to four drawbacks to choose from and an option to add their additional thoughts. These drawbacks included being isolated, having a lack of face-to-face interactions, being time intensive, and having a lack of technological skills for students and/or faculty. The students were able to choose more than one response. The results showed the following, from most common drawbacks to least common: lack of face-to-face interactions 33% (93 responses), time intensive 25% (69 responses), isolation 15% (41 responses), and lack of technological skills for students and/or faculty 6% (18 responses).

Fifty-nine students (21%) added numerous drawbacks in addition to those provided in the questionnaire. Students indicated that they did more work and that

online courses required a larger time commitment than traditional courses. Some students complained that in online courses, discussion assignments, given as an alternative to traditional campus lectures, were overwhelming and that participation required extra busy work every week. Many students expressed frustration with discussion activities. This frustration was shared across many different courses. For example, the students said that discussion tasks required no critical thinking, that dialogs did not stay focused on topic, and because instructors did not provide clarification frequently, misunderstandings were common. Students complained that discussion assignments took time away from reading and other more useful required tasks. Some students preferred to focus on lectures, textbooks, and other resources rather than discussing the same topics repeatedly.

Students expressed concerns about the organization of the online courses. Students said it was difficult for them to understand what they are supposed to accomplish without a clearly defined schedule or instructions. Even when instructors used a variety of media, which most of the students appreciated, these could be ineffective if the course was not well organized. A few students said that they would have preferred to have more frequent reminders about upcoming assignments because reminders would help keep them on track. In addition to finding the organizational failings within a single online course problematic, some students found the inconsistencies between various courses difficult.

One student described the experience by stating that:

On campus, a student goes to class, sits, and listens to lectures or participates in labs. Online, the 'classroom' can be set up differently for every professor, which is extremely irritating. I wish that every class online had the same set up as the one before it. (Survey response to Student Q9)

In summary, students taking multiple online courses would prefer more organizational structure among all their online courses.

Students also complained that online courses required them to be very organized, which is difficult when the course is not well organized. Actually, the nature of online courses requires students to be very independent, responsible, well-organized, and capable of managing their own time if they are to fulfill the requirements of the course. Without scheduled meeting times, students can discover it hard to stay on track. Students who procrastinate can find it very easy to fall behind in their course work. This is especially true because some students perceive online courses as easy. Some students wish that the responsibility to actively participate and frequently check Blackboard was emphasized in the beginning of courses. However, students would also appreciate more flexibility, and would like instructors to be understanding when circumstances require an extension on deadlines.

Due to the nature of developing a new education delivery system, many of the teachers used a modified form of their traditional class, except without live lectures. Many online students missed having an auditory mode of instruction and complained that online courses ought to "take full advantage of online technologies such as

streaming media, video chat, IM (Instant Messaging), and other more interactive technologies” (Survey response to Student Q9). Students complained that they missed the live lecture format because taking notes in a classroom lecture helps them to learn more effectively. In addition, students also complained that instructors had difficulty balancing course activities; for example, in attempting to promote online collaboration, some students indicated they had to spend extra time figuring out how to communicate with each other, rather than focusing on learning the content.

Some students indicated that online classes are a waste; they claimed that there is no sense in taking them because these courses are just like learning on your own. This complaint demonstrates the importance of the role instructors play in online courses. Instructors need to understand that students can become frustrated because they cannot get immediate assistance like they could do in a classroom. Students can become irritated with small delays in their search for clarification, instructors’ feedback, or in-depth information. Some students felt that they had no significant presence to their instructors because they had no face-to-face communication. This is especially true for students who were not on campus and did not have the privilege of meeting their instructors. Some students did not feel their instructors were qualified for teaching the course. Other students pointed out that their instructors did not spend enough time organizing and developing lectures, demonstrations, and challenging and entertaining course activities in the way they do in a traditional course. Some instructors made their courses reading-intensive and did not use a variety of teaching techniques/styles. Students had complaints even when instructors used multiple

delivery methods and a variety of sources. They struggled when they noticed errors, and had difficulty synthesizing the content because they did not have an instructor to explain the materials. Testing was another aspect of online courses that presented students with problems. Students found that locating proctors was difficult.

Students emphasized the high cost of online courses was another negative factor. Some students commented that they pay more for online courses but receive lower quality instruction than in traditional courses. The students also complained that they get less feedback from instructors in online courses. The tuition for an online course is almost twice as much per credit hour as a comparable traditional course; students do not understand the reasons behind the higher cost. Several students were forced to take online courses because these courses were their only available options for meeting degree requirements. Students described the high cost of online courses in their own words: “astronomical,” “TOTAL RIPOFF,” “I feel cheated,” “outrageous,” and they’re “scamming us” (Survey response to Student Q9). Because of cost, some students reported that they have decided not to take online courses again, if they can help it. In addition, students complained because they have to pay another fee to have their tests proctored. These proctored slots are limited, and students must schedule time in advance to take their tests.

Online courses require more dependence on computers, and therefore, students may have to deal with more technical problems. Online students discussed how technical difficulties and internet unreliability can cause problems in online courses.

Students may take longer to master technical components of the course, but once it is achieved, then the focus will be on the learning. Some students reported that they could not turn assignments in on time because of internet connection problems. Much of the course material is only available online, which can be difficult for the students who have trouble reading electronic formats.

### *Web Impact on Learning Methods or Styles*

Students in Question 10 were asked if web courses had affected their learning styles and, if so, how. Out of 182 students who responded, 60% (108 responses) reported that online courses had no impact, while 40% (72 responses) reported that the classes did have an impact on their learning styles. Those students who reported that web courses had influenced their learning styles primarily described the influence on their learning styles as positive. They emphasized that web courses enhanced their research skills and made them independent.

Students reported that they had to learn to be more responsible for their learning and to become more independent as researchers because face-to-face contact with their instructors was not possible. Some students felt that working on the internet allows access to such a large amount of information, their research skills just naturally improved, so they learned to locate information faster. Furthermore, constantly working on a computer improved their computer skills. Online students need to access the global resources provided by the web to compensate for lack of face-to-face

teacher interaction. The new skills enabled students to identify many valid resources to supplement their course work and research. In addition, one student reported that “I get more out of it” because “web courses require me to follow the text closely” (Survey response to Student Q10).

Some students said they experienced more progress in their education journey in an online course than they had in traditional classrooms because they took more responsibility for themselves. Online students described themselves as being “self-disciplined,” “self-motivated,” “self-managed,” and “self-taught” (Survey response to Student Q10). Online courses provided them with the freedom to work at their own pace, without the distractions of others. On the other hand, students complained that this flexibility allowed students to procrastinate doing their online course work until it became their lowest priority. Students who accepted responsibility and stayed organized were more likely to finish assignments on time. Students wrote that they had to become more aware and to pay more attention to requirements because they could not rely on instructors to take care of them. Students noted that they had to learn more from textual material than they did in a traditional on-campus class. Some individuals did not need to rely on memorization because they could access information whenever they needed.

Taking online classes gave some students new insight into their personal learning styles. Some students who described themselves as visual learners found that they prefer online learning. Online classes made use of a variety of visual formats. Not only did instructors use videos and various kinds of reading material, the way courses

are designed and delivered is fundamentally visual. Some students reported that it was useful to be able to watch lectures and videos a second time. Further, many instructors gave their students addresses for websites with a variety of visual resources. For other students, who described themselves as tactile or auditory learners, online learning can be a very difficult environment because they realized how different and visually-oriented online courses can be. One student felt that online courses could balance a need for time for personal reflection and interpersonal communication. Several students noted that it was much easier to learn when instructors were involved in the online discussions.

Students felt that online courses required them to study more, which some felt made them retain more information. They found it easier to use online references when they were confused, and the teacher had not provided sufficient material. However, some students felt they had to over-prepare for their online exams because they did not know what to expect from their online instructors. One student complained that a course with over 50 students required a great deal of time to read and participate in discussions.

The discussion board was a great forum for students who preferred collaborative learning. Students were able to get clarification if needed, as well as exchange ideas and opinions. Online courses allowed more time for reflection and allowed multiple opportunities for students to review other students' comments. For some students the slow pace of the discussions hindered meaningful communication. Responding to discussions in online courses required students to take extra time to be

thoughtful. The design of online courses encouraged students to participate more than that of regular classrooms; these discussions helped students to understand the material more completely than they would have by just reading. Some students felt that they could react more naturally when they read irritating comments because they did not have to hide their negative facial expressions as they would in a public setting. For other students, they attributed online courses with helping them become more flexible and willing to explore new concepts and new ways of thinking.

### *Reasons for Taking Current Online Courses*

Students in Question 11 were asked what attracted them to their current online course. Although the *Online Student Reflection Survey* did not ask the same questions posed by the OSU Extended Campus student survey (2007d), students gave similar responses in both surveys. They chose online courses because of availability, scheduling, or for family or personal reasons. Many students indicated on both surveys that they had more than one reason for choosing their class. The two most common responses were that the course was a requirement, and online classes provided the flexibility the student needed.

When students were asked in Question 11 about their reasons for taking their current online courses, many students mentioned that they took prerequisites or requirements. Because some of these courses were not offered on campus or the campus course had already been filled, the students were forced to take the course

online. Some students had taken these courses because their advisor recommended them.

Some students chose their courses because of the attitude, background, or familiarity they had with the instructor. Students felt more secure and comfortable if they knew their instructors and knew what to expect from them. Students who had a positive experience with an online instructor were inclined to take more courses from the same instructor.

Several students said they had never taken an online class, and they wanted to try one. In addition, students felt that taking an online course was less daunting than a traditional class, especially if the subject was new to them. Students felt that online course environments can encourage students to improve their skills and to feel comfortable sharing their ideas and ignorance. Several students wrote that they thought they would feel more comfortable sharing their work with students they did not see. Students also mentioned that online courses offered a good opportunity to broaden their knowledge, especially if there was frequent and consistent feedback to help students develop their ideas and concepts.

Students chose their courses because they were interested or curious about the subject. For example, one student noted that the extended campus provides opportunities for students to preview the course description, syllabi, and textbook information, which allowed students to find interesting courses by browsing this list. Some students wished they had the same opportunity in traditional courses. Other students said they wanted to explore areas they had never studied before to gain more

insight. A few expressed that they were interested in trying online courses, in general, to observe the social aspects of interaction within these courses.

Students appreciated the time, location, and scheduling flexibility of their online courses. Many students appreciated the flexibility of online courses because it allowed them to avoid scheduling conflicts that might occur with traditional classroom courses. In addition, they could manage and complete their assignments in their own time and at their own convenience. Some students needed or preferred to stay at home and not be tied to a strict classroom schedule. For instance, one student described an inability to drive or sit in one place, due to a disability. In addition, many students said they could not get to the OSU campus either because of where they lived or because of work. Online courses allowed some students to study without the hassle of a commute or a move to campus and for others the opportunity to maintain travel commitments.

One student shared this experience stating:

I like the online courses because they are easier for me to fit into my life. I have to work full time just to pay for school, so I have a very difficult time fitting in classes that I have to attend on campus. (Survey response to Student Q11)

### *Critical Components of Effective Online Courses*

Students in Question 12 listed many characteristics they found most helpful to their learning. They valued flexibility, simple and interesting course design, and, most importantly, an active and involved instructor. Although students generally agreed that

a well-designed course improved their learning, they did not necessarily agree about what made a well-designed course.

Students felt that having a good instructor was a critical component for effective courses. Some of the characteristics of a good instructor included: being available, interested, organized, passionate, flexible, and responsible. Many students said that good instructors need to care. One student stated that online courses must have “an instructor who cares, an instructor who has put the time into the course to set it up, and an instructor who puts the time in each week to ensure everything is moving properly” (Survey response to Student Q12). The students repeatedly emphasized the importance of good instructors who offer clear expectations, provide immediate feedback and effective leadership, and are actively involved in the course. They wanted instructors to be clear on assignments, course requirements, instructions, directions, syllabus, objectives and outcomes. In addition, students liked having a lot of access to their instructors via email and liked receiving quick responses to questions. One student appreciated an assignment that required the student to email the professor each week. The student described the experience as follows:

I think this was the best way of connecting in the online courses I have had. It not only made you feel like you had a “face” in the class but you get to know the professor and ask opinions and questions about the material. (Survey response to Student Q12)

Some students commented that effective instructors provide many opportunities for reading, discussion, and writing.

Students felt that active leadership by instructors gives students the sense that they can interact with their classmates in the group discussions. Moreover, students wanted instructors to participate in discussions and not leave all the work up to the students. In addition, students seemed to feel that if their instructors devoted the same amount of time that was required of students, the instructors would be more understanding. Many students take online courses because they do not have flexible schedules. One student wrote that online courses should be more flexible than face-to-face courses, and wrote that instructors should take student needs into consideration and should allow students flexibility.

Students emphasized that social interaction was another critical component in successful online courses. This interaction required good and interesting discussion topics, the ability to interact freely, and members making the effort to establish connections with each other. One student said that “the best discussions are ones that get the students communicating with each other by allowing room for personal experience and reflection” (Survey response to Student Q12).

The discussion board was a major catalyst for communication. For example, many students expressed an appreciation for a “general” discussion section, where students can ask specific questions and get quick responses from both students and instructor (Survey response to Student Q12). The students wanted instructors to provide them with clear explanations and guidance on discussion board communication requirements. In addition, many students expressed a desire for their peers to be concise with their responses and to stay on topic. One student requested the

use of simultaneous video and teleconferencing communication to provide “immediate dialogue” (Survey response to Student Q12).

Students often said they missed lectures and immediate communication; instructors could meet these needs by communicating with students through online lectures in the form of synchronous video, streaming media, written notes, and ongoing discussions. Students requested that instructors integrate their personality into lectures to keep students interested and motivated. One student brought up the interesting point that lectures written by their instructors could connect students to their instructors. The connection provided by written lectures was especially important when the instructors did not participate in class discussions, which explained why students frequently complained about “canned” lectures (Survey response to Student Q12). Canned lectures are provided by textbook publishers and are generally not modified by the individual instructor.

Students stated that weekly assignments and assessments were helpful in keeping them on track and promoted their critical thinking and problem solving skills. They requested assignments that challenge and assist them in mastering the concepts, rather than relying on memorizing a textbook. Other students liked assignments that involved research because they were forced to organize the information in a sensible manner. Assignments given in a consistent format allowed students to focus on the subject rather than trying to understand the expectations.

Students said the course design needs to be easily accessible. They also said instructors should have course materials and lessons ready on time, and that instructors

need to have good working knowledge of Blackboard. In addition, the course design should incorporate the following components: a variety of teaching methods, assignments, feedback, reading materials, multimedia resources, graded projects and methods for contacting the instructor. Students said that they needed enough time to complete the requirements. Some students wanted all the assignments for the entire term posted, so that they had flexibility to manage their time; others preferred assignments to be posted over the course of the term because adding class elements such as lectures and assignments regularly provided evidence of instructor participation.

Providing students with a variety of learning materials helped to accommodate different learning styles. Students requested that instructors create a good balance between required reading, discussion, and projects. Furthermore, several students emphasized the importance of alignment between textbooks, course videos, personal assignments, and class participation in order “to help with the learning process and the way the class is structured” (Survey response to Student Q12). Courses should include projects that assess students’ learning and make sure that the students have mastered the concepts. Some students requested that instructors make use of the announcement section on a weekly basis as a reminder of assignment deadlines.

The students felt that good course design helped to motivate their desire to learn. One participant said that she hoped instructors would find “a way for the student to want to log on and complete the work assigned” (Survey response to Student Q12). Even if the course is designed well, students need to have the desire to learn.

### *Students' Thoughts, Feelings, and Questions about Current Online Courses*

In Question 13, students who were enjoying their current classes gave a number of reasons why, and those students who were not enjoying their current class also gave a number of reasons why. Occasionally, it appeared that students fundamentally disagreed about what makes a good course. More commonly students expressed similar views; for example, most students enjoyed active teacher participation, so students in classes with an active teacher found something to praise, while those without found something to criticize.

Many students believed that their online instructors did a good job in teaching their courses. Some students felt that their online experience was no different from a traditional campus one. One student stated that the instructor had:

taken the time to put together some good slides of each chapter. It makes you feel like you have actually sat through a class and you have good notes to follow and focus on the important topics within the book. (Survey response to Student Q13)

Successful courses were designed and organized specifically for online learning. Students felt that some instructors had worked hard to adjust their courses to fit the online format. Many students expressed the need for classes to make use of streaming video lectures, quizzes, reading materials, and discussions. In one student's experience, helpful instructors can get students through a variety of problems. For example, one of the student's classes was designed very differently than the others, but

with a very helpful instructor, the student was not confused. Students felt instructors had created coursework that was balanced and manageable.

Students like online instructors to treat them the same as in a classroom environment, with clear and equivalent expectations. Students appreciated instructors who had a passion for the subject they teach, and who were willing to make “the learning experience customizable to meet the goals of individual students” (Survey response to Student Q13). In addition, students were grateful for instructor feedback.

Feedback was not just provided from the instructors, but from classmates, as well. Students described their classmates as friendly and encouraging. They said their fellow students helped them to think deeply about course subjects. Collaboration within group projects helped individuals to feel more at ease, to successfully complete the assignments, and to gain a “broad range of ideas and interpretations” (Survey response to Student Q13).

On the other hand, some students expressed dissatisfaction. One student was disappointed that course activities did not match the class description. Students complained that their online classes lacked auditory elements. For example, one student found it difficult to learn how to pronounce new vocabulary. Another student complained about the lack of feedback the instructor provided, by stating that “feedback is almost non-existent” (Survey response to Student Q13).

Courses that had unclear objectives and directions had a negative effect on students’ learning. Students complained about ambiguity present in discussion boards,

lectures, responsibilities, and assignments. In addition, students got confused when instructors posted the same, but not quite identical assignment in several locations.

Some students commented on the heavy workload of online courses. They found it difficult to balance between weekly readings, essays, and discussion assignments. Students seemed to prefer simple layouts; for example, one student requested that the optional resources be deleted from the course— perhaps they were distracting. In addition, students found it very confusing if assignment due dates or announcements were not specific to the current term. Another student described his thoughts on the subject:

discussion busy work and weekly assignments that seem to only be required to add to [the] course work load (summaries, etc), in my opinion, obliterates the opportunity for long term learning or knowledge of the subject. Too much material or busy work doesn't allow students enough time to fully grasp or be interested in courses. They simply attempt to keep up instead of learn. Online courses seem to have more course work than on campus courses, which doesn't make much sense. People that need to utilize online courses are often forced to do so because they have extremely busy schedules and... incorporating busy work to make up for not attending weekly lectures doesn't enrich the course content. (Survey response to Student Q13)

When instructors used “canned courses” provided by textbook publishers, the students felt they did not get their money’s worth and that this practice diminished the role of the instructor to a person who simply records grades (Survey response to Student Q13). Students complained about the quality of the canned course assessments. Several students complained that instructors used textbook assessments, which focused on details rather than on comprehension of major concepts. In addition, some textbooks had errors in the answer keys. One student was forced to use the

online book, because no hard copy was available at the bookstore. Even when the textbook was high-quality, lack of instructor participation made the tests “inappropriately hard” (Survey response to Student Q13). Some instructors put heavy weight on exam scores for the final grade, and as a result, students felt less motivated to complete the assignments. Other instructors required students to complete “capstone activities,” which did not engage students’ interest and thus did not help them to retain information (Survey response to Student Q13).

Students asked the instructors to be more active on the discussion board. Students commented that even though the instructors required a lot of participation, the instructors themselves frequently did not participate in conversations, and thus the instructors did not get to know the students. One student stated that:

There were questions asked and comments posted where his information would have been very useful in understanding the subject and what the instructor was expecting in the essay assignments. The subject matter was very interesting so it was a great disappointment to not have help and much input in any form from the instructor. (Survey response to Student Q13)

Another student criticized the quality of the discussion. The student felt that not much was learned when the instructor just posted questions without giving feedback in the Blackboard discussion. The instructor responded to the students’ questions by asking more questions in the discussion board and left the students to determine the accurate answers. In addition, students preferred that the “instructor join in the discussion threads,” because “it makes it more like a real time class discussion” (Survey response to Student Q13).

### *Suggestions on How to Improve Current Online Courses*

Students in Question 14 offered many suggestions regarding possible improvements for their online courses. Specific comments included recommendations for video lectures, revisions in course materials, and suggestions for updating course format. In addition, the students provided comments about improving student/instructor communication, clarifying assignments and assessments, and enhancing interactions on the discussion board.

Students recommended adding course lectures. One student wondered if the instructor could make audio or videotape recordings of their courses and post them in various formats (mp3, wav, etc.) for students to download. These formats would “add a lot to online courses” (Survey response to Student Q14). A number of instructors currently use videos for their lectures, but sometimes the quality is poor and difficult to view. One student suggested that instructors should try to “find better files that aren’t as pixilated for viewing movies” (Survey response to Student Q14).

One student suggested to have course materials available through the bookstore in addition to the online format. Other students recommended using straightforward textbooks that would be easier to comprehend. In addition, students said that instructors should use other supplemental materials, so they would have more opportunities to understand the concepts. Students requested more up-to-date materials. Moreover, materials should be accessible for students with older versions of

the Microsoft Word program as documents do not convert properly if they are not compatible.

One student requested to have “a new instructor that is actually excited and enthusiastic about teaching online courses” (Survey response to Student Q14). A few students asked to have more feedback and better communication from the instructors. For example, one student wanted to know “how are we doing?” and “are we on the right track?” (Survey response to Student Q14). Another student asked the instructor for “better examples of previous student work” (Survey response to Student Q14). Students suggested that instructors provide online office hours and teleconferences during the term in order to have direct communication with the instructors.

Another student was disappointed because there were “no study guides, lectures, quizzes or assignments to help narrow the focus, and the instructor rarely made attempts to communicate with the class” (Survey response to Student Q14). The student believed that it was not worth the “\$600+ to take this course when the only guidance I have received is being told to read a textbook, which I could have done on my own” (Survey response to Student Q14).

Students requested clearer instructions in their courses. This clarification included providing explanation for definitions, offering a grace period for due dates, and giving simple directions for assignments. One student stated that “it is better to over explain than to under explain” (Survey response to Student Q14). On the other hand, one student mentioned that “the syllabus should not be 10 pages. From the get go, one gets an overwhelming feeling from the class” (Survey response to Student

Q14). Another student asked the instructor to “make sure that assignments have the same requirements and same descriptions on all course documents” (Survey response to Student Q14). Some students desired to have reminder announcements regarding weekly tasks because it can be easy for students in online courses to forget upcoming assignments.

Students requested that instructors not use canned courses. Furthermore, they suggested that the instructors need to ensure that the assignments correspond with the assessments. One individual complained that the grading scale was not easily accessible for the students. It was suggested that the instructor post the grading scale in a prominent place in the course layout. In several courses, students were required to conduct interviews with community members. Several students commented that they did not like the assigned interview process because it did not facilitate the learning experience.

Some students requested to have more flexibility in their course requirements. For example, one student asked for the flexibility to allow “at least partial credit for late work” (Survey response to Student Q14). A different student suggested flexibility in the quantity and the length of the required assignments, as well as the time provided to complete these assignments. In addition, assignments and assessments should not be so extensive that they are overwhelming. The instructor could help students to manage their time by dividing the assignments into smaller components. One student offered the idea that the course should “focus in on fewer topics with more elaborate

discussions” (Survey response to Student Q14). Another student requested that more “proctored exam time slots” be provided (Survey response to Student Q14).

Some students requested smaller classes to facilitate more interaction between students in the class. Others recommended having more organized discussions that are easy to navigate. For example, one student suggested if the instructor asked students “to re-title comments and threads, instead of ‘re, re, re, re, re....’ then there would be a more logical flow to things, sort of like an outline” (Survey response to Student Q14). One student preferred to have a follow-up discussion to the initial posting. Another asked for instructors to supply more questions that guide students’ thinking, so they could make more meaningful contributions. However, in some cases when a question was offered, the instructor did not allow enough time for all students to contribute or post additional questions before moving on to other topics.

### *Students’ Thoughts, Feelings, and Questions about Online Courses at OSU*

Students in Question 15 were asked about their thoughts, feelings, and questions about online courses at OSU. In general, students appreciated the opportunities to further their educational goals by taking online courses. Specific responses to this question were varied and sometimes contradictory. Students had strong opinions about their online experiences.

Students who appreciated their online courses at OSU made statements, such as: “I enjoy them,” “they are wonderful!!!,” “they are great!!!!,” “they are a great

opportunity,” “I have had very good success with the online classes at OSU,” and “I am really enjoying taking online courses. I am looking forward to a long relationship with distance learning at OSU” (Survey response to Student Q15). In addition to these comments, the following students described their experiences, in detail:

- The organization and attention to detail that OSU faculty and staff has put [into] the online courses is exceptional. The professors have been top rate and I have learned so much. I recommend OSU any chance I get for their online degree programs. OSU has helped me to achieve a life long goal of getting my degree in a field that is not offered anywhere locally and the online courses have fit in nicely for an older student that also has family and work obligations. (Survey response to Student Q15)
- I think that OSU’s online course program is a really awesome thing, and I love it. I have been a student at OSU for a year now, and I am extremely happy with all of the classes I have taken, which have all been online. I actually feel like I am getting a better understanding of classes than when I went to [another university]. (Survey response to Student Q15)
- The most effective on-line classes I’ve taken at OSU included assigned readings, weekly/semi-weekly written lectures, and a discussion board where students were required to post original content based on lecture questions, as well as comment on the analysis of other students. (Survey response to Student Q15)

Some students felt that they learned more because they were allowed to work at their own pace instead of having to conform to an on-campus schedule. The online course flexibility allows students to work full/part-time and supports parents who stay at home with young children.

Some students commented that instructors took time to explain the expectations of the courses and provided “very clear lectures” and “well structured course curriculum that is easy to follow” (Survey response to Student Q15). Several

participants noted that online courses at OSU can help students finish their Bachelor's degrees and also allow high school students to earn credits if necessary. Students requested OSU to provide a greater variety of courses, so they can fulfill more of their requirements online. Several students asked for subjects, such as "math," "Spanish," "biology," "English and writing courses" (Survey response to Student Q15).

On the other hand, some students complained about their courses. The biggest complaints were that the instructions were complicated, and it was hard to understand the work requirements and assignments. A few instructors did not provide clear explanations of their grading system, and in addition, the textbook was not related to the class content. Another student asked for more flexibility from the instructor in "turning in the assignment," especially if there are extenuating circumstances (Survey response to Student Q15). In addition, several students seemed surprised at the amount of coursework that was involved in online courses. Some classes required too much reading and lots of weekly assignments. One individual requested OSU to possibly reduce "the sense of isolation," especially for students who live far away from campus (Survey response to Student Q15).

A number of students commented that they need as much access to their instructors as they do in traditional campus courses. One of them mentioned that the instructor "spits out all the assignments in the beginning and then rarely checks in with the class. We are left to fend for ourselves" (Survey response to Student Q15).

Another student stated the following:

the instructor assigned readings in a text and cut us loose, telling us to have all the assignments done before the end of the semester. This is okay on one level, but on another it discouraged timely discussions of material, fragmenting the class with people working on different assignments at different times. There was no sense of class continuity or camaraderie. (Survey response to Student Q15)

Some instructors did not take the time to provide sufficient feedback to students. For example, one student stated that “three word e-mails make it seem like the professor is too busy to be bother[ed] with trivial student communication” (Survey response to Student Q15). Another student stated that:

the instructor has been nearly, completely disengaged, [there was] very little direct instruction, absolutely no feedback so far on assignments, [and] no grades. Each test has been a blind effort with me hoping I’m getting this right, and still [I] have not heard back from instructor as to how I did on mid-terms, and finals are next week. The discussion board has been left to flounder. I’m an “A” student who makes an “A” effort and am concerned about what the outcome of this class may be. (Survey response to Student Q15)

A different student commented that the course seemed as if it were being run on “auto-pilot,” and “it feels disconnected/impersonal” (Survey response to Student Q15).

One student “had difficulty with the online exam. The computer did not seem to function smoothly. I noted this to the proctor and professor, but got no reason back” (Survey response to Student Q15). Another student pointed out that the multiple choice exams are not a strong indicator of student learning. In addition, an individual commented that the instructor required students to take the exams during the weekends, versus the week days, which can be difficult for some students who have commitments on the weekends.

There were some students who had complaints about the interaction on the discussion board. The students were required to just post answers to the discussion board questions without any further interaction with their instructors or classmates, which made it difficult to understand the content. Instructors should “use broader subject areas, to facilitate more natural student interaction. It’s hard to be original or stimulating when 20 people are writing about the same thing” (Survey response to Student Q15).

Online courses at OSU are very expensive and students find the cost unfair. One student wished “they were less expensive. I have two children and a part-time job. I would like to take more classes in this manner, but cannot afford it” (Survey response to Student Q15). Students appreciate the flexibility of the online course; however, having to pay considerably more than the traditional campus course can be a hardship. These expenses make online courses unaffordable for some students.

Another student wondered:

why online courses cost more than conventional courses; you would think without taking up an actual classroom they would be less expensive, or the same price if you wanted to offset the technology fees, which everyone is charged for with their tuition, anyway. (Survey response to Student Q15)

Two students commented on multiple errors that they found in their courses. One of the students suggested that the instructor’s materials should be:

reviewed by someone on the ‘outside.’ It should be mandatory that all content is current and up to date. If I had five dollars for every error I found on a web course, I’d be well on my way to paying off my student loans. (Survey response to Student Q15)

The same individual also pointed out that students will only work as hard as they feel the instructor of the course has been working.

### *Suggestions on How to Improve Online Courses at OSU*

The students in Question 16 were asked to provide some suggestions for improving online learning at OSU. Students' comments indicated they specifically valued the instructor's role and had many suggestions that instructors could implement in their courses. Students also provided a lot of general recommendations in other areas, such as course development, instruction, assessments, social interaction, and technology tools.

Students recommended that instructors ought to be highly knowledgeable in how to teach online. They should be "enthusiastic" and "available to their students" (Survey response to Student Q16). In addition, students should be able to contact their instructors easily and get rapid responses. One student requested that "ALL instructors participate in online discussions" and "check in occasionally to actually answer the questions" (Survey response to Student Q16). Another student suggested that OSU should "attract instructors who care about quality online courses, and it is critical to weed out those who do not" (Survey response to Student Q16). If multiple complaints have been made about the same course, "a change should be made immediately" (Survey response to Student Q16).

Instructors should be very clear about what is expected of the students. One student stated that the instructor needs “to be more dedicated to making the information they give more understandable” (Survey response to Student Q16). Another student recommended that instructors should design their courses to be accessible and easy to navigate. The student described this experience:

Oftentimes online classes can be very confusing, because there is no one there to help you or guide you. Also, the way that everything is set up is sometimes very difficult to figure out, making it so that you spend more time on figuring out how everything works and getting confused, [rather] than actually doing the course work. (Survey response to Student Q16)

In addition, one student stated the following:

It seems that [there should be] some sort of standardization within the framework of online courses: a minimum amount of time that the instructor is required to give to courses, instructor involvement with discussions, and as [much] immediate feedback as... possible would be great! Also, again, a variety of learning activities and styles make the material more engaging. (Survey response to Student Q16)

One student brought up the point that online instructors need “training on Blackboard and how to set up courses” because the course materials were not consistent between different locations and it made students not know what was expected of them (Survey response to Student Q16). Another student suggested:

Every web course [should be] set up the same as the one before it. No extra or added buttons in blackboard, no ‘outside’ web page that is actually where the student needs to go for information (I’m not talking about required reading, I mean professors setting up their own website for the forums, syllabus, etc). It would also be nice if professors could have Microsoft 2007 so that those of us who have updated [versions] don’t have to change formatting every time we want to turn something in. (Survey response to Student Q16)

In addition, instructors should be specific about prerequisite skills needed for the course. One student commented that a lack of proficient math skills caused a failing grade on the first test in a non-math course. The student could not drop the course because the deadline had passed by the time the exam scores had been posted.

Several students suggested having the instructors provide materials that accommodate different learning styles. Some students preferred using hard-copy materials because it is difficult to highlight or write notes on online materials and it is hard to look at the computer screen for long periods of time. On the other hand, one student requested having the materials available online because it would “simplify the learning process” (Survey response to Student Q16). In addition, another student made a request to “expand the online library and reference area” (Survey response to Student Q16).

Some students pointed out that there are some features on Blackboard that instructors did not utilize. One student suggested that “the POD Cast lecture feature would be helpful for providing course documents in audio format” (Survey response to Student Q16). Another student suggested having “live video chat or video lecture” because seeing instructors would be helpful (Survey response to Student Q16). This format will make the instructor “less ‘computerized’ and more ‘personal,’ not unlike a typical lecture course where students have the opportunity to learn with the instructor's personality” (Survey response to Student Q16). Another student asked for a change in using more up-to-date, technological formats. The student mentioned that “we watch[ed] VHS cassettes that were fuzzy and warped. I just don't understand how we

can pay so much for this educational experience and still have to use technology from the 1980's" (Survey response to Student Q16).

There was a request that students could work together in a group and have more interactions, or instructors could design smaller classes. One participant asked to have students introduce themselves on the discussion board because it gives "a better sense of class unity" (Survey response to Student Q16). In addition, a student wondered about the possibility of classes meeting once a week.

Some students requested having "practice quizzes" available and more "engaging activities centered [on] the course material" that focused on important concepts (Survey response to Student Q16). One student suggested that instructors utilize online testing more frequently. The student pointed out that "electronic scoring and delivery will make test taking more consistent and uniform" (Survey response to Student Q16). Another student asked for more opportunities to gain points that focused on "interactive online resources" rather than just using the textbooks (Survey response to Student Q16). One student felt that the workload in online courses was "very overbearing and hard to accomplish," compared to campus courses (Survey response to Student Q16). Students requested that the workload of online courses should not exceed that of campus courses.

One student commented that OSU should provide "more time slots available for proctored exams on campus" (Survey response to Student Q16). Another felt that a school as large as OSU should have a "full-time testing center" and locate it in "Valley

Library so that parents could utilize the drop-off childcare while they were taking exams” (Survey response to Student Q16).

Several students requested having technology that is user-friendly. One student pointed out that the ongoing improvement of Blackboard is necessary because there are still some technical glitches. Another student complained about the use of technology getting in the way of learning. The student pointed out that “things slow down or just stop” when too many students are using Blackboard at once (Survey response to Student Q16). Instructors should consider solutions that address students’ technological needs.

Some students suggested that OSU lower the tuition for the online courses and not charge extra for proctored exams. One student requested lowering the printing cost. Another student suggested that OSU should make the process of changing the classes easier. This student tried to change the classes during the second week, and by the fourth week, the change still had not happened, so the student stopped trying.

Many students recommended that OSU should add more courses and majors online. This broader variety would help students to finish their requirements for their degrees, assist students who do not have access to the campus, and allow students who work and have family responsibilities to continue their education. One student suggested that OSU should require students to take at least one online course. This experience will help students to “learn in a different way and gets them use[d] to online classes before they take a class in their major that can have a large effect on their grades” (Survey response to Student Q16).

## Non-Participant Observation

There were 29 courses involved in this study. The researcher observed the activity and course design in the Blackboard environment using the Non-Participant Observation instrument in order to record a variety of standards. The observations were based on criteria developed to measure effective online courses, which include Instructional Design and Delivery, Student Learning Outcomes, Assessments, Student Empowerment, Social Presence, Critical Thinking Skills, and Alignment standards. The data from the *Student Reflection Survey* was analyzed in relation to the researcher's observations.

The researcher examined each course individually, including design elements, the syllabus, assignments, assessments, and discussion board environment. The researcher also read the students' responses to the *Student Reflection Survey* and then re-examined each course's Blackboard environment to assess internal validity. For the most part, the students appeared to answer the questions conscientiously. Many of them responded to at least a few of the open-ended questions. Student responses tended to be influenced by their overall perception of the course. For example, if students reported being happy with the subject matter and that they understood course requirements, they tended to overlook their instructor's lack of participation in discussions.

There were several students who reported being extremely happy with the course, but who also made note of their instructor's weaknesses. Students who

reported that they were taking a required class, which they did not want to take, tended to be more critical of all course elements. In addition, there were two students whose open-ended responses tended to chastise everyone from their instructors to all their fellow students and revealed some extreme animosity and internal conflict. Nonetheless, their answers remain within the statistical analysis of this study. A few students also reported feeling that they felt uncomfortable expressing their opinions; however, even after reexamining the relevant discussions, the researcher could see no evidence of external pressure being applied.

Non-participant observations provided a unique opportunity to assess Instructional Design and Delivery, Student Learning Outcomes, Assessments, Student Empowerment, Social Presence, Critical Thinking Skills, and Alignment in a discrete manner. These same elements were evaluated in the instructors and students surveys.

### *Instructional Design and Delivery*

In evaluating the criterion for Instructional Design and Delivery, the syllabi used by the online instructors made use of the basic elements of up-to-date course design, including course objectives, grading scale, requirements, instructor information, announcements, assignments, schedule, university policy, required material, and additional resources. The online classes revealed a variety of organizational designs, and the instructors utilized various navigational links and communication tools. Instructors used the same navigational links to access a wide

variety of different materials. For example, a syllabus could be located by clicking various navigation buttons labeled Course Documents, Course Information, or Syllabus. In some other courses, the syllabus was not found in an obvious location. Even though there was a logically named Syllabus button, it often linked to a host of other materials. In addition, some instructors placed newer material at the top while others placed it at the bottom, which is the default setting. Still other instructors rotated the material, so that current content was at the top while material from the recent past was at the bottom. This wide variety of organizational styles can be confusing for the students, unless instructors explain their course's organization and layout.

Blackboard comes with a set of default navigation buttons, which can be easily modified to suit any course design with a little bit of trial and error. Unused navigation buttons should be removed; thus if instructors decide not to use the announcement section (this is not recommended), they should remove the button and change the course's default entry point. Instructors should take the time to peruse Blackboard layout before entering their class material and once again after their class material has been uploaded in order to check for internal consistency and logical design. For example, instructor introductions should precede the syllabus, the syllabus should precede the weekly course material, course material should precede assignment details, and tutorials should precede assignments.

Other basic course design issues can also play a role in ensuring that courses are student friendly. Instructors should provide a list of all technical and software

requirements in one of the initial course pages, which should be accompanied by links, so that students can download the required software. Additionally, syllabi and other course materials should be available in more than one format, such as HTML, PDF, or even RTF. Students can easily print the material using Word, PDF, and RTF, while HTML can provide easy visual online access. HTML attachments all too often run the full width of Blackboard and thus are difficult to read. This problem can be overcome by using Word's increase indent feature; nonetheless, except in the case of long documents, it is probably best to reserve attachments for Word, PDF and RTF documents and to use HTML to enable students to read material without clicking a link. Furthermore, multiple levels of attachments, which require students to click through more than two links to read course materials, should be avoided when possible.

Many of the online courses were designed with some supplemental visual and auditory media to enhance student learning, although not as much as the students would like. Few instructors developed and made use of their own video or audiotaped lectures; many of the students expressed an interest in hearing their instructors speak. The Podcast facility was virtually unused. Approximately 55% of the instructors provided lectures written for their course, but this written material did not seem to meet students' needs. Very few instructors made use of the virtual classroom or chat, even though many students requested more direct interaction with their instructors.

Instructors were remarkably inconsistent in their use of the Announcement section. Blackboard's default setting makes the Announcement section the first screen

that students see when they log in. This feature of Blackboard makes the design and use of the Announcement section extremely important. A course can seem unwelcoming if the opening page is blank. Approximately 86% of the courses took advantage of the announcement section to welcome students and to keep them apprised of upcoming assignments, additional resources, or local events. An even lower percentage of the instructors actively used the announcement feature to update the course and ensure that students felt the instructors' ongoing participation. Some Announcement sections included announcements from earlier terms, some were clearly not related to the current term, while others appeared to be the welcoming announcement, despite their date. Instructors have the ability to control the duration of announcements; however, many did not exert this control.

### *Student Learning Outcomes*

Instructors used a variety of methods for stating student learning outcomes. According to Lamley (2005) student learning outcomes are the clearly stated “skills, knowledge, or understandings the students will have by the end of the course” (Backwards Design section, para. 2). However, in some courses instructors used the term's *Course Objectives* and *Student Learning Outcomes* synonymously without making a distinction between the two concepts. The *Course Objectives* usually delineated what was to be covered during the course and did not list the skills that students would obtain by the end of the course. Lamley pointed out that “the

difference is that a learning outcome does *not* state that the student will *learn* to do what [instructors] are teaching” (Backwards Design section, para. 2). Despite potentially confusing headers, student learning outcomes were easily discernable, a conclusion that was supported by student responses to the questionnaire. The instructors had a tendency to focus on Bloom’s Taxonomic levels, rather than on specific measurable skills, especially the two low-level categories of knowledge and comprehension. In some courses, the measurable components were located in the descriptions of specific assignments. Even in courses where student learning outcomes were enumerated in more than one section of the syllabi, students reported that they were clear about student outcomes and class requirements.

In most cases, the required tasks were clearly defined and written in a language understandable to the students. When the outcomes were defined using obtuse language, the students were more likely to react negatively than when the outcomes were more simply stated, even if they were located in several sections of the syllabus. Most instructors divided the work schedule into weekly lessons and provided reasonable time frames to complete the work. Few instructors included weekly/chapter outcomes in their courses. The researcher looked at online courses at a variety of different levels; in general the 100-level courses used terminology indicating lower level knowledge than that of the 400-level courses. Although a few instructors noted that despite the relatively high level of a course, they anticipated that the students would have had no background in the subject and thus that the course was really at an introductory level.

The researcher noticed several courses that made use of jargon or difficult terminology to describe assignments, which was explained only after repeated use. In a couple of cases, students needed to use the discussion board to ask for basic information about assignments because the syllabus was unclear.

### *Assessment*

The courses under observation made use of many different assessment methodologies; these included multiple choice proctored and unproctored exams, discussion board participation, short and long essays, and their revisions, field work and projects, collaborative projects, and audio exams. The multiple choice exams presented the students with numerous problems. Students complained about the proctored exams for several reasons: locally students had trouble scheduling the exam time while students off campus complained of trouble finding a proctor and of additional fees. The unproctored multiple choice exams with strict time limits presented difficulties for students with slower connections. Students also reported being dissatisfied with exams that appeared to be produced by the book publisher.

Submitting essays presented students with a different series of difficulties; although again, students faced some technical problems. Some students reported not understanding the basics of submitting via Blackboard's Upload Assignment tool. Instructors made this complaint credible by posting the instructions subsequent to posting the Upload Assignment tool. In addition, few instructors posted the questions

as a component of the Upload Assignment tool. Furthermore, there was confusion because some instructors required assignments to be submitted as attachments while others required assignments to be submitted within the form. Because all course requirements for online courses are written, it is important for instructors to be consistent in their descriptions of assignment requirements.

Requirements surrounding participation in the discussion boards had the greatest degree of variation; requirements varied from minimal use of the discussion board to full participation as an essential component of the course. Furthermore, instructors had individually established specific requirements for assessing students' posts; thus classes had widely varied posting requirements. For example, students might be required to start new threads in one class while in others they might be forbidden to start new threads; some courses required students to initiate a specific number of comments and to post a specific number of replies to their classmates' posts. In other cases, students' posts were required to exceed a specified length. In some cases, participation was voluntary or a means of earning extra credit. In addition, introductory posts were often mandatory, but not graded, and a few courses even included an ungraded trial thread. Participation in discussion boards could thus require an enormous amount of time and effort, especially in a large class. Therefore, it was not surprising that discussion board requirements produced a great deal of dissatisfaction as reported in the *Student Reflection Survey*. Students mentioned a wide variety of problems from the discussion boards being too labor intensive, to uninspiring and uninformative. In addition, students complained when instructors did

not actively participate. Instructors made very little use of the discussion boards as a method of providing students with assessment and feedback. Instructors may hesitate to provide feedback in the discussion boards because they do not want to call attention to mistakes or to humiliate students. Through observation, however, it appeared that students appreciated feedback and instructor participation, and student exchange of ideas continued unabated after instructors posted an interjection.

In some cases, participation in the discussion boards clearly required a disproportionate amount of time, which some students found especially irritating because student posts did not provide as much quality information as time spent reading books or journal articles. On the *Student Reflection Survey*, in addition to complaints about discussions, students reported some complaints about difficulty level of assignments; students complained that practice quizzes designed by textbook makers bore very little resemblance to the exams designed by their instructors. The frequency of assignments varied a great deal between courses, but for the most part, students did not find this problematic. There were a few comments requesting more frequent assignments that would provide additional feedback.

Students also made what seemed to me as an observer to be unfair complaints about some required assignments, which they argued were a waste of time. To me as an observer they simply did not appear to have matched the students' learning styles. Some students requested more collaborative assignments while others found the group assignments counter productive. Assignments that required students to interact with

people face-to-face received considerable disparagement, couched in terms that suggested that the assignments were useless.

### *Student Empowerment*

In general, the online teachers accepted the theoretical precept that student empowerment was conducive to a good education. Courses under observation employed various methods to allow student empowerment, not all of which were equally effective. Some online instructors provided students with course materials and asked students to take responsibility for their own learning by reading and studying the material; some students appreciated this approach. Other instructors took a more active role in facilitating student empowerment. For example, students were provided an opportunity to devise a code of conduct for online communication; students were encouraged to develop their own threads where they could maintain control and express themselves; students were allowed to choose between different assignments, and in many cases, within parameters, students chose their own topics for papers and projects; students had the opportunity to negotiate their final grades.

Opportunities to share background were influenced by course content, so that in some courses students had virtually no chance to discuss their life experiences. Furthermore, in a few courses the discussion board was entirely silent after introductory posts. Interestingly, students in courses that addressed sensitive topics were more likely to report having no chance to discuss their background than students

in classes that made no use of the discussion board. Further, in courses that touched on politically sensitive issues, students were inclined to self-censor and to report feeling unempowered, even if their comments were not externally restricted. Instructors also empowered students by asking for input and corrections in discussion threads, which allowed students to actively contribute to other students' learning. On the other hand, instructors could restrict empowerment by over-active participation within the discussion forum, so that students did not actively engage one another.

### *Social Presence*

While some students complained about the amount of time required by Blackboard discussion, many also appreciated the opportunity it afforded them for self-expression. All of the courses under observation encouraged students to introduce themselves, in an attempt to give students social presence. Almost immediately from the initial posts, the amount of interaction varied between classes; the type and length of posts also varied substantially among classes. It appears that the initial student's post creates a model that others follow. Frequently, if the first post was short, subsequent posts were also short. If instructors wish to encourage long, self-revealing introductions, their introduction can serve as a model. Instructor introductions can also serve to give students a sense of their personality and style, which in a traditional classroom students pick up on the first day of the class. Although students reported

that they wanted a sense of their instructor and wanted their instructor to participate in the discussions, care must be taken that instructors do not monopolize the limelight.

A few courses required no discussion posts after the initial introduction, which denied students an opportunity to create a sense of a community. Despite a lack of incentive to post, in some courses, the discussion board was successfully used to discuss course mechanics. In some courses, especially where discussion, or responses, were not required, there was very little discussion of students' initial posts. Some topics were sensitive, so students may have felt uncomfortable making their presence felt.

There was a triangulation of interaction between instructors and students: when instructors participated in the discussion, both answering and asking questions, the discussion is most likely to be engaging and productive. Discussion interaction included various forms of conversation, such as questions posed by either instructors or students, student inquiries or analysis of topics of interest, followed by student or instructor suggestions. Sometimes student analysis was followed by simple statements of agreement or disagreement; however, expressions of disagreement, except in matters of fact, were almost universally expanded with an explanation. Some discussions functioned more like class lectures in which students grappled with complex ideas. In these discussions, the instructor could be an extremely active participant and the discussion might appear to be too instructor centered; however, the students found this extra help with complicated concepts very useful. The students who participated in these types of discussions reported very positive responses to the

social presence questions on the *Student Reflection Survey*. On the other hand, in courses where students were not required to post more than an introduction, or were not required to respond to other students' comments, students reported less positive reactions to social presence questions on the *Student Reflection Survey*.

There were some strategies for encouraging social presence, which were not used effectively by many instructors. None of the instructors, even those with large classes, chose to divide discussions into smaller groups to facilitate student participation and to ensure that reading the discussion board remained a manageable task. Moreover, collaborative assignments were also virtually absent from the courses under observation. Collaborative assignments could be used to give students a chance to share ideas, build social presence, and process information within student-centered groups. These assignments could include virtually any of the kinds of work done in traditional classroom groups, and in addition, online groups could be used to critique and analyze student work.

### *Critical Thinking Skills*

It is difficult to assess the critical thinking requirements for many of the courses included in this study because most instructors focused on Bloom's Taxonomic levels, rather than on specific measurable skills. Furthermore, instructors and students expressed considerable diversity in their opinions about whether their courses required problem solving skills. In addition, although the researcher could

observe discussion posts, the researcher did not have access to instructors' evaluations of student posts or feedback via email to individual students, making assessment of the importance of critical thinking difficult. Nonetheless, by reading discussions it was possible to trace students' critical thinking through discussions. It appeared that students made use of in-depth thinking and analysis more frequently than problem solving. Even in courses that instructors rated low in terms of problem solving, it was possible to watch students pose and solve problems.

In their comments and discussions, instructors modeled critical thinking and encouraged problem solving. Instructors modeled critical thinking using multiple methods. In some cases, instructors demonstrated grasping at far flung conclusions in order to push students to in-depth thinking and analysis; in other cases, instructors modeled reserved and critical thinking behavior, in order to rein students in and to encourage them to focus for an in-depth analysis. A few instructors did very little to model critical thinking; indeed a few instructors were virtually absent from the discussions. A few others were active participants, but their participation did not seem to stifle student participation or critical thinking.

Some of the courses observed in this research involved teaching an introduction to specialized material, which could be difficult to analyze because it required critical thinking based on specialized knowledge that the researcher does not have. In addition, assessment in several classes was based primarily on multiple choice exams, a kind of question that can limit assessment of critical thinking. Moreover, because of the restricted and time sensitive nature of multiple choice

questions, the researcher could not view them to analyze their potential to evaluate critical thinking. Despite these weaknesses, it appears that many courses involved in this study could serve as good models for encouraging students to think critically.

### *Alignment*

Without exception, the instructors attempted to make their courses relevant to their students' lives and to align the content with both the students' needs and interests. The instructors' concern for their students needs was reflected in the students' responses to the survey: more than 40% of the respondents chose to describe the courses' alignment with the *Strongly Agree* option on the *Student Reflection Survey*.

Although both instructors and students indicated that students had little input into student grades, many instructors provided students with considerable choice and control over assignments. In most class discussion boards, students were allowed and encouraged to pose their own questions as well as to respond to issues and questions posed by their instructors. Most of the discussions were student driven, so that discussions typically met student concerns. Nevertheless, discussions also received a great deal of complaint both for being excessively time consuming and for being shallow and unproductive.

Many instructors gave students considerable leeway in choosing the topic for papers. In addition, several courses required students to briefly summarize and analyze

course materials. In the process of analyzing their readings, students had the opportunity to focus on the points they found most relevant and interesting. Further, several instructors provided students with four assignments, but required only three to be completed. In a like manner, several instructors also provided students with a choice between projects with distinctly different flavors, which would appeal to students with very different learning styles.

In conclusion, the researcher noticed that instructors who conveyed a sense of their own personality and style in the course design and layout were more effective. Instructors who used an appropriate sense of humor, engaging terminology, interesting media presentations or lectures, or who used a simple face-to-face style of communication to give their students a sense of who they were, received positive comments. This does not mean that instructors need to be entertainers; they merely need to be genuinely themselves. Students appreciated the honesty of instructors who were effective in communication with them; consequently, the students were more likely to report understanding assignments and course outcomes and to feel more comfortable expressing their own points of view.

## DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

This study was developed to evaluate the effectiveness of online courses based on the theory of critical pedagogy. Five questions were investigated to determine the validity of an assessment tool based on critical pedagogy and to measure the effectiveness of online courses. The researcher, using a specially designed survey, measured instructor and student perceptions of their courses' inclusion of seven criteria central to critical pedagogy. This chapter provides an overview of the research findings, in addition to a summary and interpretations of research results. It also includes an overview of recommendations for educators as well as suggestions for further research.

The research was conducted by looking at online courses offered by the College of Liberal Arts at OSU in 2007. Both quantitative and qualitative data were collected; undergraduate students and faculty in a wide range of courses were surveyed. The faculty response rate was 47.5% and the student response rate was 24%. Qualitative data was gathered by including open-ended questions in the survey as well as researcher observation of course interaction on Blackboard.

Results from the descriptive portion of the survey showed that the respondents were relatively representative of OSU's Ecampus enrollment. The data from Ecampus as well as from this survey suggests that online classes are predominantly female, which is interesting because traditional OSU classes have a slightly higher percentage of male than female students. However, the average respondents to this survey were

less diverse than reported by Ecampus for the College of Liberal Arts. Furthermore, the respondents to this survey are considerably younger than for Ecampus as a whole.

### Discussion and Interpretation of the Findings

Based on the literature review, seven essential criteria were established for assessing the quality of online courses. Successful courses must include effective Instructional Design and Delivery, Student Learning Outcomes, Assessments, Student Empowerment, Social Presence, Critical Thinking Skills, and Alignment. Students and instructors were asked to assess the presence of these criteria. In general, the results of the surveys showed a high degree of consensus between instructors and students. Quantitative data in the form of Likert scale survey results was analyzed using consensus and targeted consensus measurements. These results were examined in light of responses to open-ended questions in conjunction with observations made by the researcher. This combination of data analysis methods proved very helpful for explaining points where consensus was low between instructors and students.

The Likert scale portion of the survey included 21 statements, three for each of the seven criteria. The raw data was analyzed in four phases. In the first phase, individual responses were scrutinized in terms of intrapersonal consensus, meaning the degree to which individuals scored similarly in each of the three statements pertaining to one criterion. The second step was to calculate how close an individual response was to *Strongly Agree*, the targeted score for agreement. After each individual

response was analyzed, the second phase calculated the median student score for each class, so that teacher and student responses could be compared.

The data was further organized by department and college level. When the data was organized by department level, it was possible to see some variation in scores. Some of the variation was due to classes that experienced technical or other difficulties, but some of the variation was due to outstanding teachers and what appears to be a departmental commitment to well-designed courses. Departments that relied heavily on multiple choice exams also received scores further from the targeted agreement score. When organized at the college level, the one factor that immediately stands out is the teachers' lack of consensus regarding the criteria of Empowerment and less significantly the criterion of Social Presence.

The data from the survey was gathered and organized, and teacher and student responses were compared using the Sign test to determine the relationship between student and teacher responses. The results showed that teachers and students were largely in agreement, although teachers rated their courses as being more in alignment than the students' ratings indicated. The difference, however, was not statistically significant.

Next, correlations between individual criteria were examined. The results of the student survey showed that the seven criteria measured by the surveys were positively correlated. From the student survey perspective, the presence of each of the essential components of critical pedagogy was interrelated. However, when instructor responses were examined for correlations between individual criteria, the correlations

appear quite different from those of student responses. For the most part, the correlations demonstrated between the criteria were not statistically significant. However, four comparisons showed a negative correlation between Instructional Design and Delivery, and Student Empowerment (1 vs. 4), and Student Learning Outcomes when compared with three other criteria, Assessments, Student Empowerment, and Social Presence (2 vs. 3), (2 vs. 4), (2 vs. 5). While these negative correlations are interesting, it is important to remember that the results were not statistically significant. These negative correlations seen by the teachers, but not by the students, between essential criteria suggest that teachers do not know how their teaching is received by the students. So it is not surprising that when asked about current course assessment tools, many instructors admitted dissatisfaction. In contrast, instructor responses about Critical Thinking and Alignment demonstrated a statistically significant positive correlation.

The survey asked open-ended questions of students and instructors. These questions allowed participants to discuss a broad range of their feelings and ideas about online courses. The students and instructors were asked about the greatest benefits and drawbacks of online courses as well as the critical components of these courses. Both groups were also asked how teaching or learning online affected their working styles and how to improve online courses at OSU. Additionally, students were asked for recommendations for improving online classes, and instructors were asked if the process of teaching online caused them to re-evaluate traditional classroom teaching.

Faculty and students generally agreed about the greatest benefits of online courses. Survey results from both students and teachers stated that the greatest benefits, listed in order, are: flexibility, accessibility, student-centeredness, and encouragement of collaboration. These findings are the same as found in the literature reviews of Benbunan-Fich and Hiltz, (2003), Heydenrych (2000), Jona (2000), Needles (1999), Neuhauser, (2002), and Schrum and Hong (2002). In listing additional benefits, OSU students and teachers emphasized different aspects, but there was still a considerable overlap of ideas. Participants praised the flexibility of online classes and the opportunities provided for non-traditional students. Instructors felt that online courses gave the students greater contact with, and ownership of the material, while students appreciated their enhanced opportunities to be recognized and to participate.

In responding to the question about the drawbacks of online courses, students and teachers had strongly different perspectives and shared few points of agreement. They both agreed that lack of face-to-face interaction was the strongest disadvantage. Similar results were found in a study by Ehrlich (2002), which indicated that online students missed the interaction of face-to-face communication. Ehrlich pointed out that these students still “wanted to meet at the beginning of the course to meet each other and the instructor, and again at the end to share their completed projects” (p. 50). In addition, the OSU participants disagreed about the significance of the other three drawback options: time intensive, isolation, and lack of technological skills. Students complained about a broad range of problems with online courses, while teachers complained about a much narrower series of issues.

Some instructors suggested that students in online courses tend to be more irresponsible than those in traditional classes; if students are not required to sit in a classroom, they almost forget that they are taking a class. Illinois Online Network (2006) suggested that instructors give the students the opportunity to develop an online learning contract in order to take the responsibility of their learning. Learning contracts are “a formal agreement written by a learner which details what will be learned, how the learning will be accomplished, the period of time involved, and the specific evaluation criteria to be used in judging the completion of the learning” (Learning Contracts Section, para 1). Furthermore, the online format makes it more difficult for instructors to determine which students are most at risk. Few OSU instructors admitted that online technology was difficult for them, although they did feel that mastering the technology might be a problem for other teachers. The Collaborative Reading Education and Distance Education (2002) project pointed out that online instructors should “become comfortable enough with the technology to be able to answer students’ questions about its use and assist them when they run into difficulty” (p. 8). Some OSU instructors admitted that designing online classes was difficult and that online teaching was more time intensive than teaching a traditional class.

Students admitted that online courses could present problems because they require students to be more organized than face-to-face courses. In addition, students, like their faculty counterparts, felt that online courses were more labor intensive than traditional classes. Students also complained that much of the obligatory extra work

for online courses was unimportant busy work, which required little or no critical thinking. This complaint supports what Wright (2003) suggested for evaluating online courses. The author recommended that online activities should be “realistic and appropriate and can be performed with the resources” (p. 8). OSU online students also complained about course organization and design; they requested more organizational assistance from their instructors in addition to requesting a wider variety of information sources. Students were consistent in their requests for more audio lectures. Moreover, students wanted their instructors to actively participate. Despite instructors’ sense that technology would pose no problems for technologically savvy students, several students complained of technological problems. Cost was another issue that the students protested. Students paid twice the tuition charged for traditional courses, but received no extra services. These drawbacks decreased student motivation and produced dissatisfaction, which harm the students’ learning experience.

When asked to identify the critical components of an online course, students and instructors both described instructors as one of the most critical components of online courses. For students, the personality of their instructors and the quality of instruction pervaded every aspect of the course, while the instructors tended to only focus on specific elements of teaching.

For instructors, the critical components of an online course included actively engaged teachers who could motivate students. Many instructors emphasized that good course materials and clear instructions were essential because the instructor is not always present to guide students. In addition, instructors noted that active teacher-

driven discussion was as indispensable as technologically savvy students. For students, the primary critical component of an online class was an active teacher. The critical components students mentioned included an instructor who is interested, organized, passionate, and flexible. A good teacher provides clear expectations, is actively engaged and gives immediate feedback, and offers opportunities for reading, discussion, and writing, and is devoted to the class. Students also mentioned that communication, meaningful course work, and a well-organized design were important components of an effective online class. Clearly for students, the teacher is the most important factor contributing to a positive learning experience. Ehrlich (2002) indicated that the roles of instructors are “tied to social interactions and include recognition, greeting students, soliciting comments, prompting, opening discussions, and setting norms and agendas” (p. 52).

Students and instructors both reported that online classes had some effect on their working styles; however, the percentage of teachers who reported an impact was substantially higher. A large majority of teachers, 76%, said teaching online has had an impact on their teaching styles. For the most part, the instructors were positive about the changes they had noticed in their teaching styles. They felt that online courses provided for more and better communication with their students, allowed more diversity of materials than traditional classrooms, and allowed a more relaxed style than working in on-site classrooms. Additionally, instructors noted that, like the students, they appreciated the slower pace of online courses that gave them time to be thoughtful in their responses.

Fewer students reported that online classes had changed their working style, but by and large, those students who reported a change felt that it was positive. Students who felt the change was negative complained of time-intensive classes and some students felt that the lack of connection with their instructors left them without an understanding of the course direction. Ehrlich (2002) found that online students “were most concerned with their relationship with the instructor; students stated that they could more easily develop a relationship with an instructor in a face-to-face setting” (p. 52). Some OSU students reported that online courses forced them to be more independent and self-reliant. Students also suggested that online courses allowed for additional opportunities to communicate with one another and to reflect on their discussions.

When teachers were asked for suggestions on how to improve online courses at OSU, their answers focused on methods for their training and problems with OSU’s virtual learning environment, Blackboard. A few instructors admitted that they had no advice because they were still trying to figure out what worked in their own classes. Many teachers complained about their training, or their lack of training for working on Blackboard. They felt Ecampus’ training was not very helpful, and worse yet, Blackboard was not very intuitive. In addition, they asked that Ecampus assist instructors by providing students with technical support and reminding them to stay on track. This request was supported by Palloff and Pratt (2001) in their emphasis on developing a strong relationship between students and the institutions in which they enrolled. The authors pointed out that “issues such as ease of registration, integration

of admission, functions, access to library, and access to advising all must be addressed by the institution in order to effectively retain online students in courses and programs” (p. 2). In addition, Palloff and Pratt argued that “if a solid connection is forged with the institution through the provision of services at a distance, students will be more likely to stay on their online courses and programs” (p. 2).

Instructors were also questioned about how teaching online influenced their teaching in a traditional classroom setting. A small majority, 52%, of teachers reported that teaching online had affected their teaching style. Several teachers reported that teaching online required them to design more organized course materials. For the most part, teachers who commented on the effect working online had on their traditional classes, wrote positively about the role their online work played in encouraging them to re-evaluate their teaching. The procedure of teaching online prompted one instructor to rethink the entire assessment process because of the freedom in online interactions: “interested students learn better because they are not under mental pressure to perform (or fail); but the majority take that as a free ride and abuse the academic freedom” (Survey response to Instructor Q11). Although working online encouraged positive re-evaluation, it is nothing new, as one instructor wrote: “I constantly revise my teaching technique and try to stay on top of research on effective teaching and assessment techniques. It would be difficult for me to attribute this just to my teaching online” (Survey response to Instructor Q11).

Several instructors reported that working online gave them insight into the positive contribution student-to-student communication can make to an effective

course. One instructor went so far as to say that she will be using Blackboard discussions with her traditional classes, and another said he would use free writing assignments in his traditional class. Teachers also reported that they appreciated the diversity of media online and will incorporate more variety into their traditional classes. In addition, instructors felt that working online made them more aware of online resources, which were helpful in traditional classes. Herrington et al. (2001) commented that online resources should:

reflect a rich variety of perspectives to give students the opportunity to judge the merit of different positions, rather than be given a single (the teacher's) viewpoint. Such resources enable learners to access a range of expert opinion from the original source, if possible, rather than through secondary sources. Materials reflect the interests of sometimes marginalized groups, and they demonstrate social, cultural and gender inclusivity. (p. 268)

Students were asked two separate questions; they were asked for suggestions on how to improve online courses in general and, more specifically, how to improve their current online course. Further, students were asked more generally about their thoughts and feelings about their online learning at OSU. Student responses to the general question were largely positive except about the matter of cost. Many students felt Ecampus courses were overpriced and that an important improvement would be to reduce the cost.

Student responses to the three questions showed a great deal of overlap. Of the three questions, the answers to “what other thoughts, feelings, or questions do you have about online courses at OSU” were the most diverse. Strikingly, in all three of the questions, students focused on the importance of their instructors. They repeatedly

praised active, enthusiastic teachers and condemned teachers who were not actively engaged in course discussions. Herrington et al. (2001) pointed out that the “teacher’s role becomes one of coach rather than instructor. The teacher facilitates at the metacognitive level, rather than providing solutions to students’ problems” (p. 267). In response to the question on improving their current class, students were quite specific. They requested flexibility in assignments and discussions, and engaging teachers. Students also requested better study guides, clear instructions, and printed books.

Students also responded to a question on how to improve OSU online courses. They requested active teachers who provide clear instructions, and who design courses to accommodate students with various learning styles. Students suggested that teachers engage students with a broader range of media, especially live video lectures, which motivate students as well as provide insight into their teacher’s personality. In addition, students made more general suggestions about how OSU should improve Ecampus courses. For example, one student recommended that all classes receiving two complaints should be investigated. Further, students suggested that OSU should provide better teacher training, more proctored test openings, and that Blackboard should be standardized. And on a more positive note, students asked for Ecampus courses in more subjects.

Students offered both positive and negative comments. Students said Ecampus classes were fantastic, well organized and a positive experience because students were able to work at their own pace. Students also complained that Ecampus courses were

much too expensive and did not provide sufficient flexibility. In addition, students reported on bad exam experiences and unpleasant and disorganized discussion environments. The students obviously took these questions seriously. They considered the larger picture and provided some interesting insights for improving OSU's online courses; however, for students, it is clear that their instructors are the key to a successful online learning experience.

### Recommendations

The negative aspects of online learning, including lack of motivation (Ekong & Jerry, 2004), impersonal environment (Schrum & Hong, 2002), and lack of technological skill (Willging & Johnson, 2004), are well known; however, this research study found that online instructors underestimated some of the negative features of online learning. Instructors need to develop alternative strategies to compensate for the lack of face-to-face communication inherent in the nature of the online format. Students found interpreting teacher instructions much more difficult without the visual component of communication. When teaching online, one needs to be more organized, more consistent, and outgoing than when teaching in a traditional classroom where students can immediately request assistance when confused. Based on the findings of this study, the researcher recommends implementation of the following to improve online learning:

1. Personalize course lectures, assignments, and assessments as much as possible and avoid relying on course materials produced by textbook companies. The material produced by textbook companies tends to follow the old philosophy that “education equals the transmission of information,” which Jona (2000, p. 1) pointed out is not effective. “People learn most effectively while in the pursuit of specific, authentic, intrinsic goals,” so classes are most effective when teachers design them to fit the needs of their students (Jona, pp. 1-2). Personalization of courses makes students value them. It connects students to their instructors, and gives them confidence that the assessments will be aligned with concepts learned in the courses. In addition, Morris and Zuluaga (2003) suggested that when teachers use previously designed “examples and explanations [they] generally need to be customised for individual students” (p. 361).

In addition, online courses must be well designed and coherently aligned, so that students can easily interpret the teacher’s intention and understand the course design. Some OSU students requested a standardized course design, but Jona (2000) pointed out that “not all courses fit the same design mold” (p. 13). In addition, the author argued that “some courses can be delivered effectively with students working individually; other courses rely more critically on collaboration and teamwork among learners” (p. 13).

2. Provide faculty training for online teaching and especially how to design courses to work on the Blackboard platform. Instructors need to know how to logically customize the Blackboard environment. New instructors should be offered mandatory training

and the chance to communicate with other online instructors and to observe other classes. This is especially important because many teachers working online have never taken an online class. Once teachers have been exposed to other online course models and are trained to design courses to effectively use Blackboard, they can assist their students. Palloff and Pratt (2001) pointed out that one “cannot expect that students will simply know how to learn online or that faculty will know how to teach in this environment. Training for both is essential” (p. 3).

3. Provide students a forum where they can communicate with one another and feel a part of a learning community. This community can help to prevent feelings of isolation, provide opportunities to answer questions, and allow students to consider other viewpoints. Ehrlich (2002) provided examples of creating a sense of community in an online environment. Ehrlich found that building a community “began with online introductions with optional photographs,” with increasingly difficult conversations to get the students involved (p. 51). In addition, the author “found that unless students were required to interact, many students initially chose not to do so because they didn’t see the online discussions as an actual part of class... Students felt if they participated in class they did not need to engage in online discussion” (p. 51). The Collaborative Reading Education and Distance Education (2002) project recommended that students must also have training: “if the institution does not provide an orientation course for students, an instructor can include some tips and guidelines for success on the course site” (p. 9). Students need to know that discussion participation is an integral part of the class.

4. Collaborate with other faculty members to establish some consistent design elements within departmental courses. For instance, instructors could agree on using the same basic navigation buttons on the menu bar so students can locate materials and navigate the course easily. At a minimum students should know that they will always find a detailed description of the course's Blackboard design in the Announcement section. This would save time, and offer uniformity and predictability for students. Ehrlich (2002) pointed out that online instructors need to address the issues of "navigating through the course schedule, handling problems with technology, and dealing with system difficulties" (p. 49). Moreover, the course should be designed so that weekly readings and assignments have consistent headers in order that each can be easily recognized. In addition, Ehrlich noted that 90% of student participants suggested that "additional orientation and hands-on experience should be part of any online course" (p. 49). Students should not have to follow links for the due dates for some assignments, but not for others. In addition, assignments should be provided in multiple formats, for students who do not have Word or other specific programs, so that students can focus on the content rather than trying to decipher material.

5. Offer a wide variety of informational sources and technological tools to suit the different learning styles of the students. In addition to textual materials, students requested more video lectures, audio materials, and video conferencing. Wright (2003) suggested that "various learning resources are used to ensure compatibility with learners' different interests, abilities, and learning styles" (p. 8).

6. Develop strong relationships with students by using an array of communication techniques. For example, instructors could offer frequent feedback on assignments, participate actively in the discussion board, answer students' questions, and provide immediate assistance when students experience difficulties. Palloff and Pratt (2001) stated that an "online student seeks to engage with faculty in a more collaborative learning partnership resulting in the achievement of their learning objectives" (p. 2). Teachers should make use of this desire by fostering communication.
7. Decrease the cost of online courses or explain to students why these courses are more expensive than traditional courses. The extra expense discourages some students from taking online courses, especially when they are not presented with a rationale for the higher cost. The higher cost of online courses is totally contradictory to what Jona (2000) suggested in her study. She stated that online learning offers "the ability to be deployed more conveniently and cost-effectively for large numbers of learners throughout a university or corporation" (p. 5).
8. Plan engaging and interactive activities that use available resources and allow students to work independently and in group settings. The Collaborative Reading Education and Distance Education (2002) project suggested that successful instructors encourage collaborative learning through "small group assignments, case studies, simulations, and group discussion of readings and assignments" (p. 8). In addition, OSU students requested more online courses in a wider range of subject matter so that students can fulfill their interests, as well as meet requirements of their degrees. Furthermore, it is important to offer the opportunity for students to choose from a

variety of assignments that fit personal learning styles. This power of choice can help to increase students' motivation for learning.

### Recommendations for Further Study

- 1- Construct a study with a larger population of online participants on a university, national, or international scale. Apply long-term research within the same college/department across multiple universities.
- 2- Create a study that focuses on factors that improve the Instructional Design and Delivery of online classes. Examine the consistency of instructional design within a single course and/or across various courses within a university.
- 3- Design a study that engages researchers in collaborating with faculty members who are knowledgeable in the subjects of study and/or in teaching these subjects. This collaboration can help the researchers make reliable observations and increase the validity of the findings.
- 4- Create open-ended questions directly connected to the seven criteria of effectiveness. These questions will help the researcher gain a broader perspective of the participants' thoughts related to the criteria established for this study.

## CONCLUSIONS

Investigating the importance of seven essential components of critical pedagogy to online learning at Oregon State University's College of Liberal Arts was a productive venture. The project successfully obtained insight from instructors and students, and discovered the similarities and differences between their perceptions of online learning at OSU. An interesting conclusion of this project was that the effectiveness of a course can best be measured by examining teacher and student perspectives in conjunction with the observation of a non-participant researcher.

In the college overview, the responses to the 21 Likert statements by students and teachers were largely in agreement and appear remarkably similar. It is only when viewing the data in much greater detail that the disparities become apparent. All criteria were evaluated at or above 83% of *Strongly Agree*. The criteria of Empowerment, Instructional Design and Delivery, and Alignment received the lowest student ratings.

The analysis of student responses to close-ended statements provided statistically significant evidence of strong positive correlation among the seven criteria of effectiveness. In contrast, the instructor responses showed correlations that were not statistically significant, except those found in the paired-comparison between Critical Thinking and Alignment. In addition, the instructor responses to the seven criteria revealed a negative correlation in the comparisons between Instructional Design and

Delivery and Student Empowerment, and Student Learning Outcomes compared with three other criteria: Assessments, Student Empowerment, and Social Presence.

The open-ended questions allowed participants to provide valuable and practical insights from their experience of online learning. Some of these insights include the greatest online benefits and drawbacks, effects of online teaching and learning styles, critical components of successful web courses, and recommendations of how to improve online learning. Generally, students requested an active instructor who participates effectively in the discussion board, provides a variety of informational resources, and implements a structured and logical course design. Instructors requested faculty training and support, fair monetary compensations, and improved assessment tools.

In addition, non-participant researcher observations were used to collect data and ensure the validity of the participant responses. The researcher was able to observe behaviors and assess course design in the Blackboard environment without interfering with the process. By observing the interactions in Blackboard between the students and between the students and their instructors, the researcher gained a wider understanding of the context of the study. The information was gathered and recorded on the Non-Participant Observation Instrument. This instrument was formatted to correlate with each criterion in the survey. The researcher learned that successful online courses have instructors who provide a user-friendly course design, incorporate creative teaching techniques, present a variety of digital media, encourage collaborations, and help attain the sense of a learning community.

In conclusion, this research can further define the effectiveness of online learning to benefit OSU online courses. This research can also benefit the growth of online learning in Saudi Arabia. Recently, Asharq Al-Awsat Newspaper (2007) reported that the Saudi Arabian Ministry of Higher Education accepted online courses as a valid system to be included in Saudi universities. The ministry acknowledged the advantages of online learning for home study and cost effectiveness. Wider implementation of online courses will begin throughout the Saudi Arabian University System. Therefore, the researcher will have the opportunity to contribute the findings from this research regarding the criteria of effectiveness in online learning. In the future, the researcher intends to utilize her expertise to support online learning in her country.

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## APPENDICES



**College of Education**

Oregon State University, 210 Education Hall, Corvallis, Oregon 97331-3502

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Appendix A  
 Online Instructor Reflection Survey and Consent  
 (Non-Randomized Survey)

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Project Title: Factors that Contribute to the Effectiveness of Online Learning  
 Technology Principal Investigator: Dr. Chris Ward, College of Education  
 Co-Investigator: Ghadeer Zainuddin Filimban, College of Education

**WHAT IS THE PURPOSE OF THIS STUDY?**

You are being invited to take part in a research study designed to determine the factors that contribute to the effectiveness of online learning technology. The information being sought is your perspective and experience of your online course. The results will be used to assess the effectiveness of various aspects of online instruction. The research result will fulfill requirements for a doctoral dissertation in Education. The results of the study also may be presented at conferences and/or published. Because the number of online courses and students has increased dramatically over the last decade, there is an interest in learning what components are essential for effective online courses.

**WHAT IS THE PURPOSE OF THIS FORM?**

This consent form gives you the information you will need to help you decide whether or not to participate in the study. Please read the form carefully. You may ask any questions about the research, the possible risks and benefits, your rights as a volunteer, and anything else that is not clear. When all of your questions have been answered, you can decide whether or not you want to participate in this study.

**WHY AM I BEING INVITED TO TAKE PART IN THIS STUDY?**

You are being invited to take part in this study because you are teaching an online undergraduate course in the College of Liberal Arts at OSU.

**WHAT WILL HAPPEN DURING THIS STUDY AND HOW LONG WILL IT TAKE?**

If you agree to participate, you will be asked to complete an online survey which includes demographic information, background and teaching experience, and statements and questions related to your opinions about your online course. The survey can be completed at your convenience and will take approximately 15 minutes. You will also be requested to post the online survey link on the Blackboard site and send introductory email templates for your students. Posting this information to the students will take approximately 10 minutes.

**WHAT ARE THE RISKS OF THIS STUDY?**

Generally, email transmission cannot be guaranteed to be secure or error-free as information could be intercepted, corrupted, lost, destroyed, arrive late or incomplete, or contain viruses. However, the researcher will be contacting the participants using the OSU ONID account, which is not open to the public and requires an agreement to their ethical use policy.

Secure transmission of information via the Internet cannot be guaranteed to be secure or error-free as information could be intercepted, corrupted, lost, or destroyed. However, the researcher will be using QuestionPro website, which is licensed with TRUSTe®. TRUSTe® is an independent, nonprofit organization that guarantees privacy for personal information on the internet.

**WHAT ARE THE BENEFITS OF THIS STUDY?**

You will not benefit directly from being in this study. However, we hope in the future other people might benefit from this study because the information will be used to improve the design of online instruction.

**WILL I BE PAID FOR PARTICIPATING?**

You will not be paid for being in this research study.

**WHO WILL SEE THE INFORMATION I GIVE?**

The information you provide during this research study will be kept confidential to the extent permitted by law. To help protect your confidentiality, we will not link your name or identity in any way to the research data. All survey responses will be identified only with an ID code number and all computer files are password-protected. If the results of this project are published, your identity will not be made public, and surveys will be destroyed upon completion of the study.

**DO I HAVE A CHOICE TO BE IN THE STUDY?**

If you decide to take part in the study, it should be because you really want to volunteer. You will not lose any benefits or rights you would normally have if you choose not to volunteer. You can stop at any time during the study and still keep the benefits and rights you had before volunteering. If you decide not to take part in this study, your decision will have no effect on you in any way.

You will not be treated differently if you decide to stop taking part in the study. Since the study involves surveys, you are free to skip any questions that you would prefer not to answer. If you choose to withdraw from this project before it ends, the researchers may keep information collected from you, and this information may be included in study reports.

**WHAT IF I HAVE QUESTIONS?**

If you have any questions about this research project, please contact:

Dr. Chris Ward, College of Education.  
(541) 737-1080  
[chris.ward@oregonstate.edu](mailto:chris.ward@oregonstate.edu)

Ghadeer Zainuddin Filimban, College of Education  
(541) 740-7833  
[filimbag@onid.orst.edu](mailto:filimbag@onid.orst.edu)

If you have questions about your rights as a participant, please contact the Oregon State University Institutional Review Board (IRB) Human Protections Administrator, at (541) 737-4933 or by email at [IRB@oregonstate.edu](mailto:IRB@oregonstate.edu).

By clicking on the "I Agree" button, you are indicating that this research study has been explained to you, your questions have been answered, and that you consent to take part in this study.

Thank you for participating in this online learning research survey.  
Feel free to print the information on this page for your personal records.

Please click Start to begin the survey.

Sincerely,

Ghadeer Zainuddin Filimban  
Doctoral Candidate  
Education  
Oregon State University  
155 NW Kings Blvd. # 521  
Corvallis, OR 97330  
541-740-7833  
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202B Education Hall  
Corvallis, OR 97331  
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[chris.ward@oregonstate.edu](mailto:chris.ward@oregonstate.edu)

I Agree

\*\*\*\*\*

## Online Instructor Reflection Survey

Q1. The researcher has requested your assistance for a specific OSU online course. Please choose the online course from the following list:

- Click Here -

Q2. How long have you been teaching this course online at OSU?

- Less than one year
- 1 year to less than 2 years
- 2 years to less than 3 years
- 3 years to less than 5 years
- 5 years to less than 10 years
- 10 years to less than 20 years
- 20 years or more

Q3. Approximately how long have you been teaching overall at OSU?

- Less than one year
- 1 year to less than 2 years
- 2 years to less than 3 years
- 3 years to less than 5 years
- 5 years to less than 10 years
- 10 years to less than 20 years
- 20 years or more

Q4. Have you taught at any other higher education institutions?

- Yes
- No, if no skip question #5

Q5. What is the total number of years you have taught in higher education institutions?

- Less than one year
- 1 year to less than 2 years
- 2 years to less than 3 years
- 3 years to less than 5 years
- 5 years to less than 10 years
- 10 years to less than 20 years
- 20 years or more

Q6. How many online courses overall have you developed, or helped to develop at OSU or elsewhere?

- 1 course
- 2-3 courses
- 4-5 courses
- 6 or more courses









Course assessments are in agreement with the course content and learning objectives.	○	○	○	○	○	○
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Q8. What do you think are the greatest benefits of online courses?  
(Check all that apply.)

- Accessibility
- Flexibility
- Student centered
- Encourages collaboration
- Other (Please type your response.)

Q9. What do you think are the greatest drawbacks of online courses?  
(Check all that apply.)

- Isolation
- Lack of face-to-face interactions
- Time intensive
- Lack of technological skills for student and/or faculty
- Other (Please type your response.)



Q10. Aside from the technological aspects, has the web affected your teaching methods or style?

- No
- Yes (In what ways? Please type your response.)

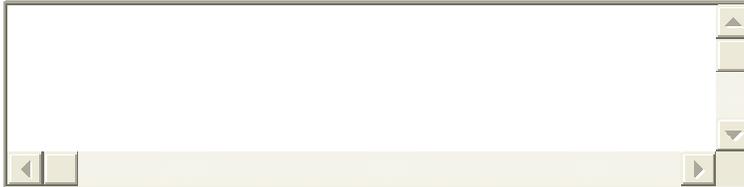


Q11. Have there been any issues that have developed while working online which have caused you to re-evaluate your teaching in a traditional classroom?

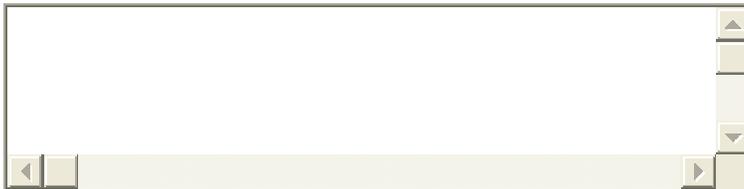
- No
- Yes (In what ways? Please type your response.)



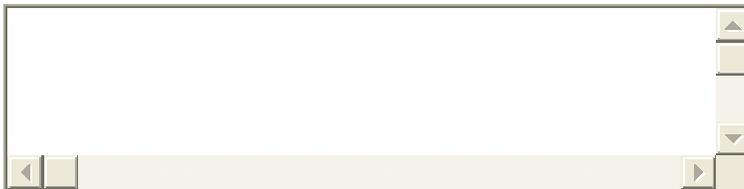
Q12. What assessment tools would you suggest using to evaluate the effectiveness of an online course?

An empty text input field with a light beige background and a thin grey border. It features a vertical scrollbar on the right side and a horizontal scrollbar at the bottom, both with small triangular arrows.

Q13. In your opinion, what are the critical components of an effective online course?

An empty text input field with a light beige background and a thin grey border. It features a vertical scrollbar on the right side and a horizontal scrollbar at the bottom, both with small triangular arrows.

Q14. What would you suggest to help improve online learning at OSU?

An empty text input field with a light beige background and a thin grey border. It features a vertical scrollbar on the right side and a horizontal scrollbar at the bottom, both with small triangular arrows.

Q15. What other thoughts, feelings, or questions do you have about teaching online at OSU?

An empty text input field with a light beige background and a thin grey border. It features a vertical scrollbar on the right side and a horizontal scrollbar at the bottom, both with small triangular arrows.

Q16. What is your faculty rank?

- Professor
- Associate Professor
- Assistant Professor
- Instructor
- Other (Please type your response.)

[Click here to submit](#)

\*\*\*\*\*



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Appendix B  
Online Instructor Reflection Survey and Consent  
(Randomized Survey)

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If you agree to participate, you will be asked to complete an online survey which includes demographic information, background and teaching experience, and statements and questions related to your opinions about your online course. The survey can be completed at your convenience and will take approximately 15 minutes. You will also be requested to post the online survey link on the Blackboard site and send introductory email templates for your students. Posting this information to the students will take approximately 10 minutes.

**WHAT ARE THE RISKS OF THIS STUDY?**

Generally, email transmission cannot be guaranteed to be secure or error-free as information could be intercepted, corrupted, lost, destroyed, arrive late or incomplete, or contain viruses. However, the researcher will be contacting the participants using the OSU ONID account, which is not open to the public and requires an agreement to their ethical use policy.

Secure transmission of information via the Internet cannot be guaranteed to be secure or error-free as information could be intercepted, corrupted, lost, or destroyed. However, the researcher will be using QuestionPro website, which is licensed with TRUSTe®. TRUSTe® is an independent, nonprofit organization that guarantees privacy for personal information on the internet.

**WHAT ARE THE BENEFITS OF THIS STUDY?**

You will not benefit directly from being in this study. However, we hope in the future other people might benefit from this study because the information will be used to improve the design of online instruction.

**WILL I BE PAID FOR PARTICIPATING?**

You will not be paid for being in this research study.

**WHO WILL SEE THE INFORMATION I GIVE?**

The information you provide during this research study will be kept confidential to the extent permitted by law. To help protect your confidentiality, we will not link your name or identity in any way to the research data. All survey responses will be identified only with an ID code number and all computer files are password-protected. If the results of this project are published, your identity will not be made public, and surveys will be destroyed upon completion of the study.

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(541) 737-1080  
[chris.ward@oregonstate.edu](mailto:chris.ward@oregonstate.edu)

Ghadeer Zainuddin Filimban, College of Education  
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Chris Ward, Ph.D.  
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Education  
Oregon State University  
202B Education Hall  
Corvallis, OR 97331  
541-737-1080  
[chris.ward@oregonstate.edu](mailto:chris.ward@oregonstate.edu)

I Agree

\*\*\*\*\*

## Online Instructor Reflection Survey

Q1. The researcher has requested your assistance for a specific OSU online course. Please choose the online course from the following list:

- Click Here -

Q2. How long have you been teaching this course online at OSU?

- Less than one year
- 1 year to less than 2 years
- 2 years to less than 3 years
- 3 years to less than 5 years
- 5 years to less than 10 years
- 10 years to less than 20 years
- 20 years or more

Q3. Approximately how long have you been teaching overall at OSU?

- Less than one year
- 1 year to less than 2 years
- 2 years to less than 3 years
- 3 years to less than 5 years
- 5 years to less than 10 years
- 10 years to less than 20 years
- 20 years or more

Q4. Have you taught at any other higher education institutions?

- Yes
- No, if no skip question #5

Q5. What is the total number of years you have taught in higher education institutions?

- Less than one year
- 1 year to less than 2 years
- 2 years to less than 3 years
- 3 years to less than 5 years
- 5 years to less than 10 years
- 10 years to less than 20 years
- 20 years or more

Q6. How many online courses overall have you developed, or helped to develop at OSU or elsewhere?

- 1 course
- 2-3 courses
- 4-5 courses
- 6 or more courses







Students are helped to feel part of a learning community.	<input type="radio"/>					
Students are required to problem solve.	<input type="radio"/>					
Course assessments are in agreement with the course content and learning objectives.	<input type="radio"/>					

Q8. What do you think are the greatest benefits of online courses?  
(Check all that apply.)

- Accessibility
- Flexibility
- Student centered
- Encourages collaboration
- Other (Please type your response.)

Q9. What do you think are the greatest drawbacks of online courses?  
(Check all that apply.)

- Isolation
- Lack of face-to-face interactions
- Time intensive
- Lack of technological skills for student and/or faculty
- Other (Please type your response.)

Q10. Aside from the technological aspects, has the web affected your teaching methods or style?

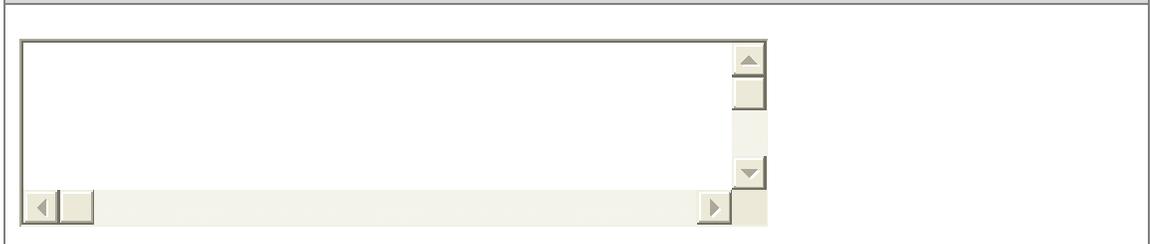
- No
- Yes (In what ways? Please type your response.)

Q11. Have there been any issues that have developed while working online which have caused you to re-evaluate your teaching in a traditional classroom?

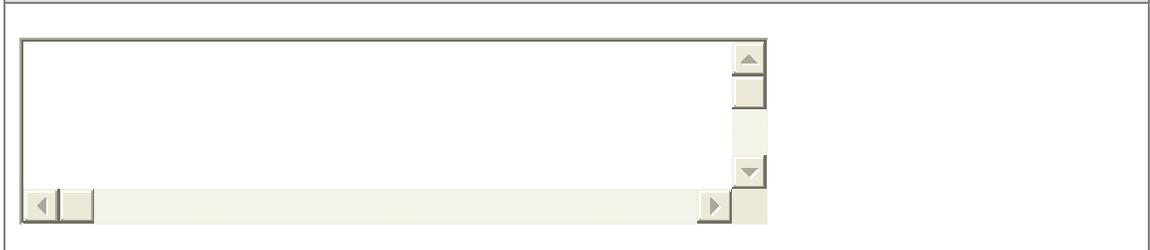
- No
- Yes (In what ways? Please type your response.)



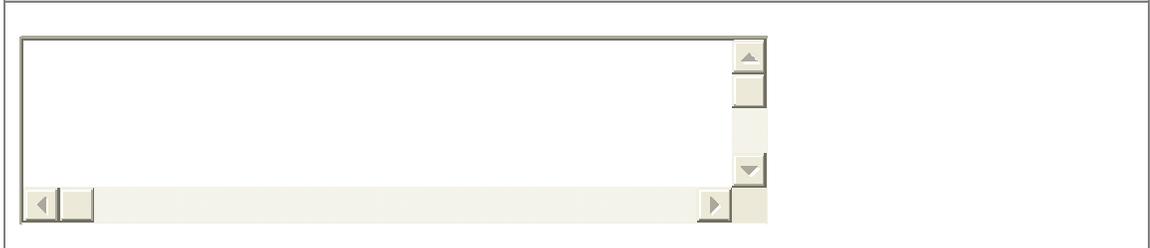
Q12. What assessment tools would you suggest using to evaluate the effectiveness of an online course?



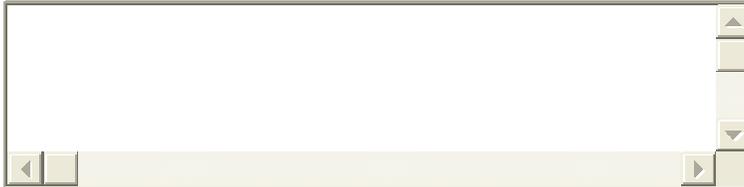
Q13. In your opinion, what are the critical components of an effective online course?



Q14. What would you suggest to help improve online learning at OSU?



Q15. What other thoughts, feelings, or questions do you have about teaching online at OSU?



Q16. What is your faculty rank?

- Professor
- Associate Professor
- Assistant Professor
- Instructor
- Other (Please type your response.)



[Click here to submit](#)

\*\*\*\*\*



College of Education  
Oregon State University, 210 Education Hall, Corvallis, Oregon 97331-3502  
Phone: 541-737-4661 | Fax: 541-737-8971 | oregonstate.edu/education

Appendix C  
Online Student Reflection Survey and Consent  
(Non-Randomized Survey)

(Please Note: The Oregon State University Institutional Review Board requires that participants be at least 18 years of age.)

**Survey— with prizes!**

\*\*\*\*\*

Project Title: Factors that Contribute to the Effectiveness of Online Learning Technology  
Principal Investigator: Dr. Chris Ward, College of Education  
Co-Investigator: Ghadeer Zainuddin Filimban, College of Education

**WHAT IS THE PURPOSE OF THIS STUDY?**

You are being invited to take part in a research study designed to determine the factors that contribute to the effectiveness of online learning technology. The information being sought is your perspective and experience of your online course. The results will be used to assess the effectiveness of various aspects of online instruction. The research result will fulfill requirements for a doctoral dissertation in Education. The results of the study also may be presented at conferences and/or published. Because the number of online courses and students has increased dramatically over the last decade, there is an interest in learning what components are essential for effective online courses.

**WHAT IS THE PURPOSE OF THIS FORM?**

This consent form gives you the information you will need to help you decide whether or not to participate in the study. Please read the form carefully. You may ask any questions about the research, the possible risks and benefits, your rights as a volunteer, and anything else that is not clear. When all of your questions have been answered, you can decide whether or not you want to participate in this study.

**WHY AM I BEING INVITED TO TAKE PART IN THIS STUDY?**

You are being invited to take part in this study because you are taking an online undergraduate course in the College of Liberal Arts at OSU.

**WHAT WILL HAPPEN DURING THIS STUDY AND HOW LONG WILL IT TAKE?**

If you agree to participate, you will be asked to complete an online survey which includes demographic information, experience with computers, and statements and questions related to your opinions about your online course. The survey can be completed at your convenience and will take approximately 15 minutes.

**WHAT ARE THE RISKS OF THIS STUDY?**

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**WHAT ARE THE BENEFITS OF THIS STUDY?**

You will not benefit directly from being in this study. However, we in the future other people might benefit from this study because the information will be used to improve the design of online instruction.

### **WILL I BE PAID FOR PARTICIPATING?**

You will not be paid for being in this research study. However, in appreciation for your participation, we would like to offer you an opportunity to win free gift certificates from the OSU Bookstore. All participating students are eligible for these prizes. Please print the ID number located at the end of the survey as it will be needed to claim your prize. At the end of the term, winning numbers will be randomly selected. Your instructor will post the winning numbers on Blackboard. If you have a winning number, take the printed ID number to the OSU Bookstore Cashier's Office to receive your gift certificate. Good Luck!

First Prize: \$50 gift certificate

Second Prize: \$35 gift certificate

Third Prize: \$20 gift certificate

### **WHO WILL SEE THE INFORMATION I GIVE?**

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### **DO I HAVE A CHOICE TO BE IN THE STUDY?**

If you decide to take part in the study, it should be because you really want to volunteer. You will not lose any benefits or rights you would normally have if you choose not to volunteer. You can stop at any time during the study and still keep the benefits and rights you had before volunteering. If you decide not to take part in this study, your decision will have no effect on you in any way.

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By clicking on the “I Agree” button, I am indicating that I am at least 18 years of age, this research study has been explained to me, my questions have been answered, and I consent to take part in this study.

Thank you for participating in this online learning research survey.  
Feel free to print the information on this page for your personal records.

Please click Start to begin the survey.

Sincerely,

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I Agree

\*\*\*\*\*

## Online Student Reflection Survey

Q1. From which of the following OSU online courses did you hear about this survey?

- Click Here -

Q2. Are you currently a full- or part-time student?

- Full-time = (12 credits or more)
- Part-time = (Less than 12 credits)

Q3. What is your academic status?

- Freshman (0-45 completed credits)
- Sophomore (46-90 completed credits)
- Junior (91-134 completed credits)
- Senior (135-180 completed credits)
- Super Senior (180+ completed credits)

Q4. How many total online courses have you completed up through Summer 2007?

- None
- (1-2) courses
- (3-4) courses
- (5-6) courses
- (7-8) courses
- 9 courses or more









The learning outcomes are in agreement with the course requirements.	<input type="radio"/>					
Course assessments are in agreement with the course content and learning objectives.	<input type="radio"/>					

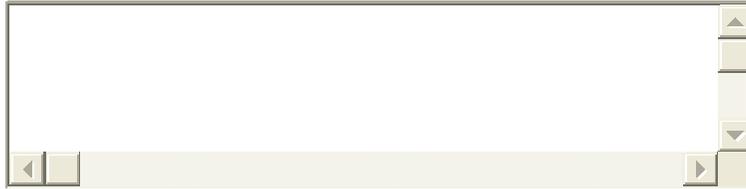
Q7. In this course, what do you find most helpful to you in your learning process?

Q8. What do you think are the greatest benefits of online courses?  
(Check all that apply.)

- Accessibility
- Flexibility
- Student centered
- Encourages collaboration
- Other (Please type your response.)

Q9. What do you think are the greatest drawbacks of online courses?  
(Check all that apply.)

- Isolation
- Lack of face-to-face interactions
- Time intensive
- Lack of technological skills for student and/or faculty
- Other (Please type your response.)



Q10. Aside from the technological aspects, has the web affected your learning style?

- No
- Yes (In what ways? Please type your response.)



Q11. What attracted you to this online course?



Q12. In your opinion, what are the critical components of an effective online course?

An empty text input box with a light beige background and a thin border. It features a vertical scrollbar on the right side and a horizontal scrollbar at the bottom, both with small triangular arrowheads.

Q13. What other thoughts, feelings, or questions do you have about this online course?

An empty text input box with a light beige background and a thin border. It features a vertical scrollbar on the right side and a horizontal scrollbar at the bottom, both with small triangular arrowheads.

Q14. Do you have suggestions on how to improve this online course? Please explain.

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Q15. What other thoughts, feelings, or questions do you have about online courses at OSU?

An empty text input box with a light beige background and a thin border. It features a vertical scrollbar on the right side and a horizontal scrollbar at the bottom, both with small triangular arrowheads.

Q16. What would you suggest to help improve online learning at OSU?



Q17. Which of the following programs do you use?  
(Check all that apply.)

- Word
- PowerPoint
- Excel
- Publisher
- Other Programs (Please type your response.)



Q18. I consider my experience with computers to be:

- Expert
- Proficient
- Moderately Proficient
- Somewhat Proficient
- Not Proficient

Q19. What is your gender?

- Male
- Female

Q20. What is your age?

- 18-22
- 23-30
- 31-40
- 41 and older

Q21. What is your ethnic background?

- Decline to respond
- American Indian or Alaskan Native
- Asian
- Black, Non-Hispanic
- Hispanic
- Pacific Islander
- White, Non-Hispanic
- If none of the above, please fill in the ethnic/racial identification you use:

[Click here to submit](#)

\*\*\*\*\*



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Appendix D  
Online Student Reflection Survey and Consent  
(Randomized Survey)

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**Survey— with prizes!**

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Principal Investigator: Dr. Chris Ward, College of Education  
Co-Investigator: Ghadeer Zainuddin Filimban, College of Education

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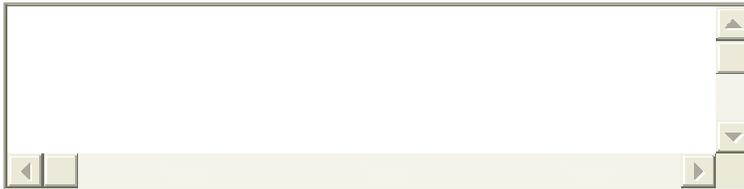


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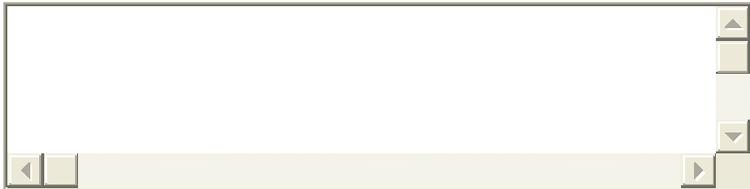
Q9. What do you think are the greatest drawbacks of online courses?  
(Check all that apply.)

- Isolation
- Lack of face-to-face interactions
- Time intensive
- Lack of technological skills for student and/or faculty
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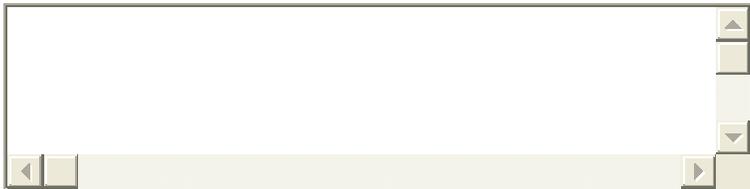


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Q19. What is your gender?

- Male
- Female

Q20. What is your age?

- 18-22
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Q21. What is your ethnic background?

- Decline to respond
- American Indian or Alaskan Native
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- Black, Non-Hispanic
- Hispanic
- Pacific Islander
- White, Non-Hispanic
- If none of the above, please fill in the ethnic/racial identification you use:

[Click here to submit](#)

\*\*\*\*\*

Appendix E  
Non-Participant Observation Instrument

\*\*\*\*\*

Course ID	Presence of Standards		
Number of Students	Notes	Yes	No
<b>A. Instructional Design and Delivery:</b>			
The course requirements are clearly stated	- Course requirements are written in language understandable to undergraduate students _____ - The following are clearly stated in the syllabus: Course Objectives _____ Grading Scale _____ Requirements _____ Instructor Information _____ Assignments _____ Schedule _____ University Policies _____ Required Materials _____ Additional Resources _____ - This course content is well organized _____ (This includes the overall design and organization of the course)	<input type="checkbox"/>	<input type="checkbox"/>
The course is designed with various visual, textual, and/or auditory activities that improve the students' learning	- Combination of two or more media: Text _____ Images _____ Animations _____ Sound _____ Video _____ External Links _____	<input type="checkbox"/>	<input type="checkbox"/>
The course content is appropriate and up-to-date	- Content relates to the subject _____ - Current reference dates _____	<input type="checkbox"/>	<input type="checkbox"/>

Additional Thoughts:



Course ID	Presence of Standards		
Number of Students	Notes	Yes	No
<b>C. Assessments:</b>			
How students will be graded in the class is clearly explained	<ul style="list-style-type: none"> <li>- An explanation of the grading procedure is found in Syllabus _____</li> <li>- Assessments are written in language understandable to students _____</li> <li>- Assessments are stated in a clear and organized format _____</li> <li>- Assessments are appropriate to the online environment _____</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
Assignments with appropriate levels of difficulty are provided	<ul style="list-style-type: none"> <li>- Student complaints re: difficulties with assignment(s) _____</li> <li>- Instructor(s) provided a variety of assignments _____</li> <li>- The assignments are appropriate to undergraduate level students _____</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
Feedback on assignments is provided within a reasonable timeframe	<ul style="list-style-type: none"> <li>- Instructor(s) makes himself/herself available to students for answering questions by: email _____ phone _____ office hours _____ chat rooms _____</li> <li>- Instructor(s) responds to student postings and provides feedback _____</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Additional Thoughts:</u>			







Course ID	Presence of Standards		
Number of Students	Notes	Yes	No
<b>G. Alignment:</b>			
Assignments that reflect student interests and abilities are provided	<ul style="list-style-type: none"> <li>- Instructor(s) solicits input from students regarding course material _____</li> <li>- Instructor(s) provides a variety of assignments to students to choose from based on their interests and abilities _____</li> <li>- Students are given the freedom to further explore their areas of interest _____</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
Learning outcomes are in alignment with course requirements	- Activities, assignments, and projects reflect course requirements _____	<input type="checkbox"/>	<input type="checkbox"/>
Assessments are aligned with the course content and learning objectives	- Assessments are aligned with the course content and learning objectives _____	<input type="checkbox"/>	<input type="checkbox"/>
<u>Additional Thoughts:</u>			

## Appendix F

### Open-ended Questions Instructor Data Analysis Form

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Q8. What do you think are the greatest benefits of online courses?

Teachers could select multiple responses.

Course ID	√	Greatest Benefits of Online Courses
Accessibility		
Flexibility		
Student Centered		
Encourages Collaboration		
Other:		

Q9. What do you think are the greatest drawbacks of online courses?

Teachers could select multiple responses.

Course ID	√	Greatest Drawbacks of Online Courses
Isolation		
Lack of face-to- face interactions		
Time Intensive		
Lack of technological skills		
Other:		

Q10. Aside from the technological aspects, has the web affected your teaching methods or style?

Course ID	√	How the Web has Affected Teaching Methods or Style
No #		
Yes #		

Q11. Have there been any issues that have developed while working online which have caused you to re-evaluate your teaching in a traditional classroom?

Course ID	√	Issues Causing Instructors to Re-evaluate Their Teaching in a Traditional Classroom
No #		
Yes #		

Q12. What assessment tools would you suggest using to evaluate the effectiveness of an online course?

Course ID	Suggested Assessment Tools/Techniques

Q13. In your opinion, what are the critical components of an effective online course?

Course ID	Critical Components of an Effective Online Course

Q14. What would you suggest to help improve online learning at OSU?

Course ID	Suggestions to Improve Online Learning at OSU

Q15. What other thoughts, feelings, or questions do you have about teaching online at OSU?

Course ID	Other Thoughts, Feelings, or Questions about Teaching Online at OSU

**Appendix G**  
**Open-ended Questions Student Data Analysis Form**

Q7. In this course, what do you find most helpful to you in your learning process?

Course ID	Student ID	Helpful Elements to Students in Their Learning Process

Q8. What do you think are the greatest benefits of online courses?

Students could select multiple responses.

Course ID	Student ID	Greatest Benefits of Online Courses	√	Other
		Accessibility		
		Flexibility		
		Student Centered		
		Encourages Collaboration		

Q9. What do you think are the greatest drawbacks of online courses?

Students could select multiple responses.

Course ID	Student ID	Greatest Drawbacks of Online Courses	√	Other
		Isolation		
		Lack of face-to-face interactions		
		Time Intensive		
		Lack of technological skills for student and/or faculty		

Q10. Aside from the technological aspects, has the web affected your learning style?

Course ID	Student ID	Answers	√	How the Web has Affected Student Learning Style
		No #		
		Yes #		

Q11. What attracted you to this online course?

Course ID	Student ID	What Attracted the Students to This Specific Online Course

Q12. In your opinion, what are the critical components of an effective online course?

Course ID	Student ID	Critical Components of an Effective Online Course

Q13. What other thoughts, feelings, or questions do you have about this online course?

Course ID	Student ID	Other Thoughts, Feelings, or Questions about this Specific Online Course at OSU

Q14. Do you have suggestions on how to improve this online course? Please explain.

Course ID	Student ID	Suggestions about this Specific Online Course at OSU

15. What other thoughts, feelings, or questions do you have about online courses at OSU?

Course ID	Student ID	Other Thoughts, Feelings, or Questions about Online Courses at OSU

Q16. What would you suggest to help improve online learning at OSU?

Course ID	Student ID	Suggestions to Improve Online Learning at OSU

Appendix H  
Individual Level Summary

<i>Classes</i>	<i>Individuals</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
Class 1	Instructor	*1 Cns	0.62	0.86	0.86	0.71	0.86	0.62	0.71
		*2 Cns(t)	0.78	0.95	0.95	0.89	0.95	0.78	0.89
	Student1	Cns	1.00	1.00	0.71	0.71	0.71	0.71	1.00
		Cns(t)	0.68	0.68	0.79	0.79	0.79	0.79	0.68
	Student2	Cns	0.62	0.43	1.00	0.71	0.79	0.86	0.86
		Cns(t)	0.39	0.51	0.68	0.73	0.67	0.73	0.61
Class 2	Instructor	Cns	0.71	0.86	1.00	0.54	1.00	0.62	0.86
		Cns(t)	0.73	0.90	1.00	0.83	1.00	0.60	0.79
	Student1	Cns	1.00	1.00	0.86	0.71	0.79	0.79	0.86
		Cns(t)	1.00	1.00	0.95	0.79	0.84	0.84	0.95

\*1 Cns: Intrapersonal Consensus Score

\*2 Cns(t): Intrapersonal Targeted Agreement Score

Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student2	Cns	0.86	1.00	0.86	0.54	0.71	0.79	0.79
		Cns(t)	0.95	0.68	0.73	0.83	0.79	0.84	0.84
	Student3	Cns	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Cns(t)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Student4	Cns	0.86	0.86	0.86	0.54	1.00	0.79	0.86
		Cns(t)	0.90	0.90	0.95	0.83	1.00	0.84	0.95
Class 3	Instructor	Cns	0.86	0.71	1.00	0.71	0.71	0.79	0.79
		Cns(t)	0.95	0.79	1.00	0.89	0.89	0.84	0.84
	Student1	Cns	1.00	1.00	1.00	0.54	0.71	0.71	0.71
		Cns(t)	1.00	1.00	1.00	0.83	0.89	0.89	0.89

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student2	Cns	1.00	0.71	1.00	0.71	1.00	0.86	1.00
		Cns(t)	1.00	0.89	1.00	0.89	1.00	0.95	1.00
	Student3	Cns	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Cns(t)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Student4	Cns	1.00	1.00	1.00	0.86	1.00	1.00	1.00
		Cns(t)	1.00	1.00	1.00	0.90	1.00	1.00	1.00
	Student5	Cns	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Cns(t)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Class 4	Instructor	Cns	0.86	1.00	0.86	0.71	1.00	1.00	0.86
		Cns(t)	0.95	1.00	0.90	0.89	1.00	1.00	0.95

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student1	Cns	0.86	1.00	1.00	0.71	1.00	1.00	0.86
		Cns(t)	0.90	1.00	1.00	0.89	1.00	1.00	0.95
	Student2	Cns	1.00	0.86	0.86	0.71	1.00	0.86	0.86
		Cns(t)	1.00	0.95	0.95	0.89	1.00	0.90	0.95
	Student3	Cns	0.86	0.86	0.54	0.71	1.00	0.86	0.86
		Cns(t)	0.90	0.90	0.83	0.89	1.00	0.79	0.95
	Student4	Cns	0.86	1.00	0.86	0.86	1.00	1.00	1.00
		Cns(t)	0.95	1.00	0.95	0.95	1.00	1.00	1.00
Class 5	Instructor	Cns	0.86	1.00	1.00	0.62	0.86	0.86	0.86
		Cns(t)	0.79	1.00	0.85	0.78	0.95	0.79	0.79

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student1	Cns	0.79	1.00	1.00	0.86	0.71	0.86	0.86
		Cns(t)	0.84	0.85	0.85	0.61	0.79	0.79	0.73
	Student2	Cns	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Cns(t)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Student3	Cns	1.00	1.00	1.00	0.86	1.00	0.86	0.86
		Cns(t)	1.00	1.00	1.00	0.95	1.00	0.90	0.95
	Student4	Cns	0.79	0.86	0.86	0.71	0.79	0.86	0.86
		Cns(t)	0.48	0.79	0.79	0.40	0.48	0.79	0.61
	Student5	Cns	0.54	1.00	1.00	1.00	1.00	1.00	1.00
		Cns(t)	0.83	1.00	1.00	1.00	1.00	1.00	1.00

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student6	Cns	1.00	1.00	1.00	0.86	1.00	1.00	1.00
		Cns(t)	1.00	1.00	1.00	0.95	1.00	1.00	1.00
	Student7	Cns	0.86	1.00	1.00	0.86	1.00	1.00	1.00
		Cns(t)	0.61	0.68	0.68	0.61	0.68	0.68	0.68
	Student8	Cns	1.00	1.00	1.00	0.86	1.00	1.00	1.00
		Cns(t)	1.00	1.00	1.00	0.90	1.00	1.00	1.00
	Student9	Cns	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Cns(t)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Student10	Cns	1.00	0.86	0.86	0.86	0.86	1.00	0.86
		Cns(t)	0.79	0.73	0.73	0.41	0.79	0.68	0.79

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student11	Cns	0.71	1.00	1.00	0.86	1.00	0.86	1.00
		Cns(t)	0.40	0.68	0.68	0.73	0.68	0.61	0.68
	Student12	Cns	0.79	0.86	0.86	0.86	0.79	0.79	1.00
		Cns(t)	0.67	0.79	0.79	0.34	0.84	0.67	0.85
Class 6	Instructor	Cns	0.86	1.00	0.71	0.34	1.00	0.43	0.86
		Cns(t)	0.90	1.00	0.79	0.75	1.00	0.70	0.90
	Student1	Cns	0.79	1.00	0.86	0.86	0.71	0.86	1.00
		Cns(t)	0.67	0.85	0.61	0.55	0.61	0.79	0.85
	Student2	Cns	1.00	1.00	0.86	0.71	0.86	0.86	0.86
		Cns(t)	0.68	0.68	0.61	0.32	0.61	0.55	0.61

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student3	Cns	1.00	1.00	1.00	0.86	1.00	0.86	1.00
		Cns(t)	1.00	1.00	1.00	0.95	1.00	0.95	1.00
	Student4	Cns	1.00	1.00	1.00	0.71	0.86	1.00	1.00
		Cns(t)	1.00	1.00	1.00	0.89	0.95	1.00	1.00
	Student5	Cns	1.00	1.00	0.86	0.86	1.00	0.71	1.00
		Cns(t)	0.85	0.85	0.79	0.73	0.85	0.73	0.85
	Student6	Cns	0.79	0.79	1.00	0.71	0.79	0.86	0.86
		Cns(t)	0.84	0.84	0.85	0.89	0.84	0.79	0.73
	Student7	Cns	1.00	0.86	1.00	0.86	1.00	1.00	1.00
		Cns(t)	1.00	0.95	1.00	0.95	1.00	1.00	1.00

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student8	Cns	1.00	0.86	1.00	0.71	1.00	0.79	0.79
		Cns(t)	1.00	0.73	1.00	0.89	1.00	0.84	0.84
	Student9	Cns	0.86	1.00	0.86	0.62	0.54	0.62	0.86
		Cns(t)	0.61	0.68	0.61	0.39	0.45	0.39	0.61
	Student10	Cns	0.86	0.86	0.79	0.54	0.86	0.71	1.00
		Cns(t)	0.73	0.79	0.84	0.83	0.95	0.89	1.00
Class 7	Instructor	Cns	0.79	0.86	0.79	0.54	0.62	0.86	0.86
		Cns(t)	0.84	0.90	0.84	0.83	0.78	0.90	0.90
	Student1	Cns	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Cns(t)	1.00	1.00	1.00	1.00	1.00	1.00	1.00

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student2	Cns	0.86	1.00	0.71	0.86	1.00	0.86	0.86
		Cns(t)	0.73	1.00	0.89	0.95	1.00	0.95	0.79
	Student3	Cns	0.86	0.86	0.86	0.86	0.79	1.00	0.86
		Cns(t)	0.90	0.95	0.90	0.90	0.84	0.85	0.79
	Student4	Cns	1.00	1.00	0.71	0.86	1.00	0.86	0.86
		Cns(t)	1.00	1.00	0.89	0.95	1.00	0.90	0.95
	Student5	Cns	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Cns(t)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Class 8	Instructor	Cns	0.62	1.00	0.71	0.54	0.62	0.86	1.00
		Cns(t)	0.78	1.00	0.89	0.45	0.60	0.95	1.00

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student1	Cns	0.86	0.79	1.00	0.86	0.86	1.00	1.00
		Cns(t)	0.61	0.48	0.68	0.61	0.55	0.68	0.68
	Student2	Cns	0.79	0.86	0.86	0.71	0.54	1.00	0.71
		Cns(t)	0.84	0.90	0.95	0.79	0.83	1.00	0.89
	Student3	Cns	0.86	1.00	0.86	0.86	0.86	0.86	0.86
		Cns(t)	0.90	1.00	0.95	0.90	0.90	0.90	0.95
	Student4	Cns	0.86	0.86	0.86	1.00	1.00	1.00	0.86
		Cns(t)	0.73	0.79	0.90	1.00	1.00	1.00	0.95
	Student5	Cns	0.86	0.86	1.00	0.86	0.86	1.00	1.00
		Cns(t)	0.79	0.79	0.85	0.73	0.90	0.85	0.85

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student6	Cns	0.86	0.86	0.86	0.86	1.00	1.00	1.00
		Cns(t)	0.95	0.95	0.73	0.95	1.00	1.00	1.00
	Student7	Cns	1.00	0.71	0.71	0.86	0.34	1.00	1.00
		Cns(t)	0.68	0.89	0.79	0.95	0.75	1.00	1.00
	Student8	Cns	0.86	0.86	0.86	1.00	0.86	1.00	0.86
		Cns(t)	0.79	0.73	0.79	0.85	0.79	0.85	0.79
	Student9	Cns	0.86	0.71	0.54	1.00	1.00	0.86	1.00
		Cns(t)	0.61	0.89	0.83	0.68	0.68	0.73	0.85
Class 9	Instructor	Cns	0.79	0.79	0.86	0.71	0.86	1.00	0.86
		Cns(t)	0.84	0.84	0.90	0.89	0.95	1.00	0.95

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student1	Cns	1.00	0.86	0.86	0.71	0.86	0.86	0.86
		Cns(t)	0.85	0.90	0.90	0.89	0.90	0.90	0.90
Class 10	Instructor	Cns	1.00	1.00	1.00	0.85	0.71	0.85	1.00
		Cns(t)	1.00	1.00	1.00	0.76	0.79	0.76	1.00
	Student1	Cns	0.71	1.00	0.86	0.62	0.71	0.86	0.86
		Cns(t)	0.16	0.49	0.55	0.72	0.89	0.73	0.55
	Student2	Cns	1.00	0.86	0.79	0.86	0.86	0.86	1.00
		Cns(t)	1.00	0.95	0.84	0.95	0.79	0.95	0.85
	Student3	Cns	0.86	1.00	0.86	0.86	0.71	0.86	1.00
		Cns(t)	0.79	1.00	0.90	0.90	0.61	0.95	0.85

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
Class 11	Instructor	Cns	1.00	0.71	0.86	0.86	0.71	0.71	1.00
		Cns(t)	0.85	0.89	0.95	0.73	0.79	0.89	0.85
	Student1	Cns	0.43	0.71	0.54	0.86	0.54	0.54	0.86
		Cns(t)	0.51	0.54	0.45	0.09	0.23	0.23	0.09
	Student2	Cns	0.86	1.00	1.00	0.86	0.79	0.71	1.00
		Cns(t)	0.73	0.68	0.68	0.55	0.48	0.54	0.68
	Student3	Cns	0.34	0.86	0.86	0.79	0.43	0.86	0.71
		Cns(t)	0.51	0.73	0.79	0.25	0.37	0.34	0.54
	Student4	Cns	1.00	0.71	0.86	0.79	0.86	0.86	0.86
		Cns(t)	0.49	0.40	0.61	0.67	0.73	0.73	0.61

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student5	Cns	0.71	1.00	0.54	0.79	0.71	0.86	0.86
		Cns(t)	0.89	1.00	0.83	0.67	0.79	0.95	0.95
	Student6	Cns	0.71	1.00	0.71	1.00	0.71	0.71	0.71
		Cns(t)	0.89	1.00	0.89	0.68	0.79	0.89	0.89
Class 12	Instructor	Cns	0.71	1.00	0.86	0.54	0.79	0.54	0.71
		Cns(t)	0.89	1.00	0.79	0.83	0.84	0.83	0.89
	Student1	Cns	0.86	1.00	1.00	0.54	0.86	0.86	1.00
		Cns(t)	0.95	1.00	1.00	0.83	0.90	0.90	0.85
	Student2	Cns	1.00	1.00	0.71	0.71	1.00	1.00	1.00
		Cns(t)	1.00	1.00	0.89	0.89	1.00	1.00	1.00

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student3	Cns	1.00	1.00	1.00	0.86	1.00	0.86	1.00
		Cns(t)	0.68	0.68	0.68	0.73	0.68	0.90	0.68
	Student4	Cns	0.71	0.71	0.79	0.21	0.30	0.54	0.86
		Cns(t)	0.89	0.16	0.48	0.62	0.56	0.23	0.34
Class 13	Instructor	Cns	0.86	0.79	0.86	0.86	1.00	0.86	1.00
		Cns(t)	0.90	0.84	0.95	0.90	1.00	0.95	0.85
	Student1	Cns	1.00	0.79	0.71	0.62	0.71	0.71	1.00
		Cns(t)	0.68	0.67	0.79	0.72	0.89	0.73	0.68
	Student2	Cns	0.79	0.86	1.00	0.79	0.86	0.86	0.86
		Cns(t)	0.84	0.95	0.85	0.84	0.95	0.90	0.79

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student3	Cns	0.86	0.71	0.79	0.71	0.71	0.51	1.00
		Cns(t)	0.61	0.54	0.48	0.40	0.54	0.65	0.68
	Student4	Cns	1.00	0.86	0.86	0.62	1.00	1.00	1.00
		Cns(t)	1.00	0.90	0.95	0.78	1.00	1.00	1.00
	Student5	Cns	0.86	0.86	0.86	0.71	0.86	1.00	0.86
		Cns(t)	0.90	0.95	0.95	0.79	0.95	1.00	0.95
	Student6	Cns	0.86	1.00	0.86	0.86	0.86	0.86	0.79
		Cns(t)	0.79	1.00	0.95	0.73	0.90	0.95	0.84
Class 14	Instructor	Cns	1.00	0.86	0.86	0.62	0.71	0.71	0.86
		Cns(t)	1.00	0.95	0.95	0.78	0.89	0.73	0.90

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student1	Cns	0.86	0.86	0.62	1.00	0.86	1.00	1.00
		Cns(t)	0.61	0.61	0.31	0.68	0.61	0.68	0.68
	Student2	Cns	1.00	1.00	1.00	0.86	1.00	0.86	1.00
		Cns(t)	1.00	1.00	1.00	0.90	1.00	0.95	1.00
	Student3	Cns	1.00	1.00	1.00	0.54	1.00	0.71	1.00
		Cns(t)	1.00	1.00	1.00	0.83	1.00	0.89	1.00
	Student4	Cns	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Cns(t)	0.68	0.68	0.68	0.68	0.68	0.68	0.68
	Student5	Cns	0.79	0.79	0.86	0.86	0.71	0.86	0.71
		Cns(t)	0.84	0.84	0.73	0.61	0.79	0.73	0.54

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student6	Cns	0.86	0.86	1.00	0.79	0.86	0.86	1.00
		Cns(t)	0.73	0.79	0.85	0.67	0.79	0.79	0.85
	Student7	Cns	1.00	1.00	0.86	0.86	1.00	0.86	1.00
		Cns(t)	1.00	1.00	0.95	0.95	1.00	0.90	1.00
	Student8	Cns	0.86	0.79	1.00	0.86	1.00	1.00	0.86
		Cns(t)	0.95	0.84	1.00	0.95	1.00	1.00	0.95
	Student9	Cns	1.00	1.00	0.86	0.79	0.86	1.00	0.86
		Cns(t)	1.00	1.00	0.95	0.84	0.95	0.85	0.95
	Student10	Cns	1.00	1.00	1.00	1.00	0.86	0.86	0.79
		Cns(t)	0.85	0.85	0.85	0.85	0.79	0.79	0.67

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
Class 15	Instructor	Cns	0.86	1.00	0.86	0.62	0.86	0.79	1.00
		Cns(t)	0.90	0.85	0.79	0.78	0.90	0.84	1.00
	Student1	Cns	1.00	0.86	0.79	0.62	0.86	1.00	1.00
		Cns(t)	1.00	0.95	0.84	0.78	0.95	1.00	1.00
	Student2	Cns	0.62	0.86	1.00	1.00	0.62	0.62	0.86
		Cns(t)	0.78	0.95	1.00	0.68	0.78	0.78	0.90
	Student3	Cns	0.86	0.79	0.71	0.71	1.00	1.00	1.00
		Cns(t)	0.90	0.84	0.89	0.79	1.00	1.00	1.00
Class 16	Instructor	Cns	1.00	0.79	0.86	0.86	0.71	0.79	0.86
		Cns(t)	1.00	0.84	0.90	0.73	0.79	0.67	0.90

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student1	Cns	1.00	1.00	1.00	1.00	1.00	1.00	0.86
		Cns(t)	1.00	1.00	1.00	1.00	1.00	1.00	0.95
	Student2	Cns	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Cns(t)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Student3	Cns	0.86	0.86	0.86	0.86	0.86	0.86	0.79
		Cns(t)	0.61	0.95	0.90	0.90	0.95	0.90	0.84
	Student4	Cns	0.86	1.00	1.00	0.86	0.79	1.00	1.00
		Cns(t)	0.55	0.49	0.68	0.55	0.48	0.49	0.68
	Student5	Cns	0.86	1.00	0.86	0.71	0.86	0.86	0.71
		Cns(t)	0.95	1.00	0.95	0.89	0.95	0.73	0.73

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
Class 17	Instructor	Cns	0.86	1.00	1.00	0.86	1.00	1.00	0.86
		Cns(t)	0.95	1.00	1.00	0.95	1.00	1.00	0.95
	Student1	Cns	0.71	1.00	1.00	1.00	1.00	1.00	1.00
		Cns(t)	0.89	1.00	1.00	1.00	1.00	1.00	1.00
	Student2	Cns	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Cns(t)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Student3	Cns	0.86	1.00	1.00	1.00	1.00	1.00	1.00
		Cns(t)	0.95	1.00	1.00	1.00	1.00	1.00	1.00
	Student4	Cns	0.62	0.86	0.86	0.62	0.86	1.00	0.86
		Cns(t)	0.78	0.90	0.90	0.53	0.90	0.85	0.79

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student5	Cns	0.54	1.00	1.00	0.86	1.00	0.86	0.86
		Cns(t)	0.83	1.00	1.00	0.95	1.00	0.95	0.95
	Student6	Cns	0.86	1.00	0.86	0.71	1.00	1.00	1.00
		Cns(t)	0.79	1.00	0.95	0.89	1.00	1.00	1.00
	Student7	Cns	0.71	0.79	0.71	0.86	1.00	0.86	1.00
		Cns(t)	0.89	0.84	0.79	0.73	1.00	0.90	0.68
	Student8	Cns	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Cns(t)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Class 18	Instructor	Cns	1.00	1.00	1.00	0.71	0.54	0.71	1.00
		Cns(t)	1.00	1.00	1.00	0.79	0.83	0.89	1.00

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student1	Cns	0.71	1.00	1.00	1.00	1.00	0.71	0.71
		Cns(t)	0.79	1.00	1.00	1.00	1.00	0.89	0.89
	Student2	Cns	0.86	1.00	0.86	0.86	1.00	0.86	1.00
		Cns(t)	0.79	0.85	0.79	0.79	0.85	0.73	0.85
	Student3	Cns	0.71	1.00	0.79	1.00	0.86	0.86	1.00
		Cns(t)	0.32	0.68	0.67	0.68	0.55	0.73	0.68
	Student4	Cns	1.00	1.00	0.86	0.71	0.86	1.00	0.86
		Cns(t)	0.85	0.85	0.79	0.89	0.90	0.85	0.90
	Student5	Cns	0.86	0.86	0.86	0.79	0.86	0.79	0.86
		Cns(t)	0.79	0.79	0.90	0.84	0.95	0.84	0.79

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
Class 19	Instructor	Cns	1.00	1.00	0.86	0.54	0.62	0.86	1.00
		Cns(t)	1.00	1.00	0.90	0.83	0.78	0.95	1.00
	Student1	Cns	1.00	1.00	1.00	0.86	1.00	0.86	1.00
		Cns(t)	1.00	1.00	1.00	0.95	1.00	0.95	1.00
	Student2	Cns	1.00	0.86	0.86	1.00	1.00	1.00	0.86
		Cns(t)	1.00	0.95	0.95	0.68	1.00	1.00	0.95
	Student3	Cns	0.86	0.86	1.00	0.79	0.86	0.79	0.86
		Cns(t)	0.95	0.95	1.00	0.84	0.95	0.84	0.95
Student4	Cns	1.00	0.86	1.00	0.71	1.00	0.71	0.86	
	Cns(t)	1.00	0.95	1.00	0.89	1.00	0.89	0.95	

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student5	Cns	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Cns(t)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Student6	Cns	1.00	1.00	1.00	0.71	1.00	0.71	0.71
		Cns(t)	1.00	1.00	1.00	0.89	1.00	0.89	0.89
Class 20	Instructor	Cns	1.00	1.00	0.86	0.86	0.79	1.00	1.00
		Cns(t)	0.85	0.85	0.90	0.55	0.84	0.49	0.85
	Student1	Cns	0.79	0.86	0.86	1.00	0.79	0.86	0.86
		Cns(t)	0.84	0.61	0.73	0.68	0.84	0.79	0.79
	Student2	Cns	1.00	0.71	0.86	0.71	1.00	0.86	0.86
		Cns(t)	1.00	0.89	0.90	0.89	1.00	0.95	0.79

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student3	Cns	0.62	1.00	0.86	0.79	1.00	0.79	0.86
		Cns(t)	0.78	0.85	0.95	0.84	1.00	0.84	0.79
	Student4	Cns	1.00	0.86	1.00	0.86	1.00	1.00	0.86
		Cns(t)	1.00	0.95	1.00	0.95	1.00	1.00	0.95
	Student5	Cns	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Cns(t)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Class 21	Instructor	Cns	0.71	1.00	0.79	0.71	0.79	1.00	1.00
		Cns(t)	0.73	0.85	0.84	0.61	0.84	0.49	0.85
	Student1	Cns	1.00	1.00	1.00	0.79	1.00	1.00	1.00
		Cns(t)	1.00	1.00	1.00	0.84	1.00	1.00	1.00

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student2	Cns	0.86	0.86	1.00	0.62	1.00	0.86	0.86
		Cns(t)	0.90	0.90	1.00	0.72	1.00	0.90	0.95
	Student3	Cns	1.00	0.86	1.00	1.00	0.86	1.00	1.00
		Cns(t)	0.68	0.73	0.68	0.68	0.73	0.68	0.68
	Student4	Cns	1.00	1.00	1.00	1.00	0.86	1.00	1.00
		Cns(t)	0.68	0.68	0.68	0.68	0.73	0.68	0.68
	Student5	Cns	0.86	1.00	0.86	0.79	0.86	0.86	0.86
		Cns(t)	0.95	1.00	0.95	0.67	0.90	0.95	0.95
Class 22	Instructor	Cns	0.08	1.00	0.71	0.54	0.54	0.86	0.08
		Cns(t)	0.67	1.00	0.89	0.83	0.45	0.61	0.67

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student1	Cns	1.00	0.79	0.86	0.86	0.86	1.00	1.00
		Cns(t)	0.85	0.84	0.90	0.79	0.95	0.85	0.85
	Student2	Cns	0.54	0.86	0.79	0.71	0.71	1.00	0.86
		Cns(t)	0.65	0.61	0.67	0.54	0.32	0.49	0.55
	Student3	Cns	0.54	1.00	1.00	0.71	0.86	1.00	0.71
		Cns(t)	0.83	1.00	1.00	0.89	0.61	0.85	0.89
	Student4	Cns	0.62	0.86	0.86	0.86	0.62	1.00	0.86
		Cns(t)	0.78	0.95	0.95	0.90	0.78	0.85	0.79
	Student5	Cns	1.00	1.00	0.86	1.00	1.00	1.00	1.00
		Cns(t)	0.68	0.68	0.73	0.68	0.68	0.68	0.68

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student6	Cns	0.71	0.79	0.62	0.62	0.86	0.86	0.86
		Cns(t)	0.73	0.84	0.60	0.60	0.61	0.55	0.61
	Student7	Cns	0.86	0.86	0.86	0.86	0.86	1.00	0.86
		Cns(t)	0.61	0.61	0.55	0.61	0.61	0.49	0.61
	Student8	Cns	0.79	0.86	1.00	0.86	1.00	0.86	0.79
		Cns(t)	0.67	0.73	0.68	0.73	0.68	0.61	0.67
	Student9	Cns	0.62	0.86	0.62	0.86	0.86	0.71	0.51
		Cns(t)	0.60	0.90	0.72	0.95	0.61	0.61	0.44
Class 23	Instructor	Cns	0.71	0.86	1.00	0.54	1.00	0.71	1.00
		Cns(t)	0.89	0.95	1.00	0.83	1.00	0.89	1.00

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student1	Cns	0.71	0.54	0.79	0.79	0.51	0.86	0.86
		Cns(t)	0.61	0.66	0.48	0.67	0.65	0.55	0.55
	Student2	Cns	1.00	1.00	0.86	0.30	1.00	1.00	1.00
		Cns(t)	1.00	1.00	0.90	0.56	1.00	1.00	1.00
	Student3	Cns	1.00	1.00	0.86	1.00	1.00	1.00	1.00
		Cns(t)	0.68	0.68	0.61	0.68	0.68	0.68	0.68
	Student4	Cns	0.86	0.71	0.86	0.54	0.86	0.86	0.71
		Cns(t)	0.79	0.79	0.95	0.83	0.95	0.73	0.73
	Student5	Cns	1.00	1.00	1.00	0.71	1.00	0.71	0.86
		Cns(t)	1.00	1.00	1.00	0.79	1.00	0.89	0.79

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student6	Cns	0.86	1.00	0.71	1.00	1.00	1.00	0.86
		Cns(t)	0.90	0.85	0.73	1.00	1.00	1.00	0.95
	Student7	Cns	0.86	1.00	0.86	0.86	1.00	0.86	1.00
		Cns(t)	0.90	1.00	0.90	0.73	1.00	0.95	0.85
Class 24	Instructor	Cns	0.86	0.86	0.86	0.54	0.86	0.54	0.86
		Cns(t)	0.61	0.95	0.79	0.83	0.90	0.83	0.95
	Student1	Cns	0.86	0.86	0.86	0.30	0.79	0.86	0.85
		Cns(t)	0.55	0.79	0.79	0.50	0.84	0.79	0.76
	Student2	Cns	0.54	0.62	0.86	0.21	1.00	1.00	0.54
		Cns(t)	0.23	0.39	0.61	0.62	0.68	0.68	0.23

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student3	Cns	0.54	0.54	0.34	1.00	0.71	0.79	0.62
		Cns(t)	0.45	0.46	0.75	1.00	0.89	0.65	0.72
	Student4	Cns	1.00	1.00	1.00	0.86	0.86	0.86	0.86
		Cns(t)	0.68	0.68	0.68	0.61	0.79	0.73	0.61
	Student5	Cns	0.54	1.00	1.00	0.71	1.00	1.00	0.71
		Cns(t)	0.83	1.00	1.00	0.79	1.00	1.00	0.89
	Student6	Cns	0.86	0.86	0.79	0.54	0.71	1.00	0.71
		Cns(t)	0.61	0.90	0.84	0.45	0.89	1.00	0.79
	Student7	Cns	0.86	1.00	0.86	1.00	1.00	1.00	1.00
		Cns(t)	0.90	1.00	0.95	1.00	1.00	1.00	1.00

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
Class 25	Instructor	Cns	0.71	0.86	0.86	0.54	1.00	0.86	1.00
		Cns(t)	0.89	0.95	0.95	0.83	1.00	0.95	1.00
	Student1	Cns	0.86	1.00	1.00	0.86	1.00	0.86	0.86
		Cns(t)	0.61	0.68	0.68	0.61	0.68	0.61	0.61
	Student2	Cns	0.62	0.86	0.71	0.62	1.00	0.79	0.54
		Cns(t)	0.78	0.95	0.89	0.72	1.00	0.84	0.83
	Student3	Cns	0.54	1.00	1.00	1.00	1.00	1.00	1.00
		Cns(t)	0.83	1.00	1.00	1.00	1.00	1.00	1.00
	Student4	Cns	0.79	1.00	0.62	0.62	0.71	0.86	0.71
		Cns(t)	0.84	1.00	0.78	0.53	0.79	0.79	0.73

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student5	Cns	0.79	1.00	0.62	0.62	0.71	0.86	0.71
		Cns(t)	0.84	1.00	0.78	0.53	0.79	0.79	0.73
	Student6	Cns	0.86	1.00	0.86	0.86	0.86	0.86	1.00
		Cns(t)	0.79	0.85	0.79	0.73	0.79	0.79	0.85
	Student7	Cns	0.71	1.00	0.86	0.86	0.79	0.86	0.79
		Cns(t)	0.54	0.68	0.61	0.61	0.67	0.55	0.48
	Student8	Cns	0.86	1.00	1.00	0.86	1.00	0.86	0.86
		Cns(t)	0.95	1.00	1.00	0.95	1.00	0.95	0.95
	Student9	Cns	0.79	0.79	0.86	0.71	0.86	0.86	1.00
		Cns(t)	0.48	0.48	0.73	0.73	0.73	0.79	0.68

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student10	Cns	1.00	1.00	1.00	0.86	1.00	1.00	0.86
		Cns(t)	1.00	1.00	1.00	0.90	1.00	1.00	0.95
	Student11	Cns	1.00	1.00	0.86	0.62	0.71	0.54	1.00
		Cns(t)	1.00	1.00	0.95	0.72	0.89	0.83	1.00
	Student12	Cns	0.86	0.86	1.00	0.62	1.00	0.86	0.86
		Cns(t)	0.95	0.95	1.00	0.78	1.00	0.95	0.95
	Student13	Cns	1.00	0.86	1.00	1.00	1.00	1.00	1.00
		Cns(t)	0.68	0.55	0.68	0.68	0.68	0.68	0.68
	Student14	Cns	0.43	0.34	0.86	0.71	0.71	0.71	1.00
		Cns(t)	0.37	0.28	0.79	0.32	0.40	0.61	0.49

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student15	Cns	0.62	0.71	0.79	0.86	0.86	0.86	1.00
		Cns(t)	0.39	0.16	0.25	0.09	0.34	0.55	0.00
	Student16	Cns	1.00	1.00	0.71	1.00	1.00	1.00	1.00
		Cns(t)	1.00	1.00	0.89	1.00	1.00	1.00	1.00
Class 26	Instructor	Cns	0.79	0.86	0.86	0.71	0.79	0.79	1.00
		Cns(t)	0.84	0.95	0.90	0.73	0.84	0.84	0.85
	Student1	Cns	1.00	0.86	1.00	1.00	1.00	1.00	1.00
		Cns(t)	1.00	0.95	1.00	1.00	1.00	1.00	1.00
	Student2	Cns	0.79	1.00	1.00	0.86	1.00	0.85	1.00
		Cns(t)	0.84	1.00	1.00	0.95	1.00	0.92	1.00

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student3	Cns	0.86	1.00	1.00	0.86	1.00	1.00	1.00
		Cns(t)	0.95	1.00	1.00	0.95	1.00	1.00	1.00
	Student4	Cns	0.86	0.71	0.79	0.71	1.00	0.79	0.71
		Cns(t)	0.95	0.89	0.84	0.89	1.00	0.84	0.89
Class 27	Instructor	Cns	0.54	0.79	0.86	0.54	0.86	0.86	0.86
		Cns(t)	0.83	0.84	0.95	0.83	0.95	0.95	0.95
	Student1	Cns	0.71	1.00	0.86	0.54	1.00	1.00	0.86
		Cns(t)	0.54	0.68	0.61	0.66	0.68	0.68	0.55
	Student2	Cns	0.86	1.00	1.00	0.86	0.86	1.00	1.00
		Cns(t)	0.95	1.00	1.00	0.95	0.90	1.00	1.00

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student3	Cns	0.86	0.86	0.86	0.86	1.00	1.00	1.00
		Cns(t)	0.95	0.95	0.95	0.79	1.00	1.00	1.00
	Student4	Cns	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Cns(t)	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Class 28	Instructor	Cns	0.62	0.86	0.86	0.54	0.71	0.86	0.86
		Cns(t)	0.78	0.79	0.95	0.83	0.89	0.90	0.95
	Student1	Cns	0.86	1.00	0.54	0.62	1.00	1.00	1.00
		Cns(t)	0.95	1.00	0.83	0.72	1.00	1.00	1.00
	Student2	Cns	0.86	0.86	0.86	0.62	1.00	0.86	0.86
		Cns(t)	0.95	0.90	0.95	0.78	1.00	0.90	0.95

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student3	Cns	0.62	0.79	0.71	0.51	0.79	0.71	0.71
		Cns(t)	0.78	0.84	0.89	0.44	0.84	0.79	0.89
	Student4	Cns	0.86	1.00	0.86	0.34	1.00	1.00	0.86
		Cns(t)	0.79	0.85	0.79	0.75	1.00	1.00	0.90
	Student5	Cns	0.71	0.86	0.79	0.62	0.71	0.79	0.86
		Cns(t)	0.89	0.73	0.84	0.78	0.89	0.67	0.73
	Student6	Cns	0.79	0.86	1.00	0.86	1.00	0.86	0.79
		Cns(t)	0.67	0.61	0.68	0.55	0.68	0.73	0.67
	Student7	Cns	0.71	0.86	0.86	1.00	0.86	0.86	0.71
		Cns(t)	0.54	0.61	0.61	0.85	0.79	0.73	0.73

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student8	Cns	0.34	0.71	0.86	0.71	0.86	1.00	0.34
		Cns(t)	0.57	0.73	0.41	0.73	0.79	0.85	0.57
Class 29	Instructor	Cns	1.00	1.00	1.00	0.54	1.00	0.86	1.00
		Cns(t)	1.00	1.00	1.00	0.83	1.00	0.95	1.00
	Student1	Cns	0.86	0.54	0.71	0.54	1.00	0.62	1.00
		Cns(t)	0.90	0.83	0.89	0.83	1.00	0.78	1.00
	Student2	Cns	0.86	0.79	1.00	0.86	0.86	0.86	0.71
		Cns(t)	0.79	0.84	0.85	0.95	0.95	0.73	0.73
	Student3	Cns	0.86	1.00	1.00	0.86	1.00	1.00	1.00
		Cns(t)	0.95	1.00	1.00	0.90	1.00	1.00	1.00

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student4	Cns	0.71	1.00	1.00	0.54	1.00	1.00	0.54
		Cns(t)	0.89	1.00	1.00	0.83	1.00	1.00	0.83
	Student5	Cns	0.71	0.71	0.71	0.54	0.71	1.00	0.62
		Cns(t)	0.54	0.54	0.54	0.23	0.54	0.68	0.39
	Student6	Cns	0.86	0.71	1.00	1.00	0.86	1.00	1.00
		Cns(t)	0.55	0.79	0.68	0.49	0.61	0.68	0.49
	Student7	Cns	0.62	1.00	1.00	1.00	1.00	1.00	0.86
		Cns(t)	0.78	1.00	1.00	1.00	1.00	1.00	0.95
	Student8	Cns	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Cns(t)	1.00	1.00	1.00	1.00	1.00	1.00	1.00

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Appendix H (Continued)

*Individual Level Summary*

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<i>Classes</i>	<i>Students</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	Student9	Cns	0.71	0.71	1.00	0.86	0.86	0.86	0.79
		Cns(t)	0.61	0.79	0.85	0.79	0.95	0.73	0.67

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Appendix I  
Class Level Summary

<i>Classes</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
Class 1	* <sup>1</sup> ICns	0.62	0.86	0.86	0.71	0.86	0.62	0.71
	* <sup>2</sup> ICns(t)	0.78	0.95	0.95	0.89	0.95	0.78	0.89
	* <sup>3</sup> MSCns	* <sup>5</sup> 0.62, 1.00	0.43, 1.00	0.71, 1.00	0.71	0.71, 0.79	0.71, 0.86	0.86, 1.00
	* <sup>4</sup> MSCns(t)	0.39, 0.68	0.51, 0.68	0.68, 0.79	0.73, 0.79	0.67, 0.79	0.73, 0.79	0.61, 0.68
Class 2	ICns	0.71	0.86	1.00	0.54	1.00	0.62	0.86
	ICns(t)	0.73	0.90	1.00	0.83	1.00	0.60	0.79
	MSCns	0.86, 1.00	1.00	0.86	0.54, 0.71	0.79, 1.00	0.79	0.86
	MSCns(t)	0.95, 1.00	0.90, 1.00	0.95	0.83	0.84, 1.00	0.84	0.95
Class 3	ICns	0.86	0.71	1.00	0.71	0.71	0.79	0.79

\*<sup>1</sup> ICns: Instructor Consensus Score

\*<sup>2</sup> ICns(t): Instructor Targeted Consensus Score

\*<sup>3</sup> MSCns: Median Student Consensus Score

\*<sup>4</sup> MSCns(t): Median Student Targeted Consensus Score

\*<sup>5</sup> The median can be any allowable targeted agreement or consensus number, respectively, inbetween the two numbers, inclusively.

Appendix I. (Continued)

*Class Level Summary*

<i>Classes</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
Class 4	ICns(t)	0.95	0.79	1.00	0.89	0.89	0.84	0.84
	MSCns	1.00	1.00	1.00	0.86	1.00	1.00	1.00
	MSCns(t)	1.00	1.00	1.00	0.90	1.00	1.00	1.00
	ICns	0.86	1.00	0.86	0.71	1.00	1.00	0.86
	ICns(t)	0.95	1.00	0.90	0.89	1.00	1.00	0.95
	MSCns	0.86	0.86, 1.00	0.86	0.71	1.00	0.86, 1.00	0.86
Class 5	MSCns(t)	0.90, 0.95	0.95, 1.00	0.95	0.89	1.00	0.90, 1.00	0.95
	ICns	0.86	1.00	1.00	0.62	0.86	0.86	0.86
	ICns(t)	0.79	1.00	0.85	0.78	0.95	0.79	0.79
	MSCns	0.86, 1.00	1.00	1.00	0.86	1.00	1.00	1.00

Appendix I. (Continued)

*Class Level Summary*

<i>Classes</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
Class 6	MSCns(t)	0.83, 0.84	0.85, 1.00	0.85, 1.00	0.73, 0.90	0.84, 1.00	0.79, 0.90	0.85, 0.95
	ICns	0.86	1.00	0.71	0.34	1.00	0.43	0.86
	ICns(t)	0.90	1.00	0.79	0.75	1.00	0.70	0.90
	MSCns	1.00	1.00	0.86, 1.00	0.71	0.86	0.86	1.00
Class 7	MSCns(t)	0.84, 0.85	0.84, 0.85	0.84, 0.85	0.83, 0.89	0.85, 0.95	0.79, 0.84	0.85
	ICns	0.79	0.86	0.79	0.54	0.62	0.86	0.86
	ICns(t)	0.84	0.90	0.84	0.83	0.78	0.90	0.90
	MSCns	1.00	1.00	0.86	0.86	1.00	1.00	0.86
Class 8	MSCns(t)	1.00	1.00	0.90	0.95	1.00	0.95	0.95
	ICns	0.62	1.00	0.71	0.54	0.62	0.86	1.00

Appendix I. (Continued)

*Class Level Summary*

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<i>Classes</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	ICns(t)	0.78	1.00	0.89	0.45	0.60	0.95	1.00
	MSCns	0.86	0.86	0.86	0.86	0.86	1.00	1.00
	MSCns(t)	0.79	0.89	0.83	0.85	0.83	0.90	0.89
Class 9	ICns	0.79	0.79	0.86	0.71	0.86	1.00	0.86
	ICns(t)	0.84	0.84	0.90	0.89	0.95	1.00	0.95
	MSCns	1.00	0.86	0.86	0.71	0.86	0.86	0.86
	MSCns(t)	0.85	0.90	0.90	0.89	0.90	0.90	0.90
Class 10	ICns	1.00	1.00	1.00	0.85	0.71	0.85	1.00
	ICns(t)	1.00	1.00	1.00	0.76	0.79	0.76	1.00
	MSCns	0.86	1.00	0.86	0.86	0.71	0.86	1.00

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Appendix I. (Continued)

*Class Level Summary*

<i>Classes</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
Class 11	MSCns(t)	0.79	0.95	0.84	0.90	0.79	0.95	0.85
	ICns	1.00	0.71	0.86	0.86	0.71	0.71	1.00
	ICns(t)	0.85	0.85	0.95	0.73	0.79	0.89	0.85
	MSCns	0.71	0.71	0.71, 0.86	0.79, 0.86	0.71	0.71, 0.86	0.86
Class 12	MSCns(t)	0.51, 0.73	0.68, 0.73	0.68, 0.79	0.55, 0.67	0.48, 0.73	0.54, 0.73	0.61, 0.68
	ICns	0.71	1.00	0.86	0.54	0.79	0.54	0.71
	ICns(t)	0.89	1.00	0.79	0.83	0.84	0.83	0.89
	MSCns	0.86, 1	1.00	0.79, 1	0.54, 0.71	0.86, 1	0.86	1.00
	MSCns(t)	0.89, 0.95	0.68, 1.00	0.68, 0.89	0.73, 0.83	0.68, 0.90	0.90	0.68, 0.85
Class 13	ICns	0.86	0.79	0.86	0.86	1.00	0.86	1.00

Appendix I. (Continued)

*Class Level Summary*

<i>Classes</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	ICns(t)	0.90	0.84	0.95	0.90	1.00	0.95	0.85
	MSCns	0.86	0.86	0.86	0.71	0.86	0.86	0.86, 1.00
	MSCns(t)	0.79, 0.84	0.90, 0.95	0.85, 0.95	0.73, 0.78	0.90, 0.95	0.90, 0.95	0.79, 0.84
Class 14	ICns	1.00	0.86	0.86	0.62	0.71	0.71	0.86
	ICns(t)	1.00	0.95	0.95	0.78	0.89	0.73	0.90
	MSCns	1.00	1.00	1.00	0.86	0.86, 1.00	0.86	1.00
	MSCns(t)	0.85, 0.95	0.84, 0.85	0.85, 0.95	0.83, 0.84	0.79, 0.95	0.79, 0.85	0.85, 0.95
Class 15	ICns	0.86	1.00	0.86	0.62	0.86	0.79	1.00
	ICns(t)	0.90	0.85	0.79	0.78	0.90	0.84	1.00
	MSCns	0.86	0.86	0.79	0.71	0.86	1.00	1.00

Appendix I. (Continued)

*Class Level Summary*

<i>Classes</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
Class 16	MSCns(t)	0.90	0.95	0.89	0.78	0.95	1.00	1.00
	ICns	1.00	0.79	0.86	0.86	0.71	0.79	0.86
	Icns(t)	1.00	0.84	0.90	0.73	0.79	0.67	0.90
Class 17	MSCns	0.86	1.00	1.00	0.86	0.86	1.00	0.86
	MSCns(t)	0.95	1.00	0.95	0.90	0.95	0.90	0.84
	Icns	0.86	1.00	1.00	0.86	1.00	1.00	0.86
	Icns(t)	0.95	1.00	1.00	0.95	1.00	1.00	0.95
	MSCns	0.71, 0.86	1.00	1.00	0.86, 1.00	1.00	1.00	1.00
	MSCns(t)	0.89	1.00	1.00	0.95, 1.00	1.00	1.00	1.00
Class 18	ICns	1.00	1.00	1.00	0.71	0.54	0.71	1.00

Appendix I. (Continued)

*Class Level Summary*

<i>Classes</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	ICns(t)	1.00	1.00	1.00	0.79	0.83	0.89	1.00
	MSCns	0.86	1.00	0.86	0.86	0.86	0.86	0.86
	MSCns(t)	0.79	0.85	0.79	0.84	0.90	0.84	0.85
Class 19	ICns	1.00	1.00	0.86	0.54	0.62	0.86	1.00
	ICns(t)	1.00	1.00	0.90	0.83	0.78	0.95	1.00
	MSCns	1.00	0.86, 1.00	1.00	0.79, 0.86	1.00	0.79, 0.86	0.86
	MSCns(t)	1.00	0.95, 1.00	1.00	0.89	1.00	0.89, 0.95	0.95
Class 20	ICns	1.00	1.00	0.86	0.86	0.79	1.00	1.00
	ICns(t)	0.85	0.85	0.90	0.55	0.84	0.49	0.85
	MSCns	1.00	0.86	0.86	0.86	1.00	0.86	0.86

Appendix I. (Continued)

*Class Level Summary*

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<i>Classes</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	MSCns(t)	1.00	0.89	0.95	0.89	1.00	0.95	0.79
Class 21	ICns	0.71	1.00	0.79	0.71	0.79	1.00	1.00
	ICns(t)	0.73	0.85	0.84	0.61	0.84	0.49	0.85
	MSCns	1.00	1.00	1.00	0.79	0.86	1.00	1.00
	MSCns(t)	0.90	0.90	0.95	0.68	0.90	0.90	0.95
Class 22	ICns	0.08	1.00	0.71	0.54	0.54	0.86	0.08
	ICns(t)	0.67	1.00	0.89	0.83	0.45	0.61	0.67
	MSCns	0.71	0.86	0.86	0.86	0.86	1.00	0.86
	MSCns(t)	0.68	0.84	0.72	0.73	0.61	0.61	0.67
Class 23	ICns	0.71	0.86	1.00	0.54	1.00	0.71	1.00

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Appendix I. (Continued)

*Class Level Summary*

<i>Classes</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	ICns(t)	0.89	0.95	1.00	0.83	1.00	0.89	1.00
	MSCns	0.86	1.00	0.86	0.79	1.00	0.86	0.86
	MSCns(t)	0.90	0.85	0.90	0.73	1.00	0.89	0.79
Class 24	ICns	0.86	0.86	0.86	0.54	0.86	0.54	0.86
	ICns(t)	0.61	0.95	0.79	0.83	0.90	0.83	0.95
	MSCns	0.86	0.86	0.86	0.71	0.86	1.00	0.71
	MSCns(t)	0.61	0.79	0.79	0.62	0.89	0.79	0.76
Class 25	ICns	0.71	0.86	0.86	0.54	1.00	0.86	1.00
	ICns(t)	0.89	0.95	0.95	0.83	1.00	0.95	1.00
	MSCns	0.79, 0.86	1.00	0.86	0.86	0.86, 1.00	0.86	0.86, 1.00

Appendix I. (Continued)

*Class Level Summary*

<i>Classes</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
Class 26	MSCns(t)	0.79, 0.83	0.95	0.79	0.72	0.79, 0.79	0.79	0.73, 0.83
	ICns	0.79	0.86	0.86	0.71	0.79	0.79	1.00
	ICns(t)	0.84	0.95	0.90	0.73	0.84	0.84	0.85
	MSCns	0.86	0.86, 1.00	1.00	0.86	1.00	0.85, 1.00	1.00
Class 27	MSCns(t)	0.95	0.95, 1.00	1.00	0.95	1.00	0.92, 1.00	1.00
	ICns	0.54	0.79	0.86	0.54	0.86	0.86	0.86
	ICns(t)	0.83	0.84	0.95	0.83	0.95	0.95	0.95
	MSCns	0.86	1.00	0.86, 1.00	0.86	1.00	1.00	1.00
Class 28	MSCns(t)	0.68, 0.95	0.68, 0.95	0.68, 0.95	0.68, 0.79	0.68, 0.90	0.68, 1.00	0.68, 1.00
	ICns	0.62	0.86	0.86	0.54	0.71	0.86	0.86

Appendix I. (Continued)

*Class Level Summary*

<i>Classes</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	ICns(t)	0.78	0.79	0.95	0.83	0.89	0.90	0.95
	MSCns	0.71, 0.79	0.86	0.86	0.62	0.86, 1.00	0.86	0.79, 0.86
	MSCns(t)	0.78, 0.79	0.73, 0.85	0.79, 0.83	0.73, 0.75	0.84, 0.89	0.79, 0.85	0.73, 0.89
Class 29	ICns	1.00	1.00	1.00	0.54	1.00	0.86	1.00
	ICns(t)	1.00	1.00	1.00	0.83	1.00	0.95	1.00
	MSCns	0.86	0.79	0.89	0.86	1.00	1.00	0.86
	MSCns(t)	0.79	0.84	1.00	0.83	1.00	0.78	0.83

Appendix J  
Department Level Summary

<i>Departments</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
Department 1	* <sup>1</sup> MICns	0.79	0.86	0.86	0.62	0.86	0.86	0.86
	* <sup>2</sup> MICns(t)	0.84	0.95	0.90	0.83	0.95	0.84	0.90
	* <sup>3</sup> MSCns	* <sup>5</sup> 0.86, 1.00	1.00	0.86, 1.00	0.86	1.00	0.86	1.00
	* <sup>4</sup> MSCns(t)	0.90	0.90	0.90	0.89	0.95	0.90	0.95
Department 2	MICns	1.00	1.00	1.00	0.85	0.71	0.85	1.00
	MICns(t)	1.00	1.00	1.00	0.76	0.79	0.76	1.00
	MSCns	0.86	1.00	0.86	0.86	0.71	0.86	1.00
	MSCns(t)	0.79	0.95	0.84	0.90	0.79	0.95	0.85

\*<sup>1</sup> MICns: Median Instructor Consensus Score

\*<sup>2</sup> MICns(t): Median Instructor Targeted Consensus Score

\*<sup>3</sup> MSCns: Median Student Consensus Score

\*<sup>4</sup> MSCns(t): Median Student Targeted Consensus Score

\*<sup>5</sup> The median can be any allowable targeted agreement or consensus number, respectively, inbetween the two numbers, inclusively.

Appendix J. (Continued)

*Department Level Summary*

<i>Departments</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
Department 3	MICns	1.00	0.71	0.86	0.86	0.71	0.71	1.00
	MICns(t)	0.85	0.89	0.95	0.73	0.79	0.89	0.85
	MSCns	0.71	0.71	0.71, 0.86	0.79, 0.86	0.71	0.71, 0.86	0.86
	MSCns(t)	0.51, 0.73	0.68, 0.73	0.68, 0.79	0.55, 0.67	0.48, 0.73	0.54, 0.73	0.61, 0.68
Department 4	MICns	0.71, 0.86	0.79, 1.00	0.86	0.54, 0.86	0.79, 1.00	0.54, 0.86	0.71, 1.00
	MICns(t)	0.89, 0.90	0.84, 1.00	0.79, 0.95	0.83, 0.90	0.84, 1.00	0.83, 0.50	0.85, 0.89
	MSCns	0.86	0.86	0.86	0.71	0.86	0.86	1.00
	MSCns(t)	0.84, 0.89	0.90, 0.95	0.85, 0.89	0.73, 0.78	0.90	0.90	0.79, 0.84
Department 5	MICns	1.00	0.86	0.86	0.62	0.71	0.79	0.86
	MICns(t)	1.00	0.85	0.90	0.78	0.89	0.73	0.90

Appendix J. (Continued)

*Department Level Summary*

<i>Departments</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	MSCns	0.86, 1.00	1.00	1.00	0.86	0.86	0.86, 1.00	1.00
	MSCns(t)	0.90, 0.95	0.95	0.90, 0.95	0.83, 0.84	0.95	0.85, 0.89	0.90, 0.95
Department 6	MICns	1.00	1.00	0.86, 1	0.71, 0.86	0.62, 0.79	0.86, 1	1.00
	MICns(t)	0.95, 1.00	1.00	0.90, 1.00	0.79, 0.83	0.83, 0.84	0.89, 0.95	0.95, 1.00
	MSCns	0.86	1.00	1.00	0.86	1.00	0.86	0.86
	MSCns(t)	0.89, 0.95	0.95	1.00	0.89	1.00	0.90, 0.95	0.95
Department 7	MICns	0.71	1.00	0.79	0.54	0.79	0.86	1.00
	MICns(t)	0.73	0.95	0.89	0.83	0.84	0.61	0.85
	MSCns	0.86	0.86	0.86	0.86	0.86	1.00	0.86
	MSCns(t)	0.78	0.84	0.73	0.72	0.73	0.73	0.73

Appendix J. (Continued)

*Department Level Summary*

<i>Departments</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
Department 8	MICns	0.86	0.86	0.86	0.54	0.86	0.54	0.86
	MICns(t)	0.61	0.95	0.79	0.83	0.90	0.83	0.95
	MSCns	0.86	0.86	0.86	0.71	0.86	1.00	0.71
	MSCns(t)	0.61	0.79	0.79	0.62	0.89	0.79	0.76
Department 9	MICns	0.71, 0.79	0.86	0.86	0.54, 0.71	0.79, 1.00	0.79, 0.86	1.00
	MICns(t)	0.84, 0.89	0.95	0.90, 0.95	0.73, 0.83	0.84, 1.00	0.84, 0.95	0.85, 1.00
	MSCns	0.86	1.00	0.86	0.86	1.00	0.86	1.00
	MSCns(t)	0.84	0.95	0.84, 0.89	0.73, 0.73	0.89, 1.00	0.83, 0.84	0.85, 0.89
Department 10	MICns	0.62	0.86	0.86	0.54	0.86	0.86	0.86
	MICns(t)	0.83	0.84	0.95	0.83	0.95	0.95	0.95

Appendix J. (Continued)

*Department Level Summary*

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<i>Departments</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
	MSCns	0.86	0.86	0.86	0.86	1.00	1.00	0.86
	MSCns(t)	0.79	0.84	0.85	0.78	0.95	0.79	0.83

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Appendix K  
College Level Summary

<i>College</i>	<i>Measures</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Criterion 6</i>	<i>Criterion 7</i>
CLA	*1 MICns	0.86	0.86	0.86	0.62	0.79	0.86	0.86
	*2 MICns(t)	0.89	0.95	0.90	0.83	0.90	0.84	0.90
	*3 MSCns	0.86	1.00	0.86	0.86	1.00	0.86	0.86
	*4 MSCns(t)	0.84	0.90	0.89	0.83	0.95	0.89	0.85

\*1 MICns: Median Instructor Consensus Score

\*2 MICns(t): Median Instructor Targeted Consensus Score

\*3 MSCns: Median Student Consensus Score

\*4 MSCns(t): Median Student Targeted Consensus Score