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Perceived Effectiveness of Assessments Used in Online Courses in
Western North Carolina Community Colleges

A dissertation
presented to
the faculty of the Department of Educational Leadership and Policy Analysis
East Tennessee State University

In partial fulfillment
of the requirements for the degree
Doctor of Education

by
Kim Marie Yates
December 2005

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Dr. Lee Daniels
Dr. Nancy Dishner
Dr. Nancy McMurray

Keywords: Effectiveness, Assessment, Internet, Online

ABSTRACT

Perceived Effectiveness of Assessments Used in Online Courses in Western North Carolina Community Colleges

by

Kim Marie Yates

The purpose of this study was to determine the most appropriate methods of assessment for online courses. Internet instructors were surveyed and asked which methods of assessment they use in the online courses that they teach and how effective they perceive those methods to be in determining if the learning objectives have been met for the course(s) that they teach online.

The findings of this study indicated that there is a difference between some academic disciplines in relation to the type of assessment methods being used in online courses. There is a difference in perceived effectiveness of assessment methods among the individual instructors surveyed.

The most effective means of assessment as determined by the survey results is individual projects. The least effective method of assessment as determined by the survey results is self-assessment.

The study's results confirmed that objectively scored testing is not considered the most effective method of assessment; however, several instructors still use this method because of time constraints. The study's results confirmed that a variety of assessment methods need to be used within each Internet course to determine the effectiveness of the course. Surprisingly, there was no difference in the assessment methods being used by those instructors who received training and those who did not. This conclusion could be because the training received by most online instructors was in Blackboard and/or technology and not assessment methods. There is a

difference in the number of types of assessment being used by online instructors. The survey data indicated that there was not a difference in assessment methods being used by instructors who have taught for more than three years as compared to instructors who have taught three or fewer years. The study indicated that there is a difference in some of the types of assessments being used by instructors who teach more than one Internet course per year. Not surprisingly, instructors who have a large number of students and/or course sections resort to objectively scored testing methods only because they do not have time to grade alternative assessment formats.

DEDICATION

This study is dedicated:

To my children, Jessica, Alex, and Aaron Yates, who have patiently allowed their mother to complete her studies and spend hours writing papers and completing coursework--for the ball games that they have allowed me to miss so that I could fulfill my lifelong dream of achieving the title of Doctor.

To my parents, John and Gail Halada, who taught me from childhood that I could accomplish anything that I put my mind to with hard work--and for giving me a lifelong love of education and the desire to learn.

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CHAPTER 1

INTRODUCTION

According to Gunawardena and McIsaac (2003), distance education is structured learning in which the student and instructor are separated by place and occasionally by time. It is also currently the fastest growing form of domestic and international education. Distance education has come a long way since the first correspondence courses in the early 1800s. With the current advances in technology, distance learning through the Internet has become the educational future. Gunawardena and McIsaac continued by stating that with the rise and proliferation of distance learning systems, there is a need to critically examine the strengths and weaknesses of various programs. Accountability is the newest “buzz word” in education. The federal government needs to have documentation that learning outcomes are being satisfied at all levels in the educational system. The most effective method of demonstrating accountability is through assessment. Comeaux (2005) pointed out, “With increased emphasis on accountability in general (e.g., American Association for Higher Education’s 2002 assessment conference) and increased scrutiny of online teaching and learning, issues of assessment have taken on more importance than ever before” (p. xix). Comeaux explained:

Because assessment events drive learning outcomes, as the literature reveals, they are integral to the design and structure of not only a particular subject but also the learning environment. As educators and scholars, we must critically assess the characteristics and quality of online learning environments and we must also consider how technology impacts assessment. (p. xxi)

Wlodkowski (1999) mentioned that effectiveness is the learners' awareness of their command or accomplishment of something they find to be important in the process of learning or as an outcome of learning. Therefore, both the processes and the results of learning are significant information for adults. Because assessments measure effectiveness, it is important that the process of assessment as well as the results of learning be reviewed.

Background

This researcher interpreted data collected from 15 community colleges in the North Carolina Community College System. Wiggs (1989) described North Carolina's system of comprehensive community and technical colleges, sometimes characterized as a coordinated confederation, as the outgrowth of a legislated marriage in 1963 between an existing network of industrial education centers and a seminal system of public junior colleges. Lancaster (1999) detailed:

The North Carolina Community College System (NCCCS) is the third largest community college system in the country, made up of 59 institutions across the state that serve over 710,000 students (unduplicated headcount). The system's mission is to open the door to opportunity by providing education and training for the workforce, support for economic development and services to communities and individuals. (p. 327)

This open door policy requires a community college system to provide access to education for the state's residents. Lancaster acknowledged, "With every North Carolinian within 30 miles of a community college or satellite center, the state's community colleges are accessible as well as affordable" (p. 327). The offering of distance education courses falls within the mission of the North Carolina Community College System because it removes the time and place barriers that exist for some students. Milliron (2001) stated that technology has given educators more chances to reach students than they have ever had before. According to Majette (2001), the North Carolina Community College System first proposed the creation of a Virtual Learning Community (VLC) in January 1999. The VLC is a consortium of every college in the North Carolina Community College System that, through collaboration, develops online courses, provides training, enhances online student services, and facilitates communication about online learning across colleges (Majette). The development of the first 10 new VLC courses was completed in the spring of 2000. In the spring of 2001, 51 courses had been developed. In spring 2002, 49 courses; in spring 2003, 50 courses; in spring 2004, only 2 courses; and spring 2005 there are not any courses listed as complete. The majority of the instructor training occurred within the first three years of the development of the Virtual Learning Community;

therefore, this researcher will look at the difference in assessment methods used by instructors who were trained during those three years as compared to instructors trained recently.

The newest impetus in learning is the learning college concept that O'Banion (1997) said creates and offers as many options for learning as possible. Milliron (2001) mentioned that bringing technology, students, and strategy together to improve learning was one of the current goals of community colleges. Lancaster (1999) explained this concept as it applies to the North Carolina Community College System:

The North Carolina Community College System offers a comprehensive range of educational programs to meet the needs of local communities for employment skills, basic educational skills, job retraining, higher academic education, personal growth and development, and community and economic development. (p. 334)

Lancaster added, "Courses are usually offered at a time and place convenient to the employee and/or employer" (p. 337).

The North Carolina Community College System also has strong standards for accountability. Lancaster (1999) noted, "Accountability for the Community College System is shared by the state board, the local boards, state and local administrative staffs, and faculty. Each has responsibilities for which it is held accountable" (p. 340). This accountability requirement ensures that faculty members are using appropriate assessments to determine if learning outcomes are being met within the courses they teach. According to McClenney (2003), the effort of defining and assessing student learning outcomes is one of the most difficult yet most important endeavors in education.

Perez-Greene (2005) observed that assessment had become increasingly difficult as colleges offered more online courses for the "anywhere, anytime" learners. Nonetheless, public demand for accountability in all aspects of higher education has increased tremendously especially in the area of resource stewardship and, most recently, student learning. For this reason, according to Perez-Greene, "Colleges are mobilized to provide evidence of learning by taking rigorous steps to revamp plans that more clearly define goals, objectives, and evaluation practices that lead to assessing the outcome they desire for their students-- learning" (p. 6).

Of the 59 community colleges across the state as detailed by Lancaster (1999), this study includes data retrieved from the 15 community colleges in the western part of the state that serve the Appalachian region. In the mid 1960s, at the urging of two U.S. presidents, Congress created legislation to address the persistent poverty and growing economic despair of the Appalachian Region (Appalachian Regional Commission, 2005). The Appalachian region is defined in the legislation from which the Appalachian Regional Commission derives its authority. According to the Appalachian Regional Commission, Appalachia is a 200,000 square-mile region that follows the spine of the Appalachian Mountains from southern New York to northern Mississippi. The 15 community colleges that serve the counties in North Carolina that are included in the Appalachian region are: Asheville-Buncombe Technical Community College (Buncombe, Madison), Blue Ridge Community College (Henderson, Transylvania), Caldwell Community College and Technical Institute (Caldwell, Watauga), Catawba Valley Community College (Alexander), Davidson County Community College (Davie), Forsyth Technical Community College (Forsyth, Stokes), Haywood Community College (Haywood), Isothermal Community College (Polk, Rutherford), Mayland Community College (Avery, Mitchell, Yancey), McDowell Technical Community College (McDowell), Southwestern Community College (Jackson, Macon, Swain), Surry Community College (Surry, Yadkin), Tri-County Community College (Cherokee, Clay, Graham), Western Piedmont Community College (Burke), and Wilkes Community College (Alleghany, Ashe, Wilkes).

Statement of the Problem

The 15 community colleges in the western part of North Carolina's Appalachian region all offer online courses. The offering of online courses in the state of North Carolina and across the United States is increasing exponentially. According to Bangurah (2004), distance learning via the Internet has created new learning opportunities for many students including lifelong learners who might otherwise not be able to access college course offerings of their choice that

meet their educational goals.

I have not been able to find a detailed study that compares the effectiveness of assessment methods used in online courses. Assessment has become an integral part of accountability in the American educational system; therefore, the assessments used to determine if learning outcomes are being met within an online course should be among the most effective assessments for the method of instruction.

The problem that this study addressed was the degree to which there were differences in the perceptions by online instructors in the effectiveness of different assessment methods being used to determine if learning outcomes have been met in the online course environment.

Research Questions

This study focused on the responses of online instructors who taught Internet courses at the 15 Western North Carolina Community Colleges that serve the Appalachian region with a focus on the following research questions:

1. Academic discipline: Are there differences in assessment methods being used among faculty who teach in different academic disciplines in the online environment?
2. Learning objectives being met: Are there differences in perceived effectiveness of the assessment methods being used among individual instructors in determining if the course learning objectives have been met?
3. Internet course development training: Are there differences in assessment methods used between those online instructors who received training in Internet course development as compared to those who did not?
4. Number of assessments per course: Are there differences in the number of different types of assessments being used per course by each instructor?
5. Years teaching Internet courses: Are there differences in the types of assessments being used by online instructors who have been teaching in the online environment

- for more than three years as compared with instructors who have been teaching in the online environment for three or fewer years?
6. Number of Internet courses per year: Are there differences in the types of assessments being used by online instructors who teach more than one Internet course per year and instructors who teach only one Internet course per year?

Significance of the Study

According to Bangurah (2004), diverse populations of students from almost all occupations continue to pursue postsecondary education and training across America. For many, distance learning becomes the only viable alternative to meet their educational goals and job-training needs. With the advent of entire degree programs being offered over the Internet, it is possible that a student might never physically go to a college campus. Because the online educational environment might be the only classrooms some students attend, it is imperative that the education they receive fulfills all the learning outcomes of the program in which they are enrolled.

This study was designed to determine whether the assessment methods being used in the online environment were perceived to determine that the learning outcomes had been met for a particular course or program. This study might also determine what the best methods of assessment would be within the online learning environment. The results of this study might provide insights into the methods of assessment being used in the online environment and establish which methods are perceived to be the most beneficial in determining if the learning objectives have been met for a course.

Delimitations

This study's delimitations are as follows:

1. The study was delimited to the 15 community colleges in Western North Carolina

- that serve the Appalachian region and the findings might not be generalized to institutions in other locations.
2. Students' characteristics and other student factors were not explored in this study.
 3. This study was delimited to the instructors who were currently teaching online courses in the selected area.
 4. I work as an Internet course developer at a community college within the North Carolina Appalachian region. I was careful to ensure that my personal perceptions did not influence this study.

Definitions of Terms

For the purpose of this study, the following definitions are from Stiles (2003, pp. 46-185):

Assessment: The determination of a learner's ability to perform a task as defined by a performance objective to a minimum set of criteria; (2) the ability to determine to what degree the specified learning performance objectives have been learned. Assessment involves traditional tests as well as direct observation of product criteria.

Asynchronous: happening at different times. Asynchronous communications, for instance, is characterized by time/independence, that is, the sender and receiver do not communicate at the same time.

Correspondence Course: This is the simplest and oldest form of distance education. Assignments are mailed to the learner. The learner completes the assignments and returns them to the instructor for grading. Feedback is provided via mail and the next assignment is mailed to the learner. The cycle repeats until the course is completed. This form of education is inexpensive, can be completed anywhere, and has been proven effective.

Course Management System (CMS): a set of computer software tools designed to enable

users to create Web-based courses; examples include WEBCT, TopClass, and LearningSpace.

Distance Learning: a term for the physical separation of teachers and learners that has become popular in recent years, particularly in the United States. While used interchangeably with distance education, distance learning puts the emphasis on the learner and is especially appropriate when students take on greater responsibility for their learning as is frequently the case when doing so from a distance. (2) a system and a process of committing learners with distributed learning resources; (3) the desired outcome of distance education.

Electronic Mail (email): the transmission of messages over a data communications network.

Instructional Television (ITV): television that is used for direct classroom instruction (both live and videotaped). It is visualized and interactive.

Interactive: operating in an interactive or back-and-forth mode. It refers to user and machine dialogue or interaction in which both are active participants in a process.

Internet: the networks of networks that provides the basic protocol standard for allowing data communications systems to link themselves together around the world.

Internet courses: used interchangeable with *online courses*.

Learner-Centered: the type of teleteaching that focuses first on learning objectives and then on how they will be taught. This is highly interactive learning.

Learning Performance Objectives (LPO): clear and precise statement of exactly what the student is expected to learn and do at the completion of a course and at the end of each class.

Multimedia: combining sound, text, images, animation, and video. With computers, it refers to a variety of applications that utilize CD-ROM, videodisc, and audio equipment.

Portfolio Assessment: An alternative to traditional testing that requires students to compile a portfolio of material (papers written, creative works developed, log of relevant activities, etc.) that is used to assess student accomplishment in a course of study.

Proctored Examination: An examination whereby the learner is supervised by a proctor.

Self-Assessment: A process in which the student checks his or her own progress towards the mastery of the stated learning performance objectives.

Synchronous: A communication in real time that is not time delayed. This includes live television, telephone, and radio; happening at the same time.

Web-enhanced Course: see web-based course. The difference is that the entire course is not web-based; only portions of the course are web-based.

The following definitions are from Dabbagh and Bannan-Ritland (2005, pp. 332-334):

Online Courses: (used interchangeably with Internet courses) courses conducted entirely over the Internet. Internet and web-based tools that learners (and instructors) use to gather information, provide content and context, construct knowledge, and interact and collaborate.

Web-based Course: Use of the World Wide Web to deliver instruction and instructional resources, including hypertext, hypermedia, multimedia, and communications technologies.

Organization of the Study

The study is organized into five chapters. Major components of the study are discussed in each chapter. Chapter 1 introduces the study and contains sections regarding the statement of the problem, research questions, significance of the study, the study's limitations and delimitations, and definitions of selected terms used in the study. A review of the related literature including a history of distance education, a history of assessment, types of assessment, underlying research, and a summary is presented in Chapter 2.

Chapter 3 describes the research design, population, data collection procedure, data analysis strategies, and research hypotheses. Chapter 4 provides an introduction, descriptions, and analysis of the data and findings of the study. Chapter 5 includes a summary of findings, general conclusions, and recommendations for further study and to improve practice.

CHAPTER 2

REVIEW OF THE LITERATURE

This chapter pertains to the relevant literature supporting this study. I investigated the perceived effectiveness of assessment methods in online courses in Western North Carolina Community Colleges. With the increased popularity of online courses among both students and educators, appropriate assessment methods in the online environment have become imperative to meeting the accountability standards initiated by state and federal governments. The literature review includes the history of distance education, the history of assessment, types of assessment, underlying research, and a summary.

History of Distance Education

Distance education is a very important topic in current times. Distance education is now often defined as "institution-based, formal education where the learning group is separated, and where interactive telecommunications systems are used to connect learners, resources, and instructors" (Simonson, Smaldino, Albright, & Zvacek, 2003, pp. 7-8). The introduction of the Internet has made this mode of education more available than in the past. It is important to understand the history of distance education including the fact that it began over a century ago with correspondence study.

Text-Based Distance Education

Distance education began in the early 1800s with the advent of correspondence study. According to Simonson et al. (2003), an advertisement in a Swedish newspaper in 1833 touted the opportunity to study "composition through the medium of the Post" (p. 32). In 1840, England's newly established *Penny Post* allowed Isaac Pitman to offer shorthand instruction via

correspondence (Simonson et al.). After these occurrences, correspondence study began to be visible in Germany and then the United States. This type of curriculum allowed students to correspond monthly with teachers after they completed reading assignments and tests. By the end of the 1800s, academic degrees were being awarded by the state of New York for correspondence courses. Simonson et al. stated that William Rainey Harper, the Yale professor who headed the program, was effusive in his support of correspondence study and confident in the future viability of the new educational form, stating, "The student who has prepared a certain number of lessons in the correspondence school knows more of the subject treated in those lessons, and knows it better than the student who has covered the same ground in the classroom" (as cited in Simonson et al., p. 32). In 1892, William Rainey Harper, president of the University of Chicago, established the Academic College (the first two years) and the University College (second two years) and he called them the Junior College and Senior College (Hittman, 1994, p. 536). According to Hittman, Harper was instrumental in establishing the first public junior college in Joliet, Illinois, and he gave birth to the modern public junior/community college movement. Harper announced that if denominational colleges wished to reduce their curricula to two years and send their students on to the university, formal arrangements could be made so that their college work would be accepted toward the baccalaureate degree. This allowed other colleges to feed students into the university system.

Boggs and Cater (1994) continued with the mention of legislation that was passed in California in 1907 that allowed local school boards to offer the first two years of college work. Strongly supported by President David Starr Jordan of Stanford and Alexis F. Strongly, dean of the School of Education at the University of California, Berkeley, the junior colleges to come would take over the routine tasks of providing lower-division college course work, enabling Stanford and the University of California to concentrate on upper-division studies, graduate programs and research (as cited in Boggs & Cater). Harper also was the founder of the North Central Association of Colleges and Schools, and he established the American Council on

Education. Even with supporters such as William Rainey Harper, correspondence study was still looked down upon by many influential individuals. Gunawardena and McIsaac (2003) noted, “Correspondence study, which was designed to provide educational opportunities for those who were not among the elite and who could not afford full time residence at an educational institution, was looked down on as inferior education” (p. 357). A number of correspondence schools were formed during and beyond the 1890s in many states in the United States.

Simonson et al. (2003) affirmed that correspondence study was integral to the University of Chicago. The school, founded in 1890 with Harper as its founding president, created a university extension as one of its five divisions; it was the first such division in an American university. The extension division was divided into five departments: lecture study, class study, correspondence teaching, library, and training. Simonson et al. explained that the original target groups of distance education efforts were adults with occupational, societal, and family commitments. This remains the primary target group today. Distance education provided the opportunity to widen intellectual horizons as well as the chance to improve and update professional knowledge. Further, distance education stressed individuality of learning and flexibility in both the time and place of study.

Electronic/Broadcast Distance Education

The second phase of distance education began in the 1920s with the advent of radio and then television in the 1930s. Electronic communications allowed for an expansion of distance education programs through these new media. According to Darrow (1941), radio was used as an instructional medium in the 1920s in the United States. In the 1950s, curriculum college courses were being offered on television.

There were early dreamers about how technology could be used to serve education in the 1950s (English, 1994). In the United States, college courses were offered on television early in the morning in a series called “Sunrise Semester” (p. 615). The production values were low and

the students scarce; nevertheless, it paved the way for the next generation of telecourses. In Great Britain, “The Open University” was created to begin offering educational programming on television” (English, p. 615). English mentioned that gaps in higher education could be filled with television, radio, and other forms of media. Therefore, according to English, the Annenberg Foundation committed \$150 million over a 15-year period to create higher education courses and other educational materials using all forms of media and other technologies. Thus began the development of many college credit telecourses.

In the 1960s, satellite technology was developed that allowed for expanded growth of distance education through television. According to Rubin (2004), the Department of Defense developed a computer network called ARPANET in 1969 at the University of California at Los Angeles to improve government-sponsored research by electronically linking organizations at different sites. Rubin pointed out, “The Internet is a term applied to an electronic network that permits access to thousands of other computer networks” (p. 89). Internet-based learning has been occurring since the start of ARPANET (the precursor of the current Internet) in the 1960s. More formal uses of the Internet for learning were established in the 1980s with the formation of moderated newsgroups (Hill, Wiley, Nelson, & Han, 2003). According to Gunawardena and McIsaac (2003), correspondence study providers began to make use of developing technologies to offer more effective distance education. English (1994) commented that the development of technology-based instruction was affected by five pivotal events: (a) the Annenberg support that enabled the acquisition of high-quality products, (b) the development of satellites giving educators access to a wide variety of programs, (c) the development of cable television allowing institutions to reach homebound students, (d) miniaturization of equipment enabling the technology to become more affordable and portable, and (e) interactivity making teaching more effective. Foshee (1999) pointed out:

In a little over two decades, we have gone from the most basic audio/visual media in schools, limited to overhead projectors, slides, 16mm film, or occasional viewing of pre-recorded PBS programs, to instructional delivery by way of a multitude of interactive

technologies, to full degree programs available to students thousands of miles apart who may never need to set foot on a traditional campus. (p. 15)

Online/Interactive Distance Education

In the late 1980s and early 1990s, the development of fiber-optic communication systems allowed for the expansion of live, two-way, high-quality audio and video systems in education (Simonson et al., 2003). According to Rubin (2004), the George H. W. Bush administration introduced the *National High Performance Computing Act* of 1991 to develop an “information highway” that could increase the amount of transmittable information. The National Research and Education Network was also mandated at this time. Iowa was one of the first states to develop a communications network that linked over 600 classrooms in that state. Students could interact over the Interactive Television (ITV) network (Rubin).

Olcott (1999) mentioned that computer-based systems are versatile delivery systems that are being used as primary delivery media, support media, access to online library resources, and for the delivery of online student services. With the growing advances in computer technology and the World Wide Web, Internet courses were being offered asynchronously to millions of students around the world. According to Benton (2001), synchronous Internet-based instruction is being used more and more and is typically divided into audio, audiographic, and video components. Benton continued by mentioning that both two-way asynchronous and two-way synchronous instruction included chat, audio conferencing, and video conferencing components. Students could now interact collaboratively with email capabilities and computer conferencing features. Dabbagh and Bannan-Ritland (2005) concluded:

Online learning delivery modes range from Web-supported or Web-enhanced instruction- in which Internet and Web-based technologies are used to support face-to-face instruction or course events- to the administration of fully online courses or learning environments in which all instruction, learning, and interaction occurs virtually. (p. 23)

Ashby (2004) asserted that distance education was a growing force in postsecondary education and its rise had implications for the federal student-aid programs. Ashby reported that

enrollments in distance education quadrupled between 1995 and 2001. By the 2000-2001 school year, nearly 90% of public four-year institutions were offering distance education courses. Entire degree programs are now available through distance education so that a student can complete a degree without ever setting foot on campus. Hannum (2002) stated, “On-line learning becomes a way to enable faculty and learners to communicate and interact although they may not be together in the same space at the same time” (p. 180). Johnson (2003) predicted:

Creating a flexible learning process and an environment that incorporates online technologies can attract more students and improve their access to learning opportunities while enhancing their understanding and retention of new information about both the process and the content of education. (p. 11)

Hannum (2002) has suggested a number of different instructional modes for online learning including:

1. the library mode that consists mainly of links to instructional resources such as online encyclopedias, journals, books, and other Web sites offering relevant content;
2. the textbook mode that provides learners with on-line access to instructional materials such as a course syllabus, lecture notes, slides, and video or graphics used in class;
3. the interactive instruction mode that allows learners to interact over the Internet with interactive multimedia or computer-assisted instruction lessons;
4. the computer-mediated communications mode that is used to facilitate communications between instructor and students or among students;
5. the hybrid mode that combines other modes; and
6. the virtual classroom mode that uses technology to create an on-line classroom. (pp. 180-181)

With the increased demand for online course development, a need for faculty training in teaching within the online environment has developed. According to Elliott, Ambrosia, and Case (1999), Rio Salado College in Arizona has developed a faculty-training program as part of their instructor support system. The authors further explained that all distance-learning instructors receive an orientation to the college’s policies, procedures, services, and culture and attend

monthly training sessions that cover new roles, distance learning content delivery techniques, new learning technologies, best practice guidelines, and other technical skills. The North Carolina Community College System's Virtual Learning Community also has a training program for course developers. The training for developers consists of two meetings at designated training locations in the state and technology training that occurs online. The authors pointed out there was a Blackboard tutorial and online course template that guided instructors through the course development process. Instructors received a book on HTML, a *FrontPage 2000* Manual, and a Blackboard instructor manual. Instructors also received email updates with HTML tips and progress reports on a weekly basis. Elliott et al. concluded by saying the training that was given in both of these states related to technology but did not address online assessments in any depth.

One recent development in online learning is the Internet2 consortium. Rubin (2004) stated that data that would take 30 minutes to transfer over a T-1 line took about one second on Internet2. Morris (2004) affirmed that the biggest innovation in technology and student learning at the beginning of the 21st century was the almost universal use of the Internet for accessing information. Cross (1981) concluded, "The number of things that can be done and the number of people who can be reached through distance delivery systems of education are virtually unlimited today" (p. 31). O'Brien (2003) acknowledged that investments in new technology have enabled the development of creative approaches to teaching and learning that make a positive difference in the classroom.

History of Assessment

Assessment, as explained by Suskie (2004), is:

The ongoing process of establishing clear, measurable expected outcomes of student learning; ensuring that students have sufficient opportunities to achieve those outcomes; systematically gathering, analyzing, and interpreting evidence to determine how well student learning matches our expectations; using the resulting information to understand and improve student learning. (p. 3)

Assessment of student learning outcomes has been a part of education for hundreds of years in the form of oral and written examinations. In the public sector, formal evaluation was evident as early as 2000 BC, when Chinese officials conducted civil service examinations to measure proficiency of public officials (Worthen, Sanders, & Fitzpatrick, 1997). In education, Socrates used "verbally mediated evaluations as part of the learning process" (as cited in Worthen et al., p. 26-27). According to Worthen et al., in the United States, educational evaluation took a slightly different bent being influenced by Horace Mann's comprehensive, annual, and empirical reports on Massachusetts's education in the 1840s and the Boston School Committee's 1845 and 1846 use of printed tests in several subjects (the first instance of wide-scale assessment of students' achievement serving as the basis for school comparisons). These two developments in Massachusetts were the first attempts at objectively measuring students' achievement to assess the quality of a large school system. Worthen et al. continued by stating in the early 1900s, the educational testing movement began to gain momentum as measurement technology made rapid advances under E. L. Thorndike and his students. By 1918, objectively scored testing was flourishing pervading the military and private industry as well as all levels of education. Evaluators in the 1920s saw the rapid emergence of norm-referenced tests developed for use in measuring individual performance levels. By the mid-1930s, more than half of the United States had some form of statewide testing, and standardized, norm-referenced testing including achievement tests and personality and interest profiles, became a huge commercial enterprise. From this point on, standardized testing in education was a regular occurrence. With the passage of the *Elementary and Secondary Education Act* of 1965, testing became a main component of American education (Worthen et al.). After 1970, there was much criticism of schools and teaching.

In the 1970s, many states passed laws for accountability. Some required the assessment of students on specific tests; others were broad and vague. However, according to Pulliam and Van Patten (2003), "The most common means of assessment is a standardized achievement test,

and failure often results in the loss of state funds” (pp. 261-262). Fletcher (2004) noted that technology influenced the statewide testing situation by the introduction of the optical character reader (scanner) that enabled a large number of tests to be scored in a short time. Olson (2004) declared that computerized adaptive testing, in which the difficulty of the test adjusts to the student’s performance, was becoming more common. Finally, Weinstein (2005) discussed the current use of handheld technology that reduces assessment time, provides assessments closely aligned to curriculum and standards, and closes the gap between data gathering and educational decisions. These new testing technologies make the *No Child Left Behind Act* requirements easier to meet. The American government requires educators to evaluate their own efforts by proving that students have mastered the expected learning competencies and the *No Child Left Behind Act* is the most recent bill that requires assessment information. Deubel (2005) contended that United States legislation has forced states and school districts that desire federal funds to examine how they are aligning academic standards, curricula, assessments, and accountability.

Assessments are used to determine if students have achieved the learning objectives that were taught. According to Cyrs (1998), all learning objectives should be clearly specified and shared with the students and the course objectives should contain specific assessment criteria. There are many ways to use the information gained from assessment of learning outcomes. According to the American Association of School Librarians (1998), assessment has four purposes: (a) to improve student growth, (b) to improve instruction, (c) to recognize accomplishment, and (d) to modify or improve the program. According to Simonson et al. (2003), the first use that comes to mind for learner assessment is to enable the instructor to assign grades or sign off on certification/licensure at the end of a course, unit, or lesson. Students can take responsibility for their learning if they know how they are doing in a class. Hjelm and Baker (2001) stated that assessment of students' learning should be authentic, continuous, systematic, and substantive in nature giving students more control over their learning by

providing a positive, risk-free structure for reflection and feedback. Cross (2002) described a learning-centered classroom:

While many community college teachers are happy when students assume personal responsibility for doing the assignments and participating in class, the learning-centered classroom requires students to assume responsibility for their own learning--in the fullest sense of the word. They self-assess their understanding and use effective strategies to manage their own learning process. (p. 20)

Assessments force the student to apply the concepts that they have been taught in a class.

Simonson et al. (2003) articulated that feedback helped instructors to monitor the effectiveness of instruction. If many students have difficulty with the same concept or skill, this could signal a lesson-design problem. Assessments are used to determine if a student is ready to take a class or if he or she needs entry-level skills before that class can be completed successfully. Assessments are also a motivational activity. In training and more formal learning experiences, assessment exerts a powerful motivational influence on adults because it is the educational procedure to communicate about their competence in a socially sanctioned way (Wlodkowski, 1999).

Wlodkowski added:

Historically, more than any other action, assessment by the instructor has validated learners' competence. Adults change or maintain how they learn and how they perform based on the feedback they receive. Through feedback they become more competent as well as realize they are competent. (pp. 242-244)

According to Hall, Molan, Bannon, and Murphy (2005), students need feedback on why they are getting questions right or wrong. The process is as important as the results. Boaz (1999) mentioned that in distance learning, targeted, direct feedback is crucial because distance-learning students cannot always judge their progress in a course as easily as they can in a classroom setting. A study conducted by Olaniran (2005) established that the role of the instructor had changed in the online environment from a lecturing role to a facilitating role and within that role, feedback and a personalized learning focus were the most important elements. de Vry and Brown (2000) concurred:

In this rapidly changing technological world, we need proven guideposts to help us know where we are going. Just as forming learning objectives is critical in determining what

students will learn in the class, forming objectives about the purpose and function of technology is critical to whether or not the promise of technology to transform education will ever be realized. (p. 15)

Types of Assessments

When determining what an appropriate assessment strategy would be for a course, Simonson et al. (2003) instructed educators to “Figure out what learners should get out of the instruction, determine how you’ll know whether or not they were successful, and then decide what they should do to reach that point” (p. 266). Traditional assessment methods such as written tests (multiple choice, true-false, matching, short answer, essays) are still very appropriate for many kinds of skills, especially for lower level ones, and for assessing individual performance. Nevertheless, many educators have indicated that assessments for higher levels should require more “authentic” performances, that is, “actions that reflect the skill in a more accurate, real-world context” (Roblyer, 2003, p. 42). Some of the characteristics of good assessments are: (a) that it matches the objectives, (b) that there is clarity of expectations, and (c) that it reflects the learner’s progress and understanding as well as the demonstration of skills and knowledge. Suskie (2004) determined:

Good assessments: give us useful information, give us reasonably accurate, truthful information, are fair to all students, are ethical and protect the privacy and dignity of those involved, are systematized, and are cost effective, yielding value that justifies the time and expense we put into them. (p. 18)

Assessment measures should be created before implementing instruction. According to Shambaugh and Magliaro (1997), assessment must be addressed prior to an instructional strategy because one needs to determine the purpose and nature of assessment before one proposes an instructional method to facilitate the desired learning. Simonson et al. (2003) confirmed this concept by stating that the objectives specify what the students will do to demonstrate their mastery of the content, how well they will be expected to perform this task, and under what special circumstances they should perform it. Atkins and Wolfe (2003) stated assessments that

foster critical thinking skills would result in meaningful real-world applications.

The most traditional assessment tool that has been used for hundreds of years is the paper-and-pencil test. Four of the most commonly used written test styles are multiple-choice, true-false, short-answer, and essay tests. Multiple-choice and true-false tests are objectively scored tests; however, as observed by Simonson et al. (2003):

Multiple-choice tests are difficult and time-consuming to create unless the subject matter is at a very low level of cognitive difficulty. Other weaknesses include the possibility of students guessing correctly or responding to verbal associations that do not require an understanding of the content. (p. 269)

True-false tests have the same weaknesses as multiple-choice tests and may not provide a realistic measurement of learning because students have the ability to guess at the answers.

Jarmon (1999a) stated that tests designed to measure recall or facts should be minimized because students can easily use resources to find the answers. She continued by stating that experienced distance instructors use other types of evaluation experiences such as essays, research papers, interviews, interactive Web-based exercises, case analyses, and problem solving. Several assessment options should be used for each learning objective. Short-answer tests and essay tests are subjective assessments. Simonson et al. acknowledged, “An advantage of short-answer items is that learners must actually know the correct answer as opposed to recognizing it among choices in a list” (p. 270). Essay questions or extended response items provide the instructor with the greatest degree of flexibility and can be used to assess higher-order learning such as analyzing concepts or designing plans (Simonson et al.). Essay tests are very flexible and can give accurate measurements of learning outcome achievement but they are very time-consuming to score. All of these traditional methods of assessment can be successfully administered in the online environment. Simonson et al. determined that “Online testing software, whether included in a course management package (e.g., Blackboard or WebCT) or as a stand-alone component of a course (e.g., QuestionMark or Respondus), offers anytime, anyplace access to quizzes, tests, and practice exercises” (p. 272). A proctor would still be necessary to ensure that students were taking the test themselves and that books were not being used. Watson (2004) affirmed that

assessment software can be used to give short quizzes or long tests and the software can score those assessments. McKenna-Byington (2005) said in her online teaching experience that online testing was easier to manage because the test is not time/place dependent and it can be given in the format appropriate to the situation. Burnett and Roberts (2005) speculated that assessment tasks within the institution would invariably move from traditional print and face-to-face modes to those of a digital nature. Zhang, Khan, Gibbons, and Ni (2001) concluded, "One issue that stands as a difficult limitation of Web-based assessment systems is the authentication of student identity at the time of testing" (p. 293). They continued by stating that the challenges that face the industry in the development of improved Web-based assessment tools were: performance testing, security and student identification, advanced graphics, intelligent testing techniques, and automated test-item generation.

In addition to the traditional assessment methods, there are alternative assessment methods that include: portfolios, projects, and problem-solving activities. Alternative assessments were also termed authentic assessments by many educators (Belfer & Wakkary, 2005). According to these authors, "Authentic assessments support these goals at the course level, making sure that students learn what the course intends for them to learn (facts, concepts, process, products, skills) and conducting assessment in a manner that is relevant, accurate, and valid" (p. 37-38). The following are supporting characteristics of an authentic assessment strategy: ongoing, valid and reliable, comprehensive, communicated, and containing a variety of methods (Belfer & Wakkary).

Gulikers, Bastiaens, and Kirschner (2004) stated that students had a responsibility for their own learning in alternative assessments. The authors continued by commenting that authentic assessment involved real-life tasks that determined students' learning and motivation. According to Simonson et al. (2003), portfolio assessment was a means of collecting and judging examples of students' work and has received considerable attention in educational circles in the recent past. Simonson et al. pointed out that a portfolio could consist of a variety of materials

(papers, videotapes, computer files) reflecting generalized learning across disciplines or it could be a more specific gathering of content-based materials such as tests, worksheets, or art projects.

Flynn (2004) commented that electronic portfolios had the capability to document academic achievement plus professional growth, reflective practice, and demonstrated competencies. A rubric is usually used to judge whether the learning objectives have been met. Tufte (2005) mentioned that rubrics need to be simplistic but must not overlook any aspects of a student's performance. Wilson, Miles, Baker, and Schoenberger (2000) commented that documenting a student's learning of core skills in an electronic transcript or portfolio could be useful to employers, colleges, and to the students themselves. Ross-Fisher (2005) noted that her students were able to attain a higher level of success by using rubrics because rubrics represent a close alignment between the curriculum, the instruction, and assessment. Ross-Fisher's teaching skills improved while her students became more successful. Lockee, Moore, and Burton (2003) reflected on portfolios by stating that each module resulted in the creation of projects, products, or papers that demonstrated the acquisition of relevant skills, knowledge, or attitudes. The portfolio then served as culmination of students' work demonstrating learning and professional growth over time.

Projects constitute a large category of alternative assessment activities. According to Simonson et al. (2003), these could include individual assignments as well as group activities but they typically involved the creation of a product as the final result. Projects might be designed to simulate real-world challenges or be connected to the personal experiences of the learners and could result in the development of plans, works of art, research proposals, multimedia presentations, or almost any other method of demonstrating mastery of a specific body of knowledge (Simonson et al.). Projects could also be completed by individuals or groups.

Walker (1995) stated that when assessing group effectiveness, individual personalities must be placed in perspective and the differences that arise must be valued. Walker added, "The most effective groups are the ones where everyone understands their unique jobs and then (of

course) does them” (pp. 4-5). Boaz (1999) added some examples of collaborative activities that included students maintaining and sharing journal entries, creating a class homepage, establishing an electronic class bulletin board, and assigning different students the moderators’ role in email class discussion. According to Simonson et al. (2003) another type of alternative assessment, problem-based learning, is actually an entire instructional strategy in which students are presented with a situation that they must then investigate to determine how to respond. For example, learners may be given a scenario or case study for analysis and then be required to recommend one or more strategies or solutions. Benton (2001) mentioned that problem-solving activities could include using search tools to gather valuable information and sharing that information with others. Alternative assessments have many advantages including the ability to mimic real-life situations, transferability of skills, teamwork, critical thinking, communication, and planning skills. Proponents of alternative assessment suggested that the content validity of “authentic” tasks was ensured because there is a direct link between expected behavior and the ultimate goal of skill/learning transfer. Simonson et al. stated, "Multiple-choice tests (or other 'proxy' assessments) measure learning that we must infer can be applied to an unfamiliar or novel challenge” (p. 275). The disadvantage of alternative assessments is that they are time-consuming and hard to grade.

Roblyer (2003) remarked that rubrics and checklists frequently had been used to assess the quality of authentic assessments. Another form of assessment is self-assessment. According to Shambaugh and Magliaro (1997), “This form of assessment, which can be both process and product, gives students the opportunity to assess themselves (p. 133). Self-assessment can take the form of logs and journals whereas self-evaluations (oral and written) include debriefing interviews on student demonstrations, investigations, and projects (Shambaugh & Magliaro). Farmer (2005) stated that reflective journaling was a very effective method of self-assessment and added that students could contextualize coursework in terms of their professional and personal lives allowing them to apply their learning meaningfully.

Another form of assessment found in the review of literature was the use of online discussion boards. Boettcher and Conrad (2004) remarked that communication could be easier in an online environment because the spatial and physical limitations of the classroom vanished; the communication would be synchronous or asynchronous, one-to-one dialogue, one-to-small group, or one-to-many dialogue. Hofmeister and Thomas (2005) discussed a challenge to "fine-tune ways to structure, monitor, and assess usage of Internet discussion boards in order to yield optimal student growth" (p. 75). They continued, saying, "Therefore, what has been needed is carefully designed pedagogical plans or approaches that most effectively use Internet discussion boards for optimal student growth" (p. 75). Sigala (2005) pointed out that assessment of online collaborative learning should not focus solely on metrics reflecting the quantity of students' interaction but also on assessment criteria that consider the quality and learning ability of students' interactions. However, according to Ali et al. (2005), assessing student entries in a discussion board and judging the content requires previous experience with student-faculty interactions in an online course discussion board.

Angelo and Cross (1993) discussed several alternative methods of assessment including (a) directed paraphrasing in which the student summarizes a key idea that has been presented in the current class period, (b) goal ranking and matching in which the student lists what he/she hopes to get out of the class, (c) the muddiest point in which the student writes down the point that was least clear to him or her, (d) the minute paper in which the student is asked to list the main point of the session, (e) self-assessment using a self-confidence survey in which students identify which areas they are comfortable with, (f) characteristic features in which students identify the traits that define a topic, (g) the background knowledge probe in which students describe what they already know about a topic, and (h) RSQC2 (recall, summarize, question, comment, and connect).

According to Wood and Lynch (1998), the guided essay can also be used to assess the assumptions that students use when trying to solve problems. Diaz-Lefebvre (2003) commented

that it was important to ensure that the use of assessment methods be fair by using many different types of methods and encouraging students to do their best.

In conclusion, there are many assessment methods, both traditional and authentic, that may be used in the online environment. Watts, O'Brian, and Wojcik (2004) contended that multiple assessment tools must be used to ensure that the assessment results are valid. Jarmon (1999b) confirmed that students should be provided with multiple opportunities for assessment, that group as well as individual assessment opportunities should be provided, and that course progress should be evaluated frequently.

Underlying Research

Most of the research that has been completed in the field of distance education compares distance education courses with traditional courses. A popular educational research strategy of the past compared different types of media-based instruction (for example, film to television) or compared mediated instruction to teacher-presented instruction (lecture) to determine which was best. These types of studies became known as media-comparison studies (Lockee, Moore, & Burton, 2001). Lockee et al. (2001) pointed out that this exclusive focus on technological systems as the influencing factor of the effectiveness of the learning experience was misleading. Head, Lockee, and Oliver (2002) stated that as empirical research has proven, technology itself did not produce instructional outcomes; it was merely one variable among many that contributed to effective learning experiences. According to Ehrmann (2005), postsecondary learning is not usually so well-structured, uniform, or stable that one can compare an innovation against traditional processes without specifying in explicit detail just what those processes are--and that limits the application of the study. The claim of "no learning benefits" from media has been made and substantiated many times in the past. Researchers have argued that media have differential economic benefits "but no learning benefits" (Clark, 1994, p. 21). Clark discussed studies by several researchers including Lumsdaine in 1963, Mielke in 1968, Schramm in 1977,

Levie and Dickie in 1973, and Salomon in 1986 that concluded media do not influence learning. Clark used a replaceability test to present his argument, saying, “This replaceability test is the key to my argument since if a treatment can be replaced by another treatment with similar results, the cause of the results is in some shared (and uncontrolled) properties of both treatments” (p. 22). Jonassen, Campbell, and Davidson (1994) added:

Our central thesis is that as instructional designers and educators, we should shift the debate and the practice of instructional design from instruction and media-centered to a learner-centered conception of learning. We believe that this debate should focus less on the characteristics and attributes of media for conveying knowledge and more on the attributes of the human learner involved in learning and ultimately the construction of knowledge. (p. 31)

Two more studies were mentioned in an article written by Morrison (1994); the first was ThinkerTools and the second was the Jasper Woodbury Series. Morrison contended that both of these studies compared a computer program to traditional curriculum studies. Morrison stated that both studies were inappropriate because “The control group received a different instructional strategy (e.g., manipulation of objects vs. traditional instructional and contextual examples versus abstract examples)” (p. 42). In the case of media comparison studies, the delivery medium becomes the treatment variable and student achievement, or learning, is seen as the dependent variable. Such a design fails to consider the many variables that work together to create an effective instructional experience. Such factors include, but are certainly not limited to, learner characteristics, media attributes, instructional strategy choices, and psychological theories” (Lockee et al., 2001). Lockee et al. (2001) stated that most media comparison studies resulted in no significant difference findings. This means that the treatment had no measurable effect on the outcome or dependent variable. Lockee et al. (2001) added:

On a positive note, the past 20 years have seen attempts to move away from these comparison approaches and place more emphasis on content to be learned, the role of the learner, and the effectiveness of instructional design decisions, rather than on the instructional quality of a specific medium. (p. 62)

Other types of studies have recently emerged. Ehrmann (2005) described a study called the Annenberg/CPB Project that was taking some steps to make it easier for educators to obey

the commandment--know thy students and what they are learning. Ehrmann (2005) continued by discussing the Flashlight Project that began in 1995. The planning stage was conceived in 1992 and began with a grant from the Fund for the Improvement of Postsecondary Education (Ehrmann, 1997). It was a three-year effort to develop and share evaluation procedures related to the technology environment. Ehrmann (1998) argued that evaluation was more than a matter of outcome assessment; it also required looking at the means as well as the ends. Ehrmann (1998) also mentioned that the key to assessing learning was not whether all students learned some particular thing but rather whether they learned something that was valuable. Colleges and universities will be able to use these procedures to assess their educational strategies for using technology. A research study was also conducted at De Anza College in California in 2001-2002. According to Ayers and Doherty (2003), the @ONE project was conducted to provide professional development resources in effective use of instructional technology to all of the California community colleges. This research study produced a list of best practices for training faculty to use technology within their courses. Dabbagh and Bannan-Ritland (2005) mentioned that there has been some research done on asynchronous communication tools, synchronous communication tools, interactivity, online learning communities, hypertext and hypermedia, Web-based instruction, students' perceptions of Web-based instruction, and faculty and instructor perspectives on Web-based instruction. "With the proliferation of technological tools and techniques surrounding online learning environments since the 1990s, what we can say we know from research on the impact and use of online learning systems is relatively little" (Dabbagh & Bannan-Ritland, p. 70).

Summary

Orsini-Jones (2005) said that the use of an online learning environment developed independent learning skills and reflection as well as enhanced the learning experience. Moallem (2005) commented that his success in encouraging active learning and growth toward self-

directed learning by allowing students to define their own learning tasks in facilitating group learning and in ensuring students' knowledge and application was very dependent on his assessment system. Barry (2003) added that it was also necessary to ensure that student-learning goals were clearly identified for each teaching strategy to be assessed. Developing clear goals in the form of student outcomes often led to discussions of the importance of writing goals in a way that would allow measurement based on observable student behaviors. The American Association of School Librarians (1998) stated that assessment methods should (a) measure what they say they measure, (b) have clear, descriptive scoring criteria, (c) be challenging, (d) reflect real-world challenges, and (e) be ongoing by measuring students' performance throughout the process of learning. Cross (1998) stated that if one wanted to change student learning, then one must change the methods of assessment. Student learning is tied to assessment methods. These assessment methods must be the most appropriate available to ensure that students are meeting the learning objectives for the course in the online environment. The types of online assessments that are currently being used include: true/false, multiple-choice, short-answer, and essay tests, online discussion questions, individual and group projects, portfolios, problem-solving activities, and self-assessment.

CHAPTER 3

RESEARCH METHODOLOGY

Overview

There is now an opportunity to use the current interest in assessment, as evidenced by movements like the Carnegie program on the Scholarship of Teaching, as the lever that gets faculty to consider their teaching in light of desired student outcomes and to help them identify best practices that will facilitate student achievement. (Barry, 2003, p. 315)

This chapter presents information detailing the quantitative research framework of this study. This information includes a description of the research design, the population, data collection methods, and procedures. The chapter concludes with a description of the research hypotheses and methods and procedures of data analysis used in the study.

This study focused on the effectiveness of assessment methods used in online courses at the 15 community colleges in the western part of North Carolina that serve the Appalachian region. I analyzed the responses of online instructors who have taught Internet courses during the 2004-2005 academic year at these 15 community colleges.

Research Design

The research consisted of a primary data analysis based on responses to an online survey that was sent to online instructors in 15 Western North Carolina community colleges. According to Creswell (2003), a survey design may provide a numeric description of trends, attitudes, or opinions of a population by studying a sample of that population. Ary, Jacobs, and Razavieh (1996) stated that primary sources were original documents, relics, remains, or artifacts that were direct records of eyewitnesses. This original survey document was developed by generating questions that would answer the hypotheses. The survey was piloted with three online instructors and their feedback was used to modify and expand the questions in the survey document. This original survey document provided the primary data needed for the statistical

analysis of this study. According to Hall et al. (2005), the way to receive a high response rate on an online survey is to ensure that the survey is concise and focused and that individuals do not have to type too much but can click on buttons to answer the questions.

Variables in the Study

The predictor variables in this study related to the instructor qualities including areas such as training received, academic discipline, and number of Internet courses being taught. The criterion variables used in this study were the actual assessment methods being used by the instructors as well as the perceived effectiveness of those methods by the instructors who were surveyed.

Population

The population encompassed all of the online instructors who had taught an Internet course or a web-enhanced course during the 2004-2005 academic year at the 15 Western North Carolina community colleges that serve the Appalachian region. There were 371 instructors who fit these criteria and who were surveyed. Inclusion of all online instructors at the chosen colleges without regard to the academic discipline that they taught was a means to address the internal validity requirement of this study.

Data Collection

Data for this study were collected by the return of an online survey. Data were collected using a specially designed survey for this study. I developed this survey in a framework developed by Mr. Todd Doman, educational technology review center manager at East Tennessee State University. The survey and the results of the survey are housed on the East Tennessee State University's College of Education website. During the 2005 summer semester, the online survey was administered to the chosen recipients.

This study focused on all Internet courses that have been taught during the 2004-2005 academic year by online instructors in the 15 Western North Carolina community colleges that serve the Appalachian region.

Research Questions and Related Hypotheses

1. Academic discipline: Are there differences in assessment methods being used among faculty who teach in different academic disciplines in the online environment?

Ho1: There is no difference in assessment methods being used among faculty who teach in different academic disciplines in the online environment.

2. Learning objectives being met: Are there differences in perceived effectiveness of the assessment methods being used among individual instructors in determining if the course learning objectives have been met?

Ho2: There is no difference in perceived effectiveness of the assessment methods being used among individual instructors in determining if the course learning objectives have been met.

3. Internet course development training: Are there differences in assessment methods used between those online instructors who received training in Internet course development and those who did not?

Ho3: There is no difference in assessment methods used between those online instructors who received training in Internet course development and those who did not.

4. Number of assessments per course: Are there differences in the number of different types of assessments being used per course by each instructor?

Ho4: There is no difference in the number of different types of assessments being used per course by each instructor.

5. Years teaching Internet courses: Are there differences in the types of assessments being used by online instructors who have been teaching in the online environment for more than three years, as compared with instructors who have been teaching in the

online environment for 3 or fewer years?

Ho5: There is no difference in the types of assessments being used by online instructors who have been teaching in the online environment for more than three years, as compared to instructors who have been teaching in the online environment for 3 or fewer years.

6. Number of Internet courses per year: Are there differences in the types of assessments being used by online instructors who teach more than one Internet course per year as compared with instructors who teach only one Internet course per year?

Ho6: There is no difference in the types of assessments being used by online instructors who teach more than one Internet course per year and instructors who teach only one Internet course per year.

Data Analysis

In order to organize and summarize the data, descriptive research strategies were used to analyze the data sets. Hinkle, Wiersma, and Jurs (1998) defined descriptive statistics as statistics being used "to classify and summarize numerical data; i.e., to describe data" (p. 17). The researcher used the Statistical Package for Social Sciences (SPSS 11.5) to perform data analysis on the data. The hypotheses listed above framed this analysis. Hypotheses were investigated and evaluated with alpha level of .05. Chi-square, frequencies, and crosstabs were used as the statistical tests to analyze the data. Qualitative data were also collected by the use of two open-ended questions. The findings of the data analysis are summarized and reported for each of the research questions of this study.

Summary

The information regarding the research design, methods, and procedures that were used in this study are outlined in this chapter. The population of the study consisted of all the instructors who taught online courses in the 15 Western North Carolina community colleges that

serve the Appalachian region. Statistical analysis of the quantitative data retrieved from the survey results are presented in Chapter 4.

CHAPTER 4

PRESENTATION AND ANALYSIS OF DATA

Online instruction has become a driving force in the educational world today. It provides educational opportunities for individuals who may not have the ability to attend classes in a traditional format. With the increase in the number of online courses being developed and offered, there comes a need to accurately assess the learning outcomes associated with those courses.

This researcher sought to obtain factual data about the perceived effectiveness of online assessment methods being used by online instructors. The core of this study was constructed around the responses to survey questions corresponding to the following six research questions:

1. Are there differences in assessment methods being used among faculty who teach in different academic disciplines in the online environment?
2. Are there differences in perceived effectiveness of the assessment methods being used among individual instructors in determining if the course learning objectives have been met?
3. Are there differences in assessment methods used between those online instructors who received training in Internet course development and those who did not?
4. Are there differences in the number of different types of assessments being used per course by each instructor?
5. Are there differences in the types of assessments being used by online instructors who have been teaching in the online environment for more than three years as compared with instructors who have been teaching in the online environment for three or fewer years?
6. Are there differences in the types of assessments being used by online instructors who

teach more than one Internet course per year as compared with instructors who teach only one Internet course per year?

Each of the individuals surveyed answered 16 questions that provided the data necessary to answer the research questions. The survey is included in Appendix A. Of the 16 questions, questions 10 and 12 were open-ended questions. Question 1 identified the academic department for which the instructor taught. Questions 2, 3, 4, and 5 addressed the number of unduplicated Internet courses that the instructor taught during different academic years. Question 6 identified the assessment methods that individual instructors were using in the Internet courses they taught. Question 7 indicated perceived effectiveness of assessment methods. Question 8 required a yes or no response to receiving training in Internet course development and Question 9 focused on the area in which the training was received. Question 11 provided the number of different types of assessment being used by individual instructors per course. Questions 13-16 retrieved demographic information.

Data Analysis

The population surveyed in this study included 371 online instructors who had taught Internet courses or web-enhanced courses during the 2004-2005 academic year at the 15 community colleges in the western part of North Carolina that serves the Appalachian region. The instructors surveyed included those who taught web-based courses and web-enhanced courses that might have had a physical attendance policy. An email explaining the purpose of the study along with a link to the survey that is housed on the East Tennessee State University's College of Education server was sent to each of the identified instructors. The letter is included in Appendix B. A two-week response time was requested of those surveyed. At the end of the two-week period, 134 online instructors had responded to the survey. A second email imploring participation was sent with a link to the survey with a one-week response deadline. At the end of the second one-week period, 174 responses had been received. A fourth week was given to wait

for any remaining responses before the final survey data were collected. Of the 371 online instructors to which the survey was sent, 174 responded. This is a response rate of 47%. The data collected from the surveys were analyzed and organized using SPSS 11.5 program procedures.

Demographics of the Online Instructors Surveyed

The demographic characteristics of the online instructors surveyed were obtained with Questions 13, 14, 15, and 16. Some of those surveyed chose not to answer the demographic questions. The responses of those who chose to answer the demographic questions were as follows:

Gender: Of 167 responses, 71 respondents were male (40.8%) and 96 were female (55.2%).

Age: Of 164 responses, the mean age was 44.65 with a range from 25-76 years old.

Academic degree: Of 166 responses, 8 had an associate's degree (4.6%), 19 had a bachelor's degree (10.9%), 125 had a master's degree (including EdS) (71.8%), and 14 had a doctoral degree (8.0%).

Years experience in education: Of 169 responses, the mean number of years of experience in education was 13.95 with a range from 1-45 years.

The study was guided by six research questions and related hypotheses. The data related to each hypothesis were tested using SPSS 11.5 software. An alpha confidence level of .05 was used for all hypotheses tested in evaluating statistical significance for the related research questions. Each question required the use of different statistical methods ranging from chi-square, frequencies, and crosstabs to qualitative open-ended responses.

Research Question 1: Academic Discipline

Are there differences in assessment methods being used among faculty who teach in

different academic disciplines in the online environment?

Ho1: There is no difference in assessment methods being used among faculty who teach in different academic disciplines in the online environment.

A chi-square test was conducted to determine if differences existed between faculty who taught in different academic disciplines. Chi-square was chosen because academic discipline is a nominal classification; therefore, a nonparametric measurement would be the most robust. A two-way contingency table analysis was conducted to evaluate whether there was a difference in assessment methods being used among faculty who teach in different academic disciplines. Each of the different assessment methods have been evaluated separately. The first 2 variables tested were academic discipline with 9 levels (business, vocational, health occupations, arts, public safety, continuing education, social sciences, hard sciences, and other) and portfolio use with 2 levels (yes, no). Academic discipline and portfolio use were not found to be significantly related, Pearson chi-square (8, N=171) = 7.916, $p=.442$, Cramer's V = .215. The results of the tests including the proportions of instructors who used portfolios from each discipline are presented in Table 1.

Table 1

A Comparison of Differences in Portfolio Use Among Faculty Who Teach in Different Academic Disciplines

	Yes		No		Total	
	#	%	#	%	#	%
<hr/>						
Uses Portfolios						
<hr/>						
Academic Discipline:						
Business	16	21.3	59	78.7	75	100.0
Vocational	3	23.1	10	76.9	13	100.0
Health Occupations	0	0.0	7	100.0	7	100.0
Arts	6	20.0	24	80.0	30	100.0

Table 1 (continued)

Uses Portfolios	Yes		No		Total	
	#	%	#	%	#	%
Public Safety	0	0.0	5	100.0	5	100.0
Continuing Education	0	0.0	2	100.0	2	100.0
Social Sciences	4	18.2	18	81.8	22	100.0
Hard Sciences	0	0.0	16	100.0	16	100.0
Other	0	0.0	1	100.0	1	100.0
Total	29		142		171	

The next 2 variables tested were academic discipline with 9 levels (business, vocational, health occupations, arts, public safety, continuing education, social sciences, hard sciences, other) and true/false test use with 2 levels (yes, no). Academic discipline and true/false use were found to be significantly associated, Pearson chi-square (8, N=171) = 24.620, $p=.002$, Cramer's $V = .379$. The results of the tests including the proportions of instructors who used true/false tests from each discipline are presented in Table 2.

Table 2

A Comparison of Differences in True/False Test Use Among Faculty Who Teach in Different Academic Disciplines

Uses True/False Tests	Yes		No		Total	
	#	%	#	%	#	%
Academic Discipline:						
Business	51	68.0	24	32.0	75	100.0
Vocational	10	76.9	3	23.1	13	100.0
Health Occupations	4	57.1	3	42.9	7	100.0
Arts	9	30.0	21	70.0	30	100.0
Public Safety	3	60.0	2	40.0	5	100.0
Continuing Education	2	100.0	0	0.0	2	100.0
Social Sciences	6	27.3	16	72.7	22	100.0
Hard Sciences	9	56.3	7	43.8	16	100.0
Other	1	100.0	0	0.0	1	100.0
Total	95		76		171	

The next 2 variables tested were academic discipline with 9 levels (business, vocational, health occupations, arts, public safety, continuing education, social sciences, hard sciences, other) and multiple-choice test use with 2 levels (yes, no). Academic discipline and multiple-choice test use were found to be significantly associated, Pearson chi-square (8, N=171) = 18.227, $p=.020$, Cramer's V = .326. The results of the tests including the proportions of instructors who used multiple-choice tests from each discipline are presented in Table 3.

Table 3

A Comparison of Differences in Multiple-Choice Use Among Faculty Who Teach in Different Academic Disciplines

Uses Multiple-Choice Tests						
	Yes		No		Total	
	#	%	#	%	#	%
Academic Discipline:						
Business	69	92.0	6	8.0	75	100.0
Vocational	12	92.3	1	7.7	13	100.0
Health Occupations	7	100.0	0	0.0	7	100.0
Arts	19	63.3	11	36.7	30	100.0
Public Safety	5	100.0	0	0.0	5	100.0
Continuing Education	2	100.0	0	0.0	2	100.0
Social Sciences	18	81.8	4	18.2	22	100.0
Hard Sciences	14	87.5	2	12.5	16	100.0
Other	1	100.0	0	0.0	1	100.0
Total	147		24		171	

The next 2 variables tested were academic discipline with 9 levels (business, vocational, health occupations, arts, public safety, continuing education, social sciences, hard sciences, other) and short-answer test use with 2 levels (yes, no). Academic discipline and short-answer test use were found to be significantly associated, Pearson chi-square (8, N=171) = 16.437, $p=.037$, Cramer's V = .310. The results of the tests including the proportions of instructors who used short-answer tests from each discipline are presented in Table 4.

Table 4

A Comparison of Differences in Short-Answer Test Use Among Faculty Who Teach in Different Academic Disciplines

Uses Short-Answer Tests						
	Yes		No		Total	
	#	%	#	%	#	%
Academic Discipline:						
Business	33	44.0	42	56.0	75	100.0
Vocational	11	84.6	2	15.4	13	100.0
Health Occupations	4	57.1	3	42.9	7	100.0
Arts	11	36.7	19	63.3	30	100.0
Public Safety	3	60.0	2	40.0	5	100.0
Continuing Education	2	100.0	0	0.0	2	100.0
Social Sciences	7	31.8	15	68.2	22	100.0
Hard Sciences	10	62.5	6	37.5	16	100.0
Other	1	100.0	0	0.0	1	100.0
Total	82		89		171	

The next 2 variables tested were academic discipline with 9 levels (business, vocational, health occupations, arts, public safety, continuing education, social sciences, hard sciences, other) and essay use with 2 levels (yes, no). Academic discipline and essay use were not found to be significantly associated, Pearson chi-square (8, N=171) = 14.574, $p=.068$, Cramer's V = .292. The results of the tests including the proportions of instructors who used essay from each discipline are presented in Table 5.

Table 5

A Comparison of Differences in Essay Test Use Among Faculty Who Teach in Different Academic Disciplines

Uses Essay Tests	Yes		No		Total	
	#	%	#	%	#	%
Academic Discipline:						
Business	21	28.0	54	72.0	75	100.0
Vocational	7	53.8	6	46.2	13	100.0
Health Occupations	3	42.9	4	57.1	7	100.0
Arts	17	56.7	13	43.3	30	100.0
Public Safety	4	80.0	1	20.0	5	100.0
Continuing Education	1	50.0	1	50.0	2	100.0
Social Sciences	11	50.0	11	50.0	22	100.0
Hard Sciences	6	37.5	10	62.5	16	100.0
Other	1	100.0	0	0.0	1	100.0
Total	71		100		171	

The first 2 variables tested were academic discipline with 9 levels (business, vocational, health occupations, arts, public safety, continuing education, social sciences, hard sciences, other) and discussion use with 2 levels (yes, no). Academic discipline and discussion use were found to be significantly associated, Pearson chi-square (8, N=171) = 30.399, $p < .001$, Cramer's $V = .422$. The results of the tests including the proportions of instructors who used discussion from each discipline are presented in Table 6.

Table 6

A Comparison of Differences in Discussion Use Among Faculty Who Teach in Different Academic Disciplines

Uses Discussion	Yes		No		Total	
	#	%	#	%	#	%
Academic Discipline:						
Business	36	48.0	39	52.0	75	100.0
Vocational	11	84.6	2	15.4	13	100.0
Health Occupations	4	57.1	3	42.9	7	100.0
Arts	24	80.0	6	20.0	30	100.0
Public Safety	5	100.0	0	0.0	5	100.0
Continuing Education	2	100.0	0	0.0	2	100.0
Social Sciences	20	90.9	2	9.1	22	100.0
Hard Sciences	6	37.5	10	62.5	16	100.0
Other	1	100.0	0	0.0	1	100.0
Total	109		62		171	

The next 2 variables tested were academic discipline with 9 levels (business, vocational, health occupations, arts, public safety, continuing education, social sciences, hard sciences, other) and individual project use with 2 levels (yes, no). Academic discipline and individual project use were not found to be significantly associated, Pearson chi-square (8, N=171) = 4.026, $p=.855$, Cramer's V = .153. The results of the tests including the proportions of instructors who used individual projects from each discipline are presented in Table 7.

Table 7

A Comparison of Differences in Individual Project Use Among Faculty Who Teach in Different Academic Disciplines

Uses Individual Projects	Yes		No		Total	
	#	%	#	%	#	%
Academic Discipline:						
Business	56	74.7	19	25.3	75	100.0
Vocational	9	69.2	4	30.8	13	100.0
Health Occupations	4	57.1	3	42.9	7	100.0
Arts	22	73.3	8	26.7	30	100.0
Public Safety	4	80.0	1	20.0	5	100.0
Continuing Education	1	50.0	1	50.0	2	100.0
Social Sciences	15	40.9	7	59.1	22	100.0
Hard Sciences	9	6.3	7	93.8	16	100.0
Other	1	0.0	0	100.0	1	100.0
Total	121		50		171	

The next 2 variables tested were academic discipline with 9 levels (business, vocational, health occupations, arts, public safety, continuing education, social sciences, hard sciences, other) and group project use with 2 levels (yes, no). Academic discipline and group project use were found to be significantly associated, Pearson chi-square (8, N=171) = 25.199, $p=.001$, Cramer's V = .384. The results of the tests including the proportions of instructors who used group projects from each discipline are presented in Table 8.

Table 8

A Comparison of Differences in Group Project Use Among Faculty Who Teach in Different Academic Disciplines

Uses Group Projects	Yes		No		Total	
	#	%	#	%	#	%
Academic Discipline:						
Business	18	24.0	57	76.0	75	100.0
Vocational	4	30.8	9	69.2	13	100.0
Health Occupations	5	71.4	2	28.6	7	100.0
Arts	16	53.3	14	46.7	30	100.0
Public Safety	4	80.0	1	20.0	5	100.0
Continuing Education	0	0.0	2	100.0	2	100.0
Social Sciences	9	40.9	13	59.1	22	100.0
Hard Sciences	1	6.3	15	93.8	16	100.0
Other	0	0.0	1	100.0	1	100.0
Total	57		114		171	

The next 2 variables tested were academic discipline with 9 levels (business, vocational, health occupations, arts, public safety, continuing education, social sciences, hard sciences, other) and problem-solving activity use with 2 levels (yes, no). Academic discipline and problem-solving activity use were not found to be significantly associated, Pearson chi-square (8, N=171) = 5.411, $p=.713$, Cramer's V = .178. The results of the tests including the proportions of instructors who used problem-solving activities from each discipline are presented in Table 9.

Table 9

A Comparison of Differences in Problem-Solving Activities Use Among Faculty Who Teach in Different Academic Disciplines

Uses Problem-Solving Activities	Yes		No		Total	
	#	%	#	%	#	%
Academic Discipline:						
Business	33	44.0	42	56.0	75	100.0
Vocational	3	23.1	10	76.9	13	100.0
Health Occupations	2	28.6	5	71.4	7	100.0
Arts	12	40.0	18	60.0	30	100.0
Public Safety	1	20.0	4	80.0	5	100.0
Continuing Education	1	50.0	1	50.0	2	100.0
Social Sciences	6	27.3	16	72.7	22	100.0
Hard Sciences	7	43.8	9	56.3	16	100.0
Other	0	0.0	1	100.0	1	100.0
Total	65		106		171	

The next 2 variables tested were academic discipline with 9 levels (business, vocational, health occupations, arts, public safety, continuing education, social sciences, hard sciences, other) and self-assessment use with 2 levels (yes, no). Academic discipline and self-assessment use were not found to be significantly associated, Pearson chi-square (8, N=171) = 7.253, $p=.510$, Cramer's V = .206. The results of the tests including the proportions of instructors who used self-assessment from each discipline are presented in Table 10.

Table 10

A Comparison of Differences in Self-Assessment Use Among Faculty Who Teach in Different Academic Disciplines

Uses Self-Assessment						
	Yes		No		Total	
	#	%	#	%	#	%
Academic Discipline:						
Business	11	14.7	64	85.3	75	100.0
Vocational	2	15.4	11	84.6	13	100.0
Health Occupations	2	28.6	5	71.4	7	100.0
Arts	6	20.0	24	80.0	30	100.0
Public Safety	1	20.0	4	80.0	5	100.0
Continuing Education	0	0.0	2	100.0	2	100.0
Social Sciences	1	4.5	21	95.5	22	100.0
Hard Sciences	0	0.0	16	100.0	16	100.0
Other	0	0.0	1	100.0	1	100.0
Total	23		148		171	

The next 2 variables tested were academic discipline with 9 levels (business, vocational, health occupations, arts, public safety, continuing education, social sciences, hard sciences, other) and other assessment use with 2 levels (yes, no). Academic discipline and other assessment use were not found to be significantly associated, Pearson chi-square (8, N=171) = 9.211, $p=.325$, Cramer's V = .232. The results of the tests including the proportions of instructors who used other assessment methods from each discipline are presented in Table 11.

Table 11

A Comparison of Differences in Other Uses Among Faculty Who Teach in Different Academic Disciplines

Uses Other Uses	Yes		No		Total	
	#	%	#	%	#	%
Academic Discipline:						
Business	5	6.7	70	93.3	75	100.0
Vocational	1	7.7	12	92.3	13	100.0
Health Occupations	0	0.0	7	100.0	7	100.0
Arts	7	23.3	23	76.7	30	100.0
Public Safety	0	0.0	5	100.0	5	100.0
Continuing Education	0	0.0	2	100.0	2	100.0
Social Sciences	4	18.2	18	81.8	22	100.0
Hard Sciences	2	12.5	14	87.5	16	100.0
Other	0	0.0	1	100.0	1	100.0
Total	19		152		171	

Research Question 2: Learning Objectives Being Met

Are there differences in perceived effectiveness of the assessment methods being used among individual instructors in determining if the course learning objectives have been met?

Ho2: There is no difference in perceived effectiveness of the assessment methods being used among individual instructors in determining if the course learning objectives have been met.

A chi-square test of frequencies was used to determine if there was a significant difference in perceived effectiveness of assessment methods being used among individual instructors in determining if the course learning objectives have been met. Chi-square was chosen because a frequency count was needed to determine if the instructors differed in their

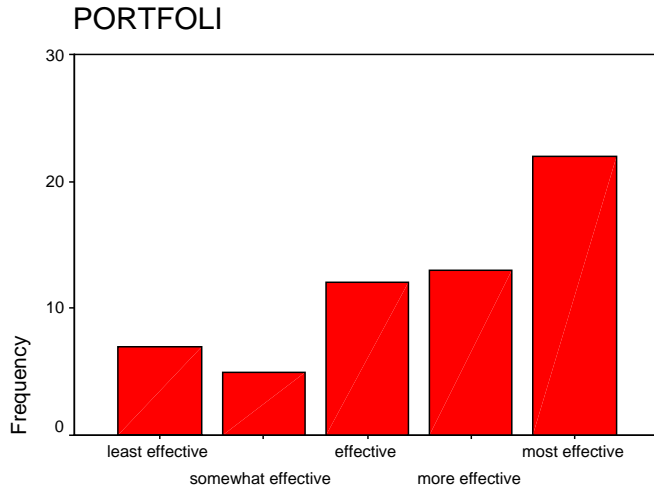
perceptions. The results are presented in table 12.

Table 12

A Comparison of Differences in Perceived Effectiveness of Assessments Being Used Among Individual Instructors in Determining if the Learning Objectives Have Been Met

Assessments	Chi-Square	<i>df</i>	<i>p</i>
Portfolio	14.814	4	.005
True False	68.525	4	.000
Multiple Choice	68.968	4	.000
Short Answer	74.942	4	.000
Essay	53.489	3	.000
Discussion	75.125	4	.000
Individual Projects	85.063	3	.000
Group Projects	21.105	4	.000
Problem Solving	73.250	4	.000
Self-Assessment	8.792	4	.067
Other	8.667	4	.070

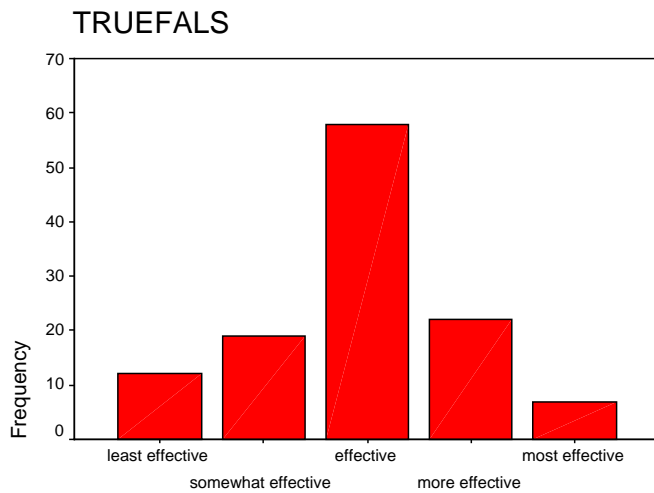
Findings shown in Table 12 indicate that there was a statistically significant difference ($p < .05$) in the perceptions of effectiveness of all of the assessment methods with the exception of self-assessment and the category of other. The null hypothesis was therefore rejected for portfolio assessment, true/false tests, multiple-choice tests, short-answer tests, essay tests, discussion questions, individual projects, group projects, and problem-solving activities. The null hypothesis was not rejected for self-assessment and the category of other. A graphical representation of the perceived effectiveness of each of the assessment methods is shown in Figures 1 through 11.



PORTFOLI

Figure 1: Bar Graph of the Perceived Effectiveness of Portfolio Assessment

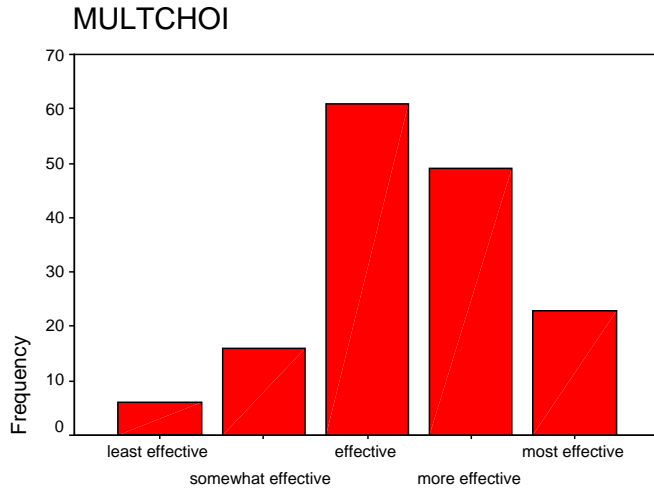
Note: least effective N = 7, somewhat effective N = 5, effective N = 12, more effective N = 13, most effective N = 22



TRUEFALS

Figure 2: Bar Graph of the Perceived Effectiveness of True/False Tests

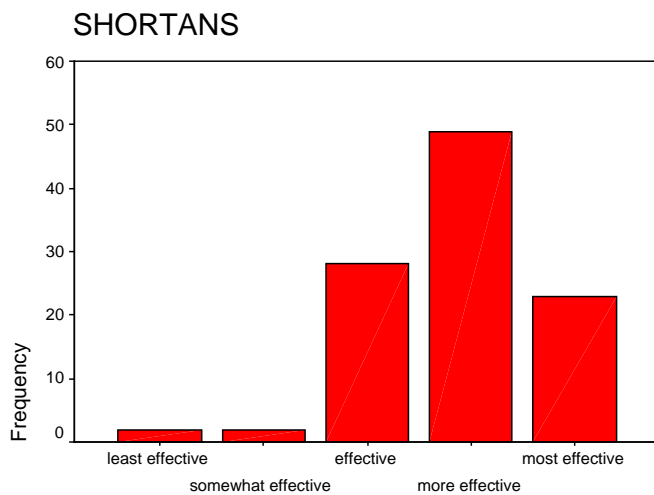
Note: least effective N = 12, somewhat effective N = 19, effective N = 58, more effective N = 22, most effective N = 7



MULTCHOI

Figure 3: Bar Graph of the Perceived Effectiveness of Multiple-Choice Tests

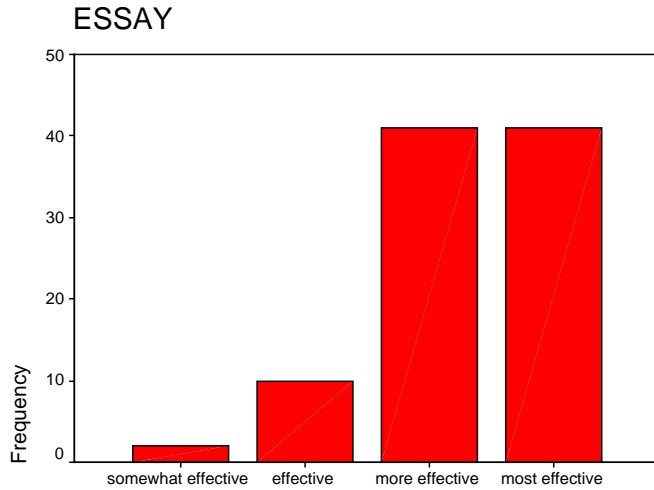
Note: least effective N = 6, somewhat effective N = 16, effective N = 61, more effective N = 49, most effective N = 23



SHORTANS

Figure 4: Bar Graph of the Perceived Effectiveness of Short-Answer Tests

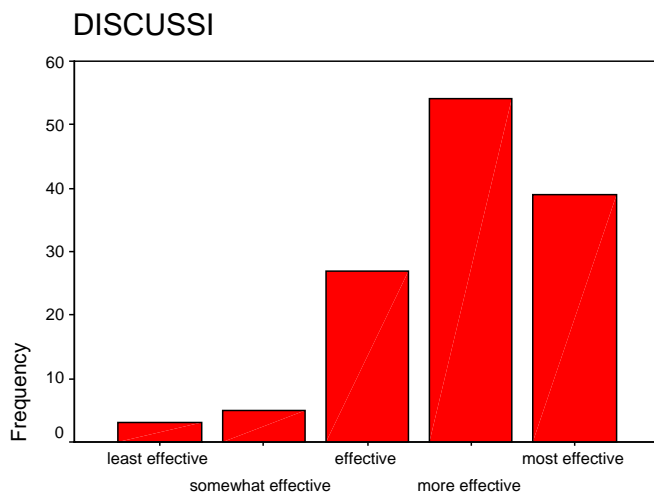
Note: least effective N = 2, somewhat effective N = 2, effective N = 28, more effective N = 49, most effective N = 23



ESSAY

Figure 5: Bar Graph of the Perceived Effectiveness of Essay Tests

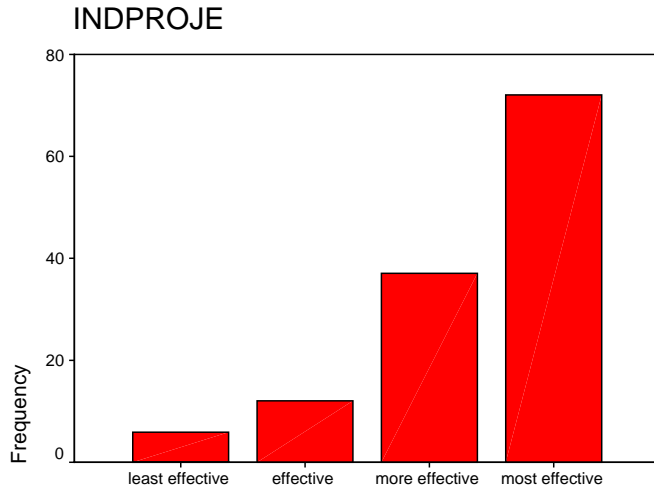
Note: least effective N = 0, somewhat effective N = 2, effective N = 10, more effective N = 41, most effective N = 41



DISCUSSI

Figure 6: Bar Graph of the Perceived Effectiveness of Discussion Questions

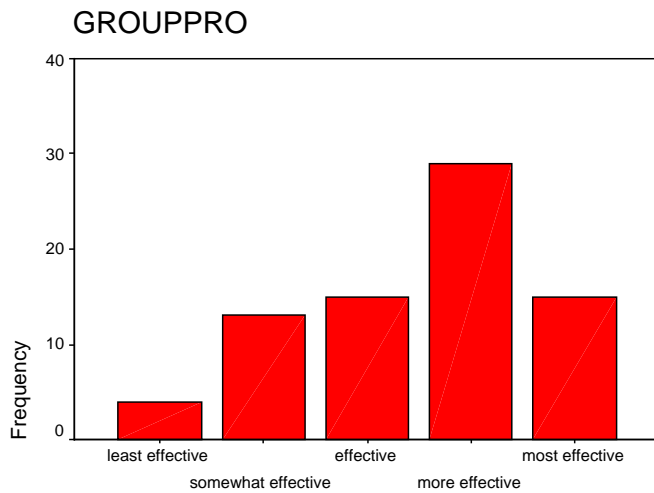
Note: least effective N = 3, somewhat effective N = 5, effective N = 27, more effective N = 54, most effective N = 39



INDPROJE

Figure 7: Bar Graph of the Perceived Effectiveness of Individual Projects

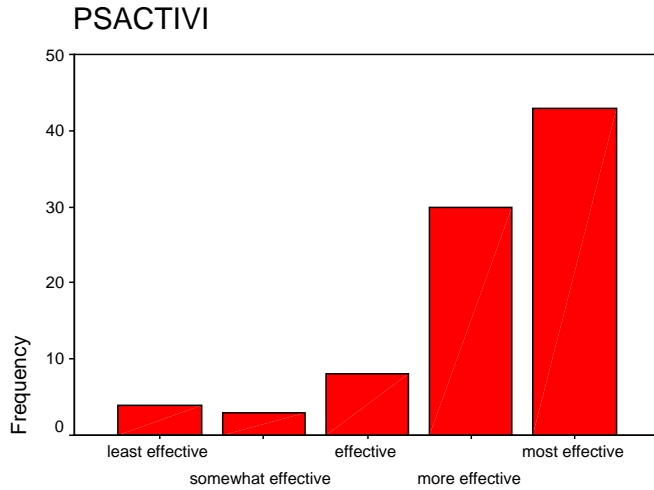
Note: least effective N = 6, somewhat effective N = 0, effective N = 12, more effective N = 37, most effective N = 72



GROUPE

Figure 8: Bar Graph of the Perceived Effectiveness of Group Projects

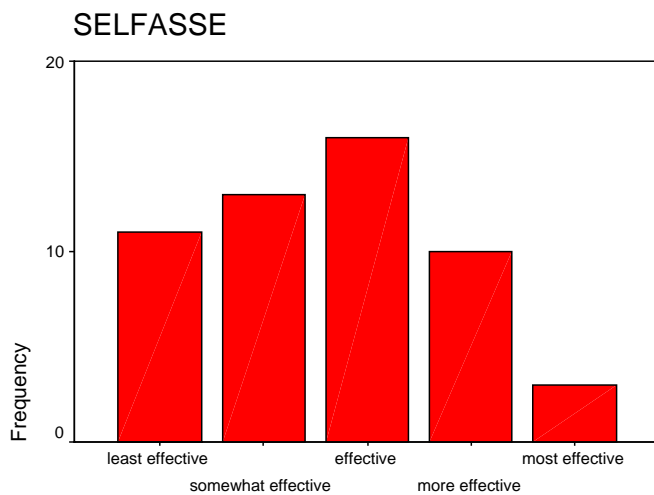
Note: least effective N = 4, somewhat effective N = 13, effective N = 15, more effective N = 29, most effective N = 15



PSACTIVI

Figure 9: Bar Graph of the Perceived Effectiveness of Problem-Solving Activities

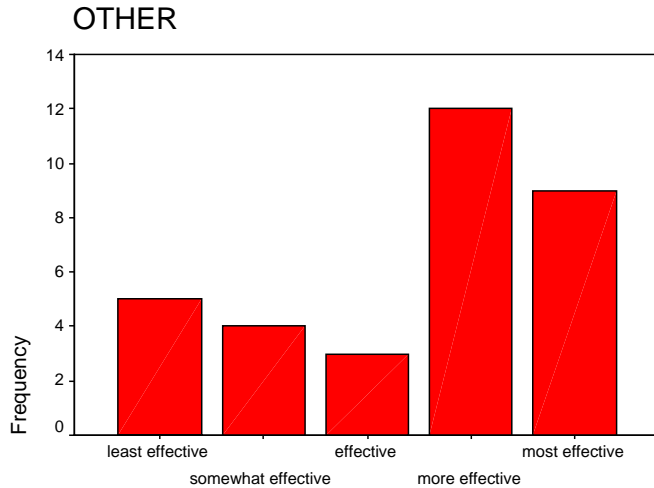
Note: least effective N = 4, somewhat effective N = 3, effective N = 8, more effective N = 30, most effective N = 43



SELFASSE

Figure 10: Bar Graph of the Perceived Effectiveness of Self-Assessment

Note: least effective N = 11, somewhat effective N = 13, effective N = 16, more effective N = 10, most effective N = 3



OTHER

Figure 11: Bar Graph of the Perceived Effectiveness of Other Assessment Methods

Note: least effective N = 5, somewhat effective N = 4, effective N = 3, more effective N = 12, most effective N = 9

Research Question 3: Internet Course Development Training

Are there differences in assessment methods used between those online instructors who received training in Internet course development and those who did not?

Ho3: There is no difference in assessment methods used between those online instructors who received training in Internet course development and those who did not.

A chi-square test was conducted to determine if differences in assessment methods used existed between faculty who received training in Internet course development and those who did not. Chi-square was chosen because both variables are a nominal classification; therefore, a nonparametric measurement would be the most robust. A two-way contingency table analysis was conducted to evaluate whether there was a difference in assessment methods being used among faculty who received training and those who did not.

The 2 variables were received training with 2 levels (yes or no) and uses portfolio with 2

levels (yes or no). Training and portfolio use were not found to be significantly related, Pearson chi-square (1, N = 174) = .839, $p = .360$, Cramer's V = .069. The proportion of instructors who use portfolio who received training was 16.1% and the proportion of instructors who use portfolio and did not receive training was 22%. The proportion of instructors who do not use portfolio who received training was 83.9% and the proportion of instructors who do not use portfolio who did not receive training was 78%.

The 2 variables were received training with 2 levels (yes or no) and uses true/false tests with 2 levels (yes or no). Training and true/false test use were not found to be significantly related, Pearson chi-square (1, N = 174) = .191, $p = .662$, Cramer's V = .033. The proportion of instructors who use true/false tests who received training was 55.6% and the proportion of instructors who use true/false tests and did not receive training was 52%. The proportion of instructors who do not use true/false tests who received training was 44.4% and the proportion of instructors who do not use true/false tests who did not receive training was 48%.

The 2 variables were received training with 2 levels (yes or no) and uses multiple-choice tests with 2 levels (yes or no). Training and multiple-choice test use were not found to be significantly related, Pearson chi-square (1, N = 174) = 2.75, $p = .097$, Cramer's V = .126. The proportion of instructors who use multiple-choice tests who received training was 87.9% and the proportion of instructors who use multiple-choice tests and did not receive training was 78%. The proportion of instructors who do not use multiple-choice tests who received training was 12.1% and the proportion of instructors who do not use multiple-choice tests who did not receive training was 22%.

The 2 variables were received training with 2 levels (yes or no) and uses short-answer tests with 2 levels (yes or no). Training and short-answer test use were not found to be significantly related, Pearson chi-square (1, N = 174) = .084, $p = .773$, Cramer's V = .022. The proportion of instructors who use short-answer tests who received training was 47.6% and the proportion of instructors who use short-answer tests and did not receive training was 50%. The

proportion of instructors who do not use short-answer tests who received training was 52.4% and the proportion of instructors who do not use short-answer tests who did not receive training was 50%.

The 2 variables were received training with 2 levels (yes or no) and uses essay tests with 2 levels (yes or no). Training and essay test use were not found to be significantly related, Pearson chi-square (1, N = 174) = .055, $p = .815$, Cramer's V = .018. The proportion of instructors who use essay tests who received training was 41.9% and the proportion of instructors who use essay tests and did not receive training was 40%. The proportion of instructors who do not use essay tests who received training was 58.1% and the proportion of instructors who do not use essay tests who did not receive training was 60%.

The 2 variables were received training with 2 levels (yes or no) and uses discussion with 2 levels (yes or no). Training and discussion use were found to be significantly related, Pearson chi-square (1, N = 174) = 7.576, $p = .006$, Cramer's V = .209. The proportion of instructors who use discussion who received training was 70.2% and the proportion of instructors who use discussion and did not receive training was 48%. The proportion of instructors who do not use discussion who received training was 29.8% and the proportion of instructors who do not use discussion who did not receive training was 52%.

The 2 variables were received training with 2 levels (yes or no) and uses individual projects with 2 levels (yes or no). Training and individual project use were not found to be significantly related, Pearson chi-square (1, N = 174) = .055, $p = .815$, Cramer's V = .018. The proportion of instructors who use individual projects who received training was 71.8% and the proportion of instructors who use individual projects and did not receive training was 70%. The proportion of instructors who do not use individual projects who received training was 28.2% and the proportion of instructors who do not use individual projects who did not receive training was 30%.

The 2 variables were received training with 2 levels (yes or no) and uses group projects

with 2 levels (yes or no). Training and group project use were not found to be significantly related, Pearson chi-square (1, N = 174) = .2443, $p = .118$, Cramer's V = .119. The proportion of instructors who use group projects who received training was 36.3% and the proportion of instructors who use group projects and did not receive training was 24%. The proportion of instructors who do not use group projects who received training was 63.7% and the proportion of instructors who do not use group projects who did not receive training was 76%.

The 2 variables were received training with 2 levels (yes or no) and uses problem-solving activities with 2 levels (yes or no). Training and problem-solving activity use were not found to be significantly related, Pearson chi-square (1, N = 174) = 2.144, $p = .143$, Cramer's V = .111. The proportion of instructors who use problem-solving activities who received training was 41.9% and the proportion of instructors who use problem-solving activities and did not receive training was 30%. The proportion of instructors who do not use problem-solving activities who received training was 58.1% and the proportion of instructors who do not use problem-solving activities who did not receive training was 70%.

The 2 variables were received training with 2 levels (yes or no) and uses self-assessment with 2 levels (yes or no). Training and self- assessment use were not found to be significantly related, Pearson chi-square (1, N = 174) = 3.187, $p = .074$, Cramer's V = .135. The proportion of instructors who use self-assessment who received training was 16.1% and the proportion of instructors who use self-assessment and did not receive training was 6%. The proportion of instructors who do not use self-assessment who received training was 83.9% and the proportion of instructors who do not use self-assessment who did not receive training was 94%.

The 2 variables were received training with 2 levels (yes or no) and uses other assessment methods with 2 levels (yes or no). Training and other assessment method use were not found to be significantly related, Pearson chi-square (1, N = 174) = .615, $p = .433$, Cramer's V = .059. The proportion of instructors who use other assessment methods who received training was 12.1% and the proportion of instructors who use other assessment methods and did not receive

training was 8%. The proportion of instructors who do not use other assessment methods who received training was 87.9% and the proportion of instructors who do not use other assessment methods who did not receive training was 92%.

Research Question 4: Number of Assessments Per Course

Are there differences in the number of different types of assessments being used per course by each instructor?

Ho4: There is no difference in the number of different types of assessments being used per course by each instructor.

To compare the number of different types of assessments being used per course by each instructor, a chi-square frequencies test was conducted. The data revealed that there is a significant difference in the number of different types of assessments being used per course by each instructor. Pearson chi-square (9, N=174) = 314.279, $p < .001$. Because the p value ($p < .001$) was less than the alpha of .05, the null hypothesis was rejected. It was concluded that there is a difference in the number of different types of assessments being used per course by each instructor. The number of types of assessments being used per course per instructor ranged from 1 – 20 with a mean of 3.6.

Research Question 5: Years Teaching Internet Courses

Are there differences in the types of assessments being used by online instructors who have been teaching in the online environment for more than three years as compared with instructors who have been teaching in the online environment for three or fewer years?

Ho5: There is no difference in the types of assessments being used by online instructors who have been teaching in the online environment for more than three years as compared to instructors who have been teaching in the online environment for three or fewer years.

A chi-square test was conducted to determine if differences in the types of assessments

being used existed between instructors who have been teaching in the online environment for more than 3 years as compared to instructors who have been teaching in the online environment for 3 or fewer years. The variables in this test are both nominal in nature; therefore, a nonparametric measurement would be the most robust. A two-way contingency table analysis was conducted to evaluate whether there was a difference in assessment methods being used among faculty who have been teaching in the online environment for more than 3 years as compared to instructors who have been teaching in the online environment for 3 or fewer years. The 2 variables were length of time teaching online courses with 2 levels (more than 3 years or 3 years or fewer) and different assessment methods. Each different method of assessment was evaluated independently.

The first 2 variables were teaching online courses for more than 3 years and uses portfolio with 2 levels (yes or no). Teaching online courses for more than 3 years and portfolio use were not found to be significantly related, Pearson chi-square (8, N = 174) = 9.820, $p = .278$, Cramer's V = .238. The next 2 variables were teaching online courses for 3 or fewer years and uses portfolio with 2 levels (yes or no). Teaching online courses for 3 or fewer years and portfolio use were not found to be significantly related, Pearson chi-square (9, N = 170) = 9.130, $p = .425$, Cramer's V = .232. The proportion of instructors who use portfolio who have been teaching online for more than 3 years was 17.8% and the proportion of instructors who use portfolio and have been teaching online for 3 or fewer years was 18.2%. The proportion of instructors who do not use portfolio who have been teaching online for more than 3 years was 82.2% and the proportion of instructors who do not use portfolio who have been teaching online for 3 or fewer years was 81.8%.

The next 2 variables were teaching online courses for more than 3 years and uses true/false tests with 2 levels (yes or no). Teaching online courses for more than 3 years and true/false test use were not found to be significantly related, Pearson chi-square (8, N = 174) = 15.458, $p = .051$, Cramer's V = .298. The next 2 variables were teaching online courses for 3 or

fewer years and uses true/false tests with 2 levels (yes or no). Teaching online courses for 3 or fewer years and true/false test use were not found to be significantly related, Pearson chi-square (9, N = 170) = 7.678, $p = .567$, Cramer's V = .213. The proportion of instructors who use true/false tests who have been teaching online for more than 3 years was 54.6% and the proportion of instructors who use true/false tests and have been teaching online for 3 or fewer years was 55.9%. The proportion of instructors who do not use true/false tests who have been teaching online for more than 3 years was 45.4% and the proportion of instructors who do not use true/false tests who have been teaching online for 3 or fewer years was 44.1%.

The next 2 variables were teaching online courses for more than 3 years and uses multiple-choice tests with 2 levels (yes or no). Teaching online courses for more than 3 years and multiple-choice test use were found to be significantly related, Pearson chi-square (8, N = 174) = 16.597, $p = .035$, Cramer's V = .309. The next 2 variables were teaching online courses for 3 or fewer years and uses multiple-choice tests with 2 levels (yes or no). Teaching online courses for 3 or fewer years and multiple-choice test use were found to be significantly related, Pearson chi-square (9, N = 170) = 17.766, $p = .038$, Cramer's V = .323. The proportion of instructors who use multiple-choice tests who have been teaching online for more than 3 years was 85.1% and the proportion of instructors who use multiple-choice tests and have been teaching online for 3 or fewer years was 85.3%. The proportion of instructors who do not use multiple-choice tests who have been teaching online for more than 3 years was 14.9% and the proportion of instructors who do not use multiple-choice tests who have been teaching online for 3 or fewer years was 14.7%.

The next 2 variables were teaching online courses for more than 3 years and uses short-answer tests with 2 levels (yes or no). Teaching online courses for more than 3 years and short-answer test use were not found to be significantly related, Pearson chi-square (8, N = 174) = 6.405, $p = .602$, Cramer's V = .192. The next 2 variables were teaching online courses for 3 or fewer years and uses short-answer tests with 2 levels (yes or no). Teaching online courses for 3

or fewer years and short-answer test use were not found to be significantly related, Pearson chi-square(9, N = 170)= 13.238, $p=.152$, Cramer's $V=.279$. The proportion of instructors who use short-answer tests who have been teaching online for more than 3 years was 48.3% and the proportion of instructors who use short-answer tests and have been teaching online for 3 or fewer years was 48.8%. The proportion of instructors who do not use short-answer tests who have been teaching online for more than 3 years was 51.7% and the proportion of instructors who do not use short-answer tests who have been teaching online for 3 or fewer years was 51.2%.

The next 2 variables were teaching online courses for more than 3 years and uses essay with 2 levels (yes or no). Teaching online courses for more than 3 years and essay use were not found to be significantly related, Pearson chi-square(8, N = 174) = 12.483, $p = .131$, Cramer's $V = .268$. The next 2 variables were teaching online courses for 3 or fewer years and uses essay with 2 levels (yes or no). Teaching online courses for 3 or fewer years and essay use were not found to be significantly related, Pearson chi-square(9, N = 170)= 12.096, $p = .208$, Cramer's $V=.267$. The proportion of instructors who use essay who have been teaching online for more than 3 years was 41.4% and the proportion of instructors who use essay and have been teaching online for 3 or fewer years was 41.2%. The proportion of instructors who do not use essay who have been teaching online for more than 3 years was 58.6% and the proportion of instructors who do not use essay who have been teaching online for 3 or fewer years was 58.8%.

The next 2 variables were teaching online courses for more than 3 years and uses discussion with 2 levels (yes or no). Teaching online courses for more than 3 years and discussion use were not found to be significantly related, Pearson chi-square(8, N = 174) = 9.191, $p = .326$, Cramer's $V = .230$. The next 2 variables were teaching online courses for 3 or fewer years and uses discussion with 2 levels (yes or no). Teaching online courses for 3 or fewer years and discussion use were found to be significantly related, Pearson chi-square(9, N = 170)= 19.098, $p = .024$, Cramer's $V=.335$.

The proportion of instructors who use essay who have been teaching online for more than

3 years was 63.8% and the proportion of instructors who use essay and have been teaching online for 3 or fewer years was 64.1%. The proportion of instructors who do not use essay who have been teaching online for more than 3 years was 36.2% and the proportion of instructors who do not use essay who have been teaching online for 3 or fewer years was 35.9%.

The next 2 variables were teaching online courses for more than 3 years and uses individual projects with 2 levels (yes or no). Teaching online courses for more than 3 years and individual project use were not found to be significantly related, Pearson chi-square(8, N = 174) = 10.991, $p = .202$, Cramer's V = .251. The next 2 variables were teaching online courses for 3 or fewer years and uses individual projects with 2 levels (yes or no). Teaching online courses for 3 or fewer years and individual project use were not found to be significantly related, Pearson chi-square(9, N = 170) = 11.291, $p = .256$, Cramer's V = .258. The proportion of instructors who use individual projects who have been teaching online for more than 3 years was 71.3% and the proportion of instructors who use individual projects and have been teaching online for 3 or fewer years was 71.2%. The proportion of instructors who do not use individual projects who have been teaching online for more than 3 years was 28.7% and the proportion of instructors who do not use individual projects who have been teaching online for 3 or fewer years was 28.8%.

The next 2 variables were teaching online courses for more than 3 years and uses group projects with 2 levels (yes or no). Teaching online courses for more than 3 years and group project use were found to be significantly related, Pearson chi-square(8, N = 174) = 16.829, $p = .032$, Cramer's V = .311. The next 2 variables were teaching online courses for 3 or fewer years and uses group projects with 2 levels (yes or no). Teaching online courses for 3 or fewer years and group project use were not found to be significantly related, Pearson chi-square(9, N = 170) = 10.201, $p = .334$, Cramer's V = .245. The proportion of instructors who use group projects who have been teaching online for more than 3 years was 32.8% and the proportion of instructors who use group projects and have been teaching online for 3 or fewer years was 32.9%. The

proportion of instructors who do not use group projects who have been teaching online for more than 3 years was 67.2% and the proportion of instructors who do not use group projects who have been teaching online for 3 or fewer years was 67.1%.

The next 2 variables were teaching online courses for more than 3 years and uses problem-solving activities with 2 levels (yes or no). Teaching online courses for more than 3 years and problem-solving activity use were not found to be significantly related, Pearson chi-square(8, N = 174) = 13.236, $p = .104$, Cramer's V = .276. The next 2 variables were teaching online courses for 3 or fewer years and uses problem-solving activities with 2 levels (yes or no). Teaching online courses for 3 or fewer years and problem-solving activity use were not found to be significantly related, Pearson chi-square(9, N = 170) = 10.045, $p = .347$, Cramer's V = .243. The proportion of instructors who use problem-solving activities who have been teaching online for more than 3 years was 38.5% and the proportion of instructors who use problem-solving activities and have been teaching online for 3 or fewer years was 38.8%. The proportion of instructors who do not use problem-solving activities who have been teaching online for more than 3 years was 61.5% and the proportion of instructors who do not use problem-solving activities who have been teaching online for 3 or fewer years was 61.2%.

The next 2 variables were teaching online courses for more than 3 years and uses self-assessment with 2 levels (yes or no). Teaching online courses for more than 3 years and self-assessment use were not found to be significantly related, Pearson chi-square(8, N = 174) = 9.388, $p = .311$, Cramer's V = .232. The next 2 variables were teaching online courses for 3 or fewer years and uses self-assessment with 2 levels (yes or no). Teaching online courses for 3 or fewer years and self-assessment use were not found to be significantly related, Pearson chi-square(9, N = 170) = 13.862, $p = .127$, Cramer's V = .286. The proportion of instructors who use self-assessment who have been teaching online for more than 3 years was 13.2% and the proportion of instructors who use self-assessment and have been teaching online for 3 or fewer years was 13.5%. The proportion of instructors who do not use self-assessment who have been

teaching online for more than 3 years was 86.8% and the proportion of instructors who do not use self-assessment who have been teaching online for 3 or fewer years was 86.5%.

The next 2 variables were teaching online courses for more than 3 years and uses other assessment methods with 2 levels (yes or no). Teaching online courses for more than 3 years and other assessment use were not found to be significantly related, Pearson chi-square(8, N = 174) = 5.626, $p = .689$, Cramer's V = .180. The next 2 variables were teaching online courses for 3 or fewer years and uses other assessment methods with 2 levels (yes or no). Teaching online courses for 3 or fewer years and other assessment method use were not found to be significantly related, Pearson chi-square(9, N = 170) = 1.909, $p = .993$, Cramer's V = .106. The proportion of instructors who use other assessment methods who have been teaching online for more than 3 years was 10.9% and the proportion of instructors who use other assessment methods and have been teaching online for 3 or fewer years was 10.6%. The proportion of instructors who do not use other assessment methods who have been teaching online for more than 3 years was 89.1% and the proportion of instructors who do not use other assessment methods who have been teaching online for 3 or fewer years was 89.4%.

Research Question 6: Number of Internet Courses Per Semester

Are there differences in the types of assessments being used by online instructors who teach more than one Internet course per year as compared with instructors who teach only one Internet course per year?

Ho6: There is no difference in the types of assessments being used by online instructors who teach more than one Internet course per year and instructors who teach only one Internet course per year.

A chi-square test was conducted to determine if differences exist in the types of assessments being used by online instructors who teach more than one Internet course per year as compared with instructors who teach only one Internet course per year. The variables in this test

are both nominal in nature; therefore, a nonparametric measurement would be the most robust. A two-way contingency table analysis was conducted to evaluate whether there was a difference in assessment methods being used by online instructors who teach more than one Internet course per year as compared with instructors who teach only one Internet course per year. The 2 variables were the number of online courses being taught per year with 2 levels (one course or more than one course) and different assessment methods with 11 different levels (portfolio, true/false tests, multiple-choice tests, short-answer tests, essay tests, discussion, individual projects, group projects, problem-solving activities, self-assessment, and other). The results of the tests are presented in Table 13.

Table 13

Comparison of Differences in Assessment Methods Being Used by Online Instructors Who Teach More Than One Internet Course Per Year as Compared With Instructors Who Teach Only One Internet Course Per Year

Assessments	Chi-Square	<i>df</i>	<i>p</i>	<i>Cramer's V</i>
Portfolio	9.820	8	.278	.238
True False	15.458	8	.051	.298
Multiple Choice	16.597	8	.035	.309
Short Answer	6.405	8	.602	.192
Essay	12.483	8	.131	.268
Discussion	9.191	8	.326	.230
Individual Projects	10.991	8	.202	.251
Group Projects	16.829	8	.032	.311
Problem Solving	13.236	8	.104	.276
Self-Assessment	9.388	8	.311	.232
Other	5.626	8	.689	.180

The null hypothesis was retained for all of the assessment methods with the exception of multiple-choice tests and group projects because the *p* value was greater than the alpha level of

.05. The null hypothesis was rejected for multiple-choice testing ($p = .035$) and group projects ($p = .032$) because the p value was less than the alpha level of .05. The proportion of online instructors who teach only one internet course per year who use multiple-choice tests was 73.2% and the proportion of online instructors who teach more than one internet course per year who use multiple-choice tests was 85.1%. The proportion of online instructors who teach only one internet course per year who do not use multiple-choice tests was 26.8% and the proportion of online instructors who teach more than one internet course per year who do not use multiple-choice tests was 14.9%. The proportion of online instructors who teach only one internet course per year who use group projects was 23.2% and the proportion of online instructors who teach more than one internet course per year who use group projects was 32.8%. The proportion of online instructors who teach only one internet course per year who do not use group projects was 76.8% and the proportion of online instructors who teach more than one internet course per year who do not use group projects was 67.2%.

Qualitative Data

“With the development and perceived legitimacy of both qualitative and quantitative research in social and human sciences, mixed-methods research employing the data collection associated with both forms of data is expanding” (Creswell, 2003, p. 208). The research design used in this study is quantitative in nature but with the addition of two open-ended questions that were generated to give a better understanding of the data collected. The open-ended questions are also valuable in confirming the validity of the quantitative responses through triangulation. The written responses to the two questions are included in their entirety in Appendices C and D. The responses were hand-coded based on the common practices of coding discussed in Patton’s (2002) *Qualitative Research and Evaluation Methods*.

The question, "Please describe and indicate how effective the training you received was" was answered by 141 of the survey respondents with 21 (15%) of the respondents answering the

question as N/A. Of the remaining respondents, 94 (67%) stated that their training was effective and 26 (18%) stated that their training was ineffective. Many of the respondents (28) indicated that they were trained in Blackboard only. One of the themes of the responses was that those trained would have liked to have training in assessment and pedagogy in addition to the Blackboard Course Management System training. Some of the respondents received training by enrolling in a master's program that taught instructional technology. Other respondents were trained in the use of technology only. The one major theme that emerged from these questions was summarized by the following quote from one of the respondents:

The training was more technology based. I would have like[d] more assessment and content coverage. The training I received was effective as far as teaching me how to use the course management software (Blackboard). I wish the original training had included more on online pedagogy.

Another quote worthy of attention was:

It seems back around the year 2000, everyone was trying to jump into Internet courses as fast as possible as the "best new thing to do"; they were more concerned with getting them online, so they could say we have X number of them, than be[ing] concerned about those that taught them being 100% fully trained to teach them.

On the topic of ineffective training, the comments generally were, "It was minimal and it was too little, too late." One of the respondents indicated that the training was effective because a distance education coordinator at that college provided monthly training meetings and individual consultation to instructors teaching online.

The next question, "If you have taught Internet courses for more than one year, have your methods of assessment changed over time? Why?" was answered by 159 respondents. Of those respondents, 97 (61%) responded that their methods of assessment had changed over time and 61 (38%) responded that their methods of assessment have remained unchanged over time. I found two main themes that were apparent throughout the responses. The first theme was that a variety of assessment methods needed to be used in each course to ensure that the course objectives were being met. The majority of instructors were minimizing or eliminating objective testing in favor of alternative assessment methods because the instructors stated that alternative assessment

methods were more reliable indicators of course effectiveness and meeting learning objectives. Some of the comments included, “Communication is fundamental for online learning, so I began to build more assessments around group discussions and individual reflections and self-analysis.” “I use a mix of methods. Exams alone do not allow me to know how the student is processing or applying information.” “I am now requiring assessments in various methods to make sure they are learning the material in a way that they can retain it and can apply it.”

An alternative and opposite theme presented in the responses was that some instructors were returning to objective testing methods because they did not have time to grade alternative assessments. These instructors agreed that objective testing was not the most reliable indicator of course effectiveness but they stated they did not have time to grade other assessment methods. Of the respondents, 17 mentioned that they did not have time to grade lengthy assessments. Their comments included, “The number of students in Internet classes has grown tremendously and the only way I can keep up with the demand is to have the computer actually do the grading for me on exams.” “Previously, I avoided objective (multiple choice, true/false) assessments and used only short answer/discussion-type questions; however, they became too time consuming to grade considering the number of students in my sections (often 30).” “The bad part is forums are a pain to grade and it’s hard to do a careful job with all of the forums, especially when you have four or more courses with weekly forums.” “I realized that meeting with a student in a chat room is time consuming so I have stopped doing it.”

One instructor made an additional comment that was relevant to this theme of lack of time, stating, “No, as I do not have the time to change assessment methods in courses, we have had to lessen the number of assignments due to teaching loads and also create assignments that take less time to grade.”

A concluding comment from a respondent iterated this recurring theme of lack of time, “Often the number of students impacts the methods of assessment. An Internet course is much more time consuming than a seated class.”

Summary

Chapter 4 presented descriptive and comparative analyses of primary quantitative data and qualitative data retrieved from 171 survey responses that reside on the East Tennessee State College of Education server. This analysis included demographic information in addition to responses to survey questions. A summary, conclusions, and recommendations for further study based on the findings of this research study are presented in Chapter 5.

CHAPTER 5

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This chapter offers a summary of the results presented in Chapter 4. It also presents conclusions based upon the study's findings and it concludes with recommendations for further research in the related topic areas of this study.

Distance learning is the wave of the future in the field of education. It provides many students with an opportunity to further their education who would not have that opportunity without this new mode of delivery. With this rapid growth in technology use in education comes a responsibility to ensure that students are meeting learning objectives and meeting educational goals. Appropriate assessment methods allow educators to determine if learning objectives are being met and if Internet instruction is effective. As confirmed by Sigala (2005), the need to develop and implement robust assessment methods for assessing and supporting learning in virtual learning environments becomes indisputable.

The purpose of this study was to determine whether the assessment methods being used in the online environment are perceived to determine that the learning outcomes have been met for a particular course or program. This study has also provided valuable insights into which methods are currently being used and why these methods are being used. The data for this study were obtained by the return of an online survey.

Summary of Findings

This section offers a synopsis of the findings derived from the quantitative data analysis and interpretations of the statistical test results. Six research questions framed this study.

Research Question 1: Academic Discipline

Are there differences in assessment methods being used among faculty who teach in different academic disciplines in the online environment?

A chi-square test with crosstabs was conducted to determine if differences existed among faculty who teach in different academic disciplines. The types of assessment that indicated a statistically significant difference were: true/false tests, multiple-choice tests, short-answer tests, discussion questions, and group projects. For portfolio assessment, essay tests, individual projects, problem-solving activities, self-assessment, and the category of other, there was not a statistically significant difference among the different academic disciplines.

Research Question 2: Learning Objectives Being Met

Are there differences in perceived effectiveness of the assessment methods being used among individual instructors in determining if the course learning objectives have been met?

A chi-square test of frequencies was used to determine if there was a significant difference in perceived effectiveness of assessment methods being used among individual instructors in determining if the course learning objectives have been met. There was a statistically significant difference ($p < .05$) in the perceptions of effectiveness of all of the assessment methods with the exception of self-assessment and the category of other. The null hypothesis was therefore rejected for portfolio assessment, true/false tests, multiple-choice tests, short-answer tests, essay tests, discussion questions, individual projects, group projects, and problem-solving activities. The null hypothesis was not rejected for self-assessment and the category of other. When reviewing the results for each method of assessment, portfolio assessment is considered an effective means of assessment by most respondents. True/false, multiple-choice, and short-answer tests are generally considered effective but not the most effective choice for assessment. Essay tests and discussion questions are considered more effective than objectively scored testing. The majority of respondents noted that individual

projects and problem-solving activities were the most effective methods of assessment for online courses. Group projects were not considered as effective as the other means of assessment and self-assessment was considered an ineffective method of assessment by most of the individuals surveyed. The category of other varied based on the type of assessment that was being used.

Research Question 3: Internet Course Development Training

Are there differences in assessment methods used between those online instructors who received training in Internet course development and those who did not?

The analysis to determine whether or not there was a difference in assessment methods used between those online instructors who received training in Internet course development and those who did not was conducted using a chi-square test with a two-way contingency table analysis. There was no difference in assessment methods used between those online instructors who received training in Internet course development and those who did not in all areas with the exception of discussion questions. Online instructors who received training used discussion questions more frequently than did online instructors who did not receive training.

Research Question 4: Number of Assessments Per Course

Are there differences in the number of different types of assessments being used per course by each instructor?

To compare the number of different types of assessments being used per course by each instructor, a chi-square frequencies test was conducted. It was concluded that there was a difference in the number of different types of assessments being used per course by each instructor. The number of types of assessments being used per course per instructor ranged from 1 – 20 with a mean of 3.6.

Research Question 5: Years Teaching Internet Courses

Are there differences in the types of assessments being used by online instructors who have been teaching in the online environment for more than three years as compared with instructors who have been teaching in the online environment for three or fewer years?

The analysis to determine whether or not there was a difference in the types of assessment methods used between those online instructors who have been teaching in the online environment for more than three years as compared with instructors who have been teaching in the online environment for three or fewer years was conducted using a chi-square test with a two-way contingency table analysis. The results indicated that there was no difference in assessment methods used between those online instructors who have been teaching in the online environment for more than three years as compared to instructors who have been teaching in the online environment for three or fewer years in all areas with the exception of multiple choice.

Research Question 6: Number of Internet Courses Per Semester

Are there differences in the types of assessments being used by online instructors who teach more than one Internet course per year as compared with instructors who teach only one Internet course per year?

The analysis to determine whether or not there was a difference in the types of assessment methods used between those online instructors who teach more than one Internet course per year as compared with instructors who teach only one Internet course per year was conducted using a chi-square test with a two-way contingency table analysis. The results of the survey indicated that there was a difference in assessment methods used between those online instructors who teach more than one Internet course per year as compared to instructors who teach only one Internet course per year in relation to multiple-choice test use and group project use. Online instructors who teach more than one internet course per year use multiple-choice tests and group projects more frequently than instructors who teach only one internet course per

year. The qualitative open-ended question that accompanied this quantitative question on the survey validated and confirmed this quantitative conclusion. Many instructors surveyed indicated that they had to use less effective assessment methods because of the large number of students that they had in courses and the lack of time that they had to grade alternative methods of assessment.

Conclusions

Based on the findings of this study, the following may be concluded:

1. There is a difference between some academic disciplines in relation to the type of assessment methods being used in online courses. According to respondents, some disciplines, such as the arts, are more conducive to objectively scored testing methods. Continuing education is not conducive to objectively scored testing methods.
2. There is a difference in perceived effectiveness of assessment methods among the individual instructors surveyed. The most effective means of assessment as determined by the survey results was individual projects. The least effective method of assessment as determined by the survey results was self-assessment.
3. The survey results confirmed that objectively scored testing is not considered the most effective method of assessment but several instructors still use this method because of time constraints.
4. The survey results confirmed that a variety of assessment methods need to be used within each Internet course to determine the effectiveness of the course.
5. Surprisingly, there was no difference in the assessment methods being used by those instructors who received training and those who did not. This conclusion could be based on the fact that the training received by most online instructors was in Blackboard and/or technology and not assessment methods.

6. There is a difference in the number of types of assessment being used by online instructors. The range was from 1–20 with the mean being 3.6.
7. The survey data indicated that there was not a difference in assessment methods being used by instructors who have taught for more than three years as compared to instructors who have taught three or fewer years. Again, this conclusion could be based on the fact that training in assessment was not received by the vast majority of online instructors.
8. The study indicated that there is a difference in some of the types of assessments being used by instructors who teach more than one Internet course per year. Unfortunately, but not surprisingly, instructors who have a large number of students and/or course sections resort to objective-testing methods only because they do not have time to grade alternative assessment formats.

Recommendations to Improve Practice

This researcher investigated whether the assessment methods being used in the online environment were perceived to determine that the learning outcomes have been met for a particular course or program. It is hoped that the study would provide insights into the methods of assessment that are currently being used and which assessments are generally considered the best methods by online instructors for accountability measures. It is also hoped that the findings of this study will be useful in future Internet course assessment strategy and that more comprehensive follow-up studies will be conducted in the future to gain additional insights into the topic of Internet course assessment.

Implications for Practice

1. The findings of this study indicated that online instructors should be trained in assessment methods and pedagogy in addition to the course management system and

- technology training that many instructors are receiving.
2. A policy needs to be developed within the North Carolina Community College System that sets guidelines for workload for Internet course instructors so that the most effective methods of assessment will be used in the online environment and ineffective methods will not be used because of time constraints placed on the instructor.
 3. A policy needs to be developed within the North Carolina Community College System that places caps on the number of students who are allowed to be in one course section of an online course so that the instructor has the time to use the more effective means of assessment in online courses.
 4. The findings of this study indicate that a distance education coordinator should be hired at all institutions and that this individual should provide monthly training and individual consultation to online instructors in assessment methods to ensure that the instructors are adequately trained and comfortable in the online environment.

Recommendations for Future Research

1. Similar studies should be conducted in other parts of the state of North Carolina to confirm results from the western part of the state.
2. This study should be replicated after the groups of respondents have received training in assessment methods.
3. This study should be conducted by surveying students instead of instructors to see if the students' perspectives match the instructors' perspectives.
4. A qualitative study investigating perceptions of effectiveness of assessment methods in the online environment should be undertaken.
5. Similar studies should be conducted in other states.
6. A similar study should be conducted for traditional face-to-face classes.

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APPENDICES

APPENDIX A

Survey

ETSU College of Education Survey System Survey Preview: Online Assessments

Below is a preview of your survey that was generated using the current question set and style. When you are finished previewing, please close this browser window to return to the administration console.

Online Assessments

Survey for Kim Yates dissertation "Perceived Effectiveness of Assessments Used in Online Courses in Western North Carolina Community Colleges"

1. In which academic department do you teach Internet courses?

Business

Vocational

Health Occupations

Arts

Public Safety

Continuing Education

Social Sciences

Hard Sciences

Other (please list):

2. How many unduplicated Internet courses did you teach during the Fall 2004 - Spring

2005 academic year?

1

2

3

4

5

6

Other (please specify):

3. How many unduplicated Internet courses did you teach during the Fall 2003 - Spring 2004 academic year?

1

2

3

4

5

6

Other (please specify):

4. How many unduplicated Internet courses did you teach during the Fall 2002 - Spring 2003 academic year?

1

2

3

4

5

6

Other (please specify):

5. How many unduplicated Internet courses did you teach before Fall 2002?

1

2

3

4

5

6

Other (please specify):

6. What assessment methods are you currently using in the Internet classes that you teach?

Please mark as many as apply

Portfolio assessment

True/False tests

Multiple-choice tests

Short-answer tests
Essay tests
Discussion questions
Individual projects
Group projects
Problem-solving activities
Self-assessment
Other (please specify):

7. On a scale from 1-5 with 5 being the most effective and 1 being the least effective, how effective do you perceive the assessment methods that you use are in determining if the learning objectives of the course have been met?

1
2
3
4
5

Portfolio assessment

True/False tests

Multiple-choice tests

Short-answer tests

Essay tests
Discussion questions
Individual projects
Group projects
Problem-solving activities
Self assessment
Other

8. Did you receive training in Internet course development? If yes, please answer questions 9 & 10; If no, please proceed to question 11.

Yes

No

9. Which of the following were part of the training that you received? Mark all that apply

Course development

Assessment methods

Technology

Other (please specify):

10. Please describe and indicate how effective the training you received was.

11. On the average, how many different types of assessment do you use per course?

1

2

3

4

5

6

Other:

12. If you have taught Internet courses for more than one year, have your methods of assessment changed over time? Why?

13. Demographic Information: Gender (male/female)?

14. Demographic Information: Age?

15. Demographic Information: Academic degree?

16. Demographic Information: Years experience in Education?

APPENDIX B

Email Survey Cover Letter

Hello everyone! If you have already completed the survey, I thank you from the bottom of my heart - if you have not, I am begging, please complete the survey referenced below - I need some more responses before I can proceed. Have a great day! Thank you - Kim

Hello! My name is Kim Marie Yates and I am the Dean of Technical and Vocational Programs at Mayland Community College in Spruce Pine, NC. I am also a doctoral candidate at East Tennessee State University. I am in the process of writing my dissertation entitled, "Perceived Effectiveness of Assessments Used in Online Courses in Western North Carolina Community Colleges". I am surveying online instructors in Western North Carolina Community Colleges and have received your name and email address from the Director of Distance Learning at your community college. The survey is online and interactive and available at this address:

<http://coe.etsu.edu/ultimatesurvey/surveyPassword.asp?surveyID=18&invid=>

Please access the above address and use the password "online" to complete the survey. I have piloted the survey and it only takes 10 minutes to complete.

This is an anonymous survey. You will not be identified. The data will be used in a compiled form and confidentiality is guaranteed. Your completion of this survey will be deemed to mean that you have given informed consent. The compiled results of this survey will be made available to the North Carolina Community College System as well as all participants in this study. Please complete the above survey within 7 days. Thank you very much for your help.

APPENDIX C

Training Effectiveness

- 1 Training I received was extremely effective. I'm in an MA program in instructional technology. Workshops provided by my institution have also been helpful.
- 2 It was good. The workshops helped me to know how to use the essential features of the Blackboard program my school uses. Also, there were general tips on good on-line teaching practices. This training was spread over several workshops.
- 3 Our Distance Coordinator is a fantastic guy who is concerned about all aspects of the virtual learning environment. He actively recruits and trains instructors to teach online. He holds "Blackboard" training sessions usually ever semester. He meets with individual instructors to discuss their teaching style, their "online presence," their course, the course content, etc. He conducts follow up meetings, and he visits the develop course from time to time to make suggestions. Online teaching could not be accomplished without this type of human driven effort behind it. We are fortunate to have such a person in place. [I think he has been in that role a little over two years now.] The training was highly effective because one learns from experience of those who went before; pit falls can be avoided by following guidelines, etc. Our Coordinator is very concerned about academic integrity of online courses and in SACS compliance.
- 4 The Instructor gave each participant diskettes to be used in practice. This practice was in preparing the online course we had been assigned to teach. The training was very effective.
- 5 The first online training come through taking an online course on online teaching back in 1998. In 2001, I started taking graduate courses in instructional technology and completed that degree in May 2004. I have also been to many workshops and conferences on online instruction. The graduate course work was by far the most effective training I received.
- 6 It was mostly training on how to create the website, Blackboard and the platform we used prior to Bb. It was very effective at that, but not at how to teach online. I learned most of that by taking an Internet course myself, and by making mistakes as I went. But I started teaching online in '97, so there weren't many experts or people doing training back then.
- 7 marginal for basic use of the delivery tool blackboard
- 8 Since I have been working with computers my entire teaching career (22+ years), I didn't really need much training on the specific platform we used for online classes. I developed

our college's first online course in Spring 1997, created entirely in HTML, so Blackboard was easy for me (with or without training).

- 9 Very effective.
- 10 It was somewhat effective
- 11 Training was good here at this institution. Each year the classes become more effective. I will be moving my DL to a blended type DL.
- 12 The training I received was effective as far as teaching me how to use the course management software (Blackboard). I wish the original training had included more on online pedagogy. Was effective as an introduction to the resources available, but found it more effective self-learning which resources to apply to the development of the online course. My training was effective because I studied on my own, completed the exercises, printed off the information so I could refer to it as I need to. My concern for taking internet courses and instructing internet courses is the same. They are only as effective as the people who are utilizing them make them. I have taken internet courses where I could NEVER get feedback or assistance OF ANY KIND from my instructor. NEVER, EVER!!!! I made up my mind I was NOT going to be that type of internet instructor.
- 13 Not very informative; it was the first class of its kind to be demonstrated at our college.
- 14 Very. I was provided access to model courses and a totally interactive CD that allowed me to build and pause in my process.
- 15 Attended online training in course development and assessments. The training was extremely detailed. I believe that it was very effective in teaching me how to develop, set up and evaluate the course.
- 16 The classes were quite helpful, and the material used has been great reference material for me.
- 17 I was trained in using the Blackboard system.
- 18 It was a great hands on experience where hints and shorts cuts are shared among faculty members who are teaching online. A crucial to improving one's online teaching methods.
- 19 It was more of an explanation of the Blackboard software program and what it can do and what it can't do. Not a lot of training in the layout of how to actually teach an internet course or the mehtodology.
- 20 Fairly effective in setting up a course and being able to maneuver around the screen and BB program.

- 21 The training was fairly effective. I learned to use software and gleaned ideas from other distance learning instructors.
- 22 Fairly effective. Had to learn most through trial and error. Luckily my colleague in the office next to mine is an expert in the area.
- 23 no training
- 24 Not very effective. Peer assistance from someone who has taught online is more helpful. IT people don't teach so they don't appreciate the kinds of problems we encounter. My courses don't lend themselves to objective testing. They're writing courses.
- 25 Received a great deal of instruction on the use of blackboard, but less time was spent on online course development.
- 26 Completed Blackboard training. very effective to know the basics before attempting to build a blackboard course.
- 27 I was trained only on the basics of using the software (BlackBoard). The training was effective. I would like to "find the time" to get some training in effective course development and implementation.
- 28 Software training was great, but did not participate in any course development training.
- 29 I think my training has been moderately effective. Most training seems geared toward generalities of teaching online. The training that is subject specific (which is very important in applied disciplines) and even courseware specific (ie Blackboard) is most helpful. However, networking and sharing experiences and best practices with colleagues has probably been the most beneficial.
- 30 Not very effective. It lasted only a few hours and most of it was to justify the use of distance learning.
- 31 I participated in a grant project that allowed me to take a class at Wilkes CC on BlackBoard, Principles and Techniques of Online Instruction. I thought it was very effective and I taught it afterwards to many instructors on our campus who were new to BlackBoard.
- 32 The training was very effective. It was completed online so that gave me the perfect opportunity to experience first-hand what my students would see. I had to prepare a template for the type of class that I would be teaching and even though I didn't have to finish the template, it really gave me a great idea of what I would be doing.
- 33 Initially, in 2002, it was the bare minimum of training. Within the last 6 months we have received more workshops on course construction and technology tools.

- 34 The training simply taught me how to use "Blackboard". It was very helpful in learning the software.
- 35 The training I recieved was ineffectual. My courses have become effective through trial by fire.
- 36 Very effective in setting up assignments and tests.
- 37 The training we received was through a company called Langevin, the training wasn't much! Most everything, I learend on my own or learned through taking my Masters degree course on Web CT through Western Carolina University.
- 38 A little bit helpful. Actually teaching Internet classes has been more helpful than any training I have received. You get better the more Internet classes you teach.
- 39 The training I received was effective; however, I would have benefitted from further--and more thorough--training before attempting my first Internet course.
- 40 I am still struggling to learn all the features at my disposal for course development.
- 41 None given
- 42 The training provided an understanding of the elements of online course development with an emphasis for student effectiveness. The interaction component with the student was not emphasized. The training was very effective for the areas that were covered.
- 43 Minimally. The approach I used for setting up the course is not the one that was presented. I also found that many of my questions about the program were initially not answered well. That has improved over time.
- 44 The training was more technology based. I would have like more assessment and content coverage. I am planning to look for more avenues of training in these two areas.
- 45 We began teaching in Blackboard in 2001. There was not a lot of training available at that time and I taught myself. As more divisions began using online classes the training became more refined. But I eventually taught new instructors myself so the training was more along the lines of "how to" and "what not to do".
- 46 Minimal! I learned more the first semester through trial and error than I did in any training workshop!
- 47 None
- 48 It was a very hands on one day training class, and a year later, I am still finding things in

the notes that I can use.

- 49 Not as effective as it really should have been. It seems back around the year 2000, everyone was trying to "jump into" internet courses as fast as possible as the "best new thing to do" they were more concerned with getting them online, so they could say we have have X number of them, than been concerned about those that taught them being 100% fully trained to teach them.
- 50 Training was good. The Blackboard administrator set up a time for instruction with another instructor that had spent a lot of time using blackboard. It was hands on as well as open to questions and answers.
- 51 The training I received was through a Blackboard course, which I found difficult at times. I would have preferred to have some seat class training for it.
- 52 Adequate
- 53 I did not receive training
- 54 My training was informal, basically one-on-one with our distance learning coordinator. As such, it was very effective.
- 55 On the state level.....very poor. On the campus level.....good.
- 56 Three 1.5 hr classroom modules with hands at computers. Very effective.
- 57 It was very helpful to see what other instructor's found to be effective in their course development and asseessment area.
- 58 I feel the training I received was adequate. The best training is to actually teach the class online and experience.
- 59 Training on how to use the shell, not on content. For ease in creating the course, the training was adequate
- 60 Small workshops on Blackboard. Some workshops on developing courses by viewing others. The training was OK.
- 61 The training focused on the technological aspects of teaching an online class. I received no instruction on the unique pedagogical considerations of teaching in an online environment.
- 62 Great training. Instructor was clear about goals and methods. Learned many ways to use the online classes as a way to educate students on their own pace.

- 63 I took an online class at a community college about teaching online. The instructors had previously taught online for over a year. The class gave me some practical information for online development as well as an online experience so that I had an idea about how beginning online students would feel.
- 64 The theoretical portion was good. The hands-on practical could have been more in depth.
- 65 We had good training through the SCC distance ed. people.
- 66 Blackboard basic - Well covered
- 67 Attended several workshops on internet course development and use of Blackboard technology. The training was very effective. As Dean of Business Technology & Distance Learning, I only teach several courses per year; however, I have also conducted training for our internet instructors.
- 68 The training I received was effective due to the fact that the instructor was experienced in online class development and possessed the knowledge of the technology and trouble shooting. I have used suggestions made during the class many times with great success.
- 69 Gave some ideas of assessments methods to try. Different subjects utilize different assessment methods
- 70 Very effective training, via our tech people.
- 71 I got training immediately when on-line learning began in the Community College system...it was very well organized and handled. It provided for me a very sound background upon which I have been able to build very effective techniques and training sessions of my own for OUR college and faculty.
- 72 Without the training I would not have been able to effective teach an online course.
- 73 Little training other than how to build courses (pre-Blackboard) on Front Page. Other than this, next to no training was available.
- 74 Workshops were offered, and the hands-on training was very helpful.
- 75 Very ineffective. The person leading the class had never taught internet courses.
- 76 It was fairly decent. It only taught how to use the online interface to create course content and assessments.
- 77 The training was very thorough and helpful.
- 78 Effective--particularly with the new version of Blackboard being used in Fall 04.

- 79 The training that I have received within the past two years has been very effective.
- 80 The training was very effective in providing ideas as to methods and making me aware of possible problem situations and solutions. Actually designing a course for the VLC was the MOST helpful because it provided a "hands-on" opportunity to create a course.
- 81 The training was helpful. It was good to just get new ideas and share ideas that others had.
- 82 Basic 1 hour sessions on campus by our distance learning coordinator
- 83 no training
- 84 Generally helpful
- 85 The training was effective in introducing me to online teaching and learning, as well as providing a foundation for additional research on the topics relevant to effective distance educational experiences. While assessments were not specifically addressed in the training, my own knowledge of appropriate assessment techniques allowed me to research information/strategies for modifying those techniques for online learners.
- 86 The training prepared me with the basics of how to utilize technology and some basic thoughts about the differences between on-line and traditional learning environments. It was minimal but effective.
- 87 It was too little, too late.
- 88 very effective. Was part of the Virtual Learning Community to help develop The training I received got me started. It allowed me to dig further on my own.
- 89 Excellent - training provided by David Biddix and Jeff Jaynes in late summer, 98. At the time, we were trained in Netscape Composer and instructional design for online classes.
- 90 Received training on how to effectively develop a course (methodology). Received Blackboard training locally at my community college.
- 91 I received formal training on the technology part and informal training by my supervisor, which was hands on and using other courses already set up as patterns. I am a "parttime" teacher but teach a full load. I was very satisfied with the training.
- 92 The training gave me some new ideas about ways to improve things I was already doing.
- 93 The training I received was excellent, however I needed more training in technology.

- 94 It was very helpful. Hands on experience.
- 95 The training was effective. We did the training internally and learned all the tools that Blackboard had to offer as well as learned how online methods differ from classroom methods of teaching.
- 96 The training was extremely effective; however, it was not provided by the Community College system, but an alternate vehicle.
- 97 The training was primarily in how to develop courses in Blackboard. It was effective in teaching us to use Blackboard. The training was supposed to be generic, but was much more applicable to social sciences than to mathematics. I learned much more when I actually started teaching online than I did in the training.
- 98 Not very. I learned more on my own just surviving the class myself.
- 99 The training at CCC&TI was very effective. Our technology staff, especially the Blackboard coordinator, are knowledgeable, accessible, and efficient.
100. We were simply guided through the Blackboard site to become familiar with its layout. Then we were given activities to test our abilities with the site contents and capabilities.
101. Workshops that I attended were very effective and I also have great technical support!
102. Training focused on how to use Blackboard and provided some best practices/tips. Pretty effective but most knowledge was gained through trial an error and communications with co-workers.
103. The training was with the software used for online classes which gave me hands-on and made the transition easy.
104. The training taught basics, requiring that we apply the knowledge and training to actual applications.
105. Good basic but skill development came from application.
106. The initial training introduced me to websites, HTML, online teaching, telcourse and teleweb teaching, interactive classrooms and Internet research. Since I knew little about any of this before the training, it was helpful. However, we switched to Blackboard shortly after the training, so I also attended workshops on Blackboard. After that, most of what I learned was from my own experience or by asking other instructors or technical specialists specific questions. Other ongoing workshops in our department have been helpful also, for example, on PowerPoint, DVD making, and website resources.

107. It was minimal, but at the time it was new to us all. The more computer savvy faculty mentored others. We had training in how to use Blackboard and we participated in an online course called Principles of Online Teaching. Since then, we have had follow up training in using Campus Cruiser as well as Blackboard for course platforms.
108. The training was excellent. We were part of a group that met in Chapel Hill on a regular basis and learned the ins and outs of Blackboard together.
109. Participated in a number of group classes, probably about 4, plus plenty on one on one with the Distance Learning Coordinator. Very effective, I feel very comfortable with this format.
110. The training took place as part of my masters degree. I found the parts dealing with online course development and assessments to be valuable.
111. My master's degree is in educational technology with a specialty in classroom technology. The training was very in-depth and comprehensive to being able to teach on-line classes.
112. When I began teaching online courses our distance education coordinator thought all we needed to know was technology training. Several years later an assistant to the distance ed. coordinator was hired and she provides monthly trainings and individual consultation to instructors teaching online.
113. Not very effective...I learned more by trial and error.
114. Initially trained in BB administration. Later, the college hired an Instructional Technologist and we purchased IPSI software. This was integrated into an online development course. The training was excellent and very effective.
115. No training in course development. Online instruction was forced on me, no course development time, no nothing. Online testing is the worst abuse of academic freedom I have ever encountered.
116. The training was very effective. It was especially helpful for me to participate in the group training and hear other instructors' problems and solutions.
117. I received training through our campus BlackBoard Administrator - very good training. Also self-taught by Web searching other college sites.
118. The training was effective enough for me to have the ability to develop and implement the programs successfully.
119. I had already taught Internet courses before the training was available. Training may have been effective for new Internet instructors.

120. It was pretty scant - around 2000, and the instructor was new to the tech as well.
121. No training received.
122. No training equals zero effectiveness.
123. I found it to be very helpful though I've also discovered some things on my own.
124. excellent training at my college
125. I have an MA in Adult Education and about 18 years of experience in training program development and assessment. In my current situation, however, I am a part-time English instructor who did not develop the original internet course that I teach. I have made extensive revisions, however. I did receive training in how to handle the internet technology, and continue to have support from the distance learning staff.
126. Adequate. Doing the course and learning from it is the best way to learn.
127. Basic.
128. Our Director of Distance Education provided individual sessions as well as group sessions for the educational process - both were most effective, and gave a tremendous base. I continue to learn with each semester on-line course
129. Very effective
130. Very little training, self taught by trial and error and consulting with other instructors at my college and other colleges.
131. It was one on one and I think very helpful

APPENDIX D

Change in Assessment Methods Over Time

- 1 Assessment has changed not so much over time as due to the class taught. Some courses lend themselves to on-line quizzes, some don't. In some classes, I rely more on individual research and writing projects, both weekly and culminating.
- 2 I have made class discussions and independent projects much more in-depth and personalized. The primary reasons are: (1) I want to ensure students are really processing and applying the information and (2) I am trying to deter the temptation of plagiarism from more generalized sources online. I am not yet convinced that objective testing online (with use of true/false, multiple choice, etc.) would be the best option for my humanities course online - I am open to suggestions related to objective tests.
- 3 My assessment methods have changed over time. I use fewer group projects and all my tests are taken in a proctored environment. The reason why I use fewer group projects is twofold: 1. The attrition rate in internet classes. Groups lose members, so it is hard to work on a semester-long group project and 2. The difficulty of carrying out group work on the internet. It is much harder to carry out group work asynchronously. I still feel there is a great value in group projects in an internet course; so I still try to have at least one group project in each internet class.
- 4 As I've developed the class, I incorporate more group projects so that students don't feel so isolated in an online environment
- 5 NA...I have only taught an internet course one semester and am scheduled to teach the same course again (for the second time) in Fall, 2005
- 6 Yes. At first, I leaned heavily on instructor test banks and other types of canned resources for online assessments. Over time, I have been able to improve online assessments for my courses--through experience, additional training, creativity, and my own self esteem in the online environment. As I became more comfortable [capable] with online media and discovered the needs / desires of online students for their courses, I began to explore the possibilities that the virtual learning environment offers. My courses suddenly began to reflect my own personality as well as being interesting, viable learning centers. Now, teaching online is my preferred method of instruction. // To generate student interest and to promote active weekly participation, I will sometimes sign into the courses as a literary (and / or movie) character to give an assessment or to instigate a discussion (or activity) on some topic within the Humanities. I encourage the students to interact with the character who is in...well character, which is as amusing as it is educational. [Online students are asked to use their knowledge as well as their imagination: i.e. critical thinking.] I have found that this weekly "online show" of characters and the resulting interactions are effective ways to ward off the boredom, helplessness, and loneliness that

can happen in some not-so-active online courses. Feeling connected to the teacher and to peers, students will actually pay attention; they wait to see what those crazy characters will do or say or want next. Oddly enough, in Spring Semester 2005, in a Humanities I course I taught, the most popular literary / movie characters were Robin Hood (who brought bonus points, fun, and adventure); Harvey (the invisible rabbit who reminded students of assignment due dates and course requirements); and Professor Snape (who instigated discussions, gave a couple of tests, and watched over the attendance logins like a hawk, putting people in a "virtual detention" discussion forum if they veered from the "straight and narrow" path or behaved with "Harry Potter cheekiness" during class discussions. In the virtual detention forum, students were allowed to write a detailed message [using their best writing skills and manners!] to Prof. Snape and plead their cases for a missed login or assignment or act of "cheekiness." The Prof. would then respond accordingly). The literary / movie characters gave the course a unique "live" feel, which the online students appreciated, accepted, and anticipated...by their hearty participation and by their e-mail comments. Nearly 88% of the class finished the online course with a C or better, with most grades falling in the A's and B's. By far, this is the most successful online class that I have taught...to date; it was also the largest, with 51 students enrolled at the beginning of the semester. // I believe assessment variety and creativity are the keys to an effective, satisfying online experience.

- 7 NO.
- 8 Yes. I have moved away from multiple choice tests for the religion course and more to short essay and individual and group projects. I also expect more from discussion boards in both religion and literature courses. I have to be careful to make my expectations on discussion boards known and show that I am serious by grading the first few forums strictly. If I do not do this, students will not put enough effort in the forums. A poor grade on the first forum will really make the students sit and pay attention. Many really do not try to dialogue; they just repeat what has already been said and give a lot of empty comments, stuff that simply does not move the conversation forward. The bad part is forums are a pain to grade and it's hard to do a careful job with all of the forums, especially when you have 4 or more courses with weekly forums. A rubric helps out some.
- 9 Yes, I have found some things not worth the effort, like group projects. I no longer try to incorporate a group project into my online courses. I use other types of collaborative methods, but not group projects.
- 10 Yes Because the delivery of the assessments were one dimensional, read and take test. I have added new ways of interaction, video, audio, etc the assessments can be delivered differently.
- 11 I have not changed the way I evaluate my students for about 2 years. I have recently taken Continuing Ed. through Pivot Point called Mindful Teaching. It teaches 7 mindframes which show how students learn differently. ie. Some visually, some by

observing etc. I am in the process of revamping my Assessments so that they appeal to students at each level of learning.

12 No.

13 n/a

14 Yes. Previously I avoided objective (multiple choice, true/false, etc) assessments, and used only short answer/discussion type questions; however, they became too time-consuming to grade considering the number of students in my sections (often 30)...

15 No

16 Not really.

17 Yes. Students change and become more savvy. I want to make sure they are thinking and not copying from a student that had the course in a previous semester.

18 Methods have changed. I used online assessment in the beginning. I now use instructor approved proctors from the students institutional area. I changed because I had students and their parents enrolling in the same course. Exams were being submitted from the same computer only seconds apart. Also, I had multiple requests every semester to reset exams for students who claimed they got into an exam by accident. I was spending too much time trying to administer exams to students I felt were attempting to take advantage of the system. Online assessment for me was becoming a joke.

19 No

20 Yes, for better student retention of material.

21 Yes. I use fewer objective tests to assess students. Students have ready access to books, notes, and the Internet. I have found that students simply look up answers if objective tests are given. I try to use more projects, essays, etc. to assess students.

22 I realized that meeting with a student in a chat room is time consuming so I have stopped doing it.

23 No, only my second year so I am still learning.

24 Changes in student attitudes in learning due to age differences has provoked me to use strategies a little more strict. In the past, there were a lot more self-disciplined older students that were not very knowlegable, but worked hard to gain the knowlege. The younger students procrastinate and tend to do poorly in the online courses as a result. Other changes are due to changes in software and other resources available.

- 25 No, but my concern about the effectiveness of internet courses has increased.
- 26 Yes, I have found that some things work better than others---like the interaction with students with the emails.
- 27 Yes, I have included more pre-assessment strategies including group assessment and professional tutors prior to submission for grade. The results are remarkable. All work in all stages must be submitted for grading to occur.
- 28 Yes, they have changed. I now use the discussion board and chat room also as assessment methods along with actual tests. I believe that this gives me a better overall view of how the students are learning and what areas to place emphasis on.
- 29 No, as I do not have the time to change assessment methods in the courses.
- 30 Yes to make things easier for the student. Now they don't need to come to campus to take any assessment.
- 31 It varies a little bit but since I'm teaching English, the majority remains to be essay and research projects, which all involved the overall skill of writing.
- 32 They haven't really changed. They are primarily individual project, homework submission of short paragraphs, and tests.
- 33 No
- 34 Have not changed methods as of yet. Inherited this class which was already pre-established. Have not modified as of now.
- 35 Yes, due to the increase in number of online classes taught. I also teach hybrid courses with time in the classroom as well as via internet.
- 36 Not much...They have always worked well.
- 37 n/a
- 38 Yes. I've worked to make the grading more streamlined by combining assignments into single documents. I have eliminated an assignment that requires students to be skilled at programs other than MS word since Excel, etc. are not a prerequisites for the course.
- 39 No
- 40 Yes, each semester I seem to increase the number of student projects. Given the nature of GIS, the application of the student's knowledge is important, therefore the best evaluation tool our projects.

- 41 Yes. I have backed off a bit from my first attempts in regards to volume of work expected. I think I was over-compensating in an attempt to maintain course rigor as compared to seated courses. I backed off in an effort to remain fair and equitable to all students.
- 42 Just starting my first course
- 43 Yes they have changed. At first I was simply trying to adapt the methods used in face-to-face courses. As I learned more about teaching and learning online, I came to understand that those methods were not always the best for online courses. Communication is fundamental for online learning, so I began to build more assessments around group discussions and individual reflections and self-analysis. The lack of security for objective assessments really got me focused more on subject, alternative assessments for online courses.
- 44 Yes. The technology is improving I am trying to keep up with the changes.
- 45 I have only taught internet courses for one year. They may change in the future based on what I learned this year.
- 46 Yes, I use a mix of methods. Exams alone do not allow me to know how the student is processing or applying information. Introducing cases and worksheets to see how they apply the information learned has been most helpful.
- 47 Yes, they have changed. I am now requiring assessments in various methods to make sure they are learning the material in a way that they retain it and can apply it.
- 48 Improved over time. Everyone learns differently and now has the opportunity to be assessed on one of several different ways.
- 49 choose more conceptual questions than memorization or application
- 50 Yes - I've gotten a better feel of how to describe what I require and what methods in the text will assist them.
- 51 No, What I have used in the past has worked
- 52 Yes. I have switched from short-answer questions to objective questions. The number of students in Internet classes has grown tremendously and the only way I can keep up with the demand is to have to computer actually do the grading for me on exams. Students like this also since they get immediate grade feedback.
- 53 Not significantly because I stick fairly closely to the guidelines set forth by my department

- 54 yes- they are changing. Seeing what is most effective.
- 55 The course material changes from one year to the next as do the students, sometimes you need to gear the assessment to the class or student.
- 56 only taught one year.
- 57 Yes they have. I have found that all types of assessment are not effective with Internet courses. Since the students have the ability to check answers on tests, it's much more effective to use an assessment where they are required to show a complete understanding of the subject, ie a project.
- 58 Have taught for one year
- 59 No, the need for different assessment methods is apparent. I have not had the time or resources to investigate the alternatives.
- 60 I've changed the specifics of the assignments but still use the same types of assessment instruments
- 61 Have only taught this year. However, I am evaluating using other methods for assessment for the upcoming year.
- 62 Yes, I have gradually used more application assessments related to what is happening in the current business environment.
- 63 Yes! An effective educator will constantly evaluate and tool the curriculum, delivery and assesment strategies employed in the classroom to become more effective at disseminating knowledge and challenging students to use higher order thinking skills. Teaching is an artform performed through the use of skills which must constantly be honed to perfection!
- 64 Yes, once I became more aware of what methods worked and didn't I changed the methods I used
- 65 Yes, I was too easy to begin with. I felt that the students were taking advantage of the "light" load and not spending enough time in learning the material.
- 66 I have started requiring more verification that the student actually did the work by asking them to get industry people, high school teacher in that displine area, Ag. Ext. Agent, "someone I trust", to be "proctors" and say Bob and Judy actually did the work required individually. I also have started requiring pictures of them doing the work and projects completed being e-mail to me, or sent to me via US Mail, on personally delivered.

- 67 Yes. You learn what works for students and what doesn't by experience as well as what would make it easier on the instructor and less time consuming while keeping the course as effective for the student. An example was using short answers in my exams. I quit doing that because if the answer wasn't exactly correct, it would be marked wrong. Even though I notified students ahead of time telling them this and that I would go over short answers, I still received numerous emails that a correct answer was marked wrong. I switched to multiple choice. I have also rearranged the way assignments were laid out so that it was easier for the student to maneuver around the course.
- 68 I've used the same methods for my courses for the last 4 years, but I have changed the types of questions I use in my assessments.
- 69 basically the same. quizzes used mostly to encourage reading the text- count only 20% toward grade (down from about 35% when I started)
- 70 Yes
- 71 Yes! I have found that students will use notes or text to answer multiple choice questions especially. I have had to spend much more time to develop more complex questions that combine more than one concept.
- 72 No. The methods I have chosen mirror the ones I use in the classroom and there has been great emphasis placed on the courses being similar, if not identical.
- 73 Yes
- 74 N/A
- 75 They change depending on the course content and subject area. I have found some additional ways for existing courses.
- 76 Yes, we have had to lessen the number of assignments due to teaching loads and also create assignments that take less time to grade.
- 77 Yes, I am using more short-answer questions and problem-solving which eliminates instances of students using outside help.
- 78 Yes. Trying to get an assessment tool that has some meaning.
- 79 No not really. I do try to vary the assessment methods from semester to semester to find what may be the most valid and beneficial assessment. I always use multiple methods of assessment and use similar methods used in a traditional class that have been modified for the online environment

- 80 Yes. I now do more essay & short answer than I have in the past. The M/C & T/F questions seemed too "easy" and the only work the students performed was looking up the answers as they went along. The essay & short answer questions took more time and thoughts to complete.
- 81 Not really. Since I began teaching computer classes, I have always used both objective testing and projects --both group and individual for assessment. The one area I added over time (even before Internet) was using discussion / critique as a method of assessment.
- 82 Increase speed and accuracy of feedback to students, minimize opportunities for cheating.
- 83 No
- 84 They are evolving to meet the needs of the communication medium.
- 85 Yes, currently use more methods of evaluation than in the beginning.
- 86 The traditional method of multiple choice question testing is seen by my student population almost every class, so I use alternate methods to attempt to enable the student to tell me what they know about the subject not just pass a multiple choice test on the material.
- 87 Not methods, but have changed details of assessments. I feel the methods I use measure adequately the skills taught in the class.
- 88 More variety in assesment methods than when I started out.
- 89 Yes, when I first started teaching I used the "canned tests" that were provided by the textbook companies--now I use a combination with greater emphasis on essays, problem solving, and project work as evaluative instruments. These provide much clearer evidence of learning by the students as well as a much more CREATIVE way to express learning for the students!
- 90 More of a move away from objective measures because of higher enrollments and class loads.
- 91 My methods of assessment have not changed since I have been teaching online classes. I have been teaching online classes for three years.
- 92 Yes. Learning how to assess student learning and course effectiveness.
- 93 I'm placing more weight on written homework assignments because they a better indicator of student learning than just objective tests.

- 94 Yes. I have added research requirements to enhance the student learning.
- 95 Yes ... I found that general multiple-choice and T/F based tests are too "easy" for students to find the answers. One has to consider online tests as open-book based examinations. I switched to projects and Essay questions to get a better feel of what the student was able to perceive from the course material.
- 96 No.
- 97 No, just updated.
- 98 Yes my assessment methods have changed as I have attempted to better or more accurately assess learning. I now involve more critical thinking assignments and application type essay questions.
- 99 No. The projects, individual response papers, discussion board activities, case studies and midterm and final are working well and have worked well in the past. Students keep stating that they are learning so much from these courses that I have not changed the methods of assessing their work.
100. Yes, because I like to try different things and see what works best for students and myself.
101. Yes...Incorporated more essay questions to try to make collaboration on exams more difficult.
102. Yes. I have abandoned T/F or multiple choice tests and online test assessments in order to reduce cheating.
103. Not really Perhaps quizzes are used more often because the technology to administer them has improved.
104. My assessment methods change somewhat each time I teach a course based on feedback from students that allow me to modify the course(s) to meet students' needs and to accomplish course objectives.
105. I am shifting to more short answer and essay questions. They give me a better understanding of the learning status and thought process of the students.
106. Yes. I discontinued the multiple choice grammar tests. The students saw the quizzes as just a hoop and did not study.
107. yes--started out giving mainly tests. Now have discussion boards and weekly assignments dealing with essay/discussion questions. Don't feel that tests are the best assessment since students are allowed to use texts. Weekly assignments give essay

questions that students must apply text material to answer.

108. We used to have them come to the campus for essay tests but have changed to more testing on the web page. We felt that if it was an internet course we have to make all aspects consistent with that goal.

109. Yes. I have learned how to overcome some of the issues involved with assessment via the internet.

110. Yes. I have changed the way I administer tests to take into consideration that students have access to text and notes. I test more for application of skills and critical thinking than for memorization of terms.

111. No, because I use a variety and they have been effective.

112. n/a

113. Yes, I am always "twinking" them to make sure they are meeting and challenging the intellectual needs of the students.

114. Yes, I've added more individual work. The reason is to more accurately assess each student.

115. My class discussion assignments have changed; they are more specific and personalized to demonstrate critical thinking and individualized thought. I plan to make changes to the individual projects such as article summaries/reflections and research projects outside the class discussion environment. I want to ensure that students are most engaged in their own thought related to class concepts rather than relying too heavily on what's shared in the course readings/resources.

116. They have not really changed, because I had taken several online courses and knew a lot of the methods that worked for me as a student.

117. Yes

118. For testing, I use proctored tests. When I first started, I used online testing, but issues of academic dishonesty caused me to switch to proctored testing.

119. Yes, as I teach, I see things I could do better!

120. There has been no significant change. Based on the spread of grades, my assessment methods seem to be fair and effective measures of student learning.

121. Yes. Previously my internet courses were "hybrids" where the students would be required to come to class once a week (for a lab). I would use this time to give tests

instead of giving them online. Now, I have to give tests online, so I have made them more difficult and allowed the use of the textbooks for the tests.

122. Yes. I have students take a Midterm and Final that is proctored.
123. Have always used m/c questions. Added SAM assessment software approximately 4 years ago to check knowledge of Office 2003 products.
124. yes, each class composition changes so the methods and materials are adjusted for each class accordingly.....
125. I have started using performance based tests. To actually test the students on software and make sure they have the knowledge to perform the tasks needed in the real world.
126. Yes, because of the advancement of technology.
127. Yes to more project and essay. This is to teach more team oriented skills and to assess better the understanding of the subject matter.
128. I have changed the number of individual items assessed but not the types of assessment.
129. Not a lot. I want to incorporate more group projects and peer assessment, but find that it is very difficult to deal with the student to student problems that continually arise.
130. Yes. I did not use multiple choice tests to begin with, but later used them. The portfolio also changed.
131. Yes. The number of students and the distance have prompted me to lessen my use of essay questions. It was not far to the students to wait two weeks for the return of materials, yet it was often impossible to turn papers around quicker.
132. Yes, I feel more comfortable using project and portfolio as a means of assessment. As I have become more skilled and comfortable with the online class my ability to understand how to help my students with this type of assessment has grown.
133. Yes, because technology and student population change. As well as students expectations.
134. Yes, I have made some changes. I do fewer research papers because it is so difficult to trace all the sources to ensure that the student did not plagerize various websites. The time I spent tracking down sources was time better spent elsewhere.
135. Not necessarily.
136. I have found that online students are most frustrated by group projects and I have used

them less often.

137. Not really...I do use more discussion activities than before.
138. Yes - actually, I use more types of assessments and I try to use more critical thinking skills rather than spending time trying to prevent students from "cheating" online.
139. I used to require face-to-face testing in online classes, but the administration required me to test online. I disagree with this aspect of online courses. Too much cheating and very little learning takes place.
140. I have changed my methods slightly over time. At first, I tended to be too lenient in my expectations.
141. In this ever-changing field, there is always something new to learn. It might be learned from newsletters, fellow instructors, conferences, etc. Often, new ideas for assessing the students crop up. Also, as a class is monitored, it might become evident that the current method isn't working.
142. Not really. I change the assessments, but not the method.
143. Not really - I have always used projects, hw assignments, quizzes, midterms and finals
144. My assessment methods have remained largely unchanged. I feel that I used relatively appropriate assessment methods from the start.
145. Yes. I tend to more project oriented assessments coupled with some multiple-choice/answer items augmented with short answer/essay items. The emphasis has moved to projects.
146. I now use far more short answer and discussion questions.
147. Yes, they've changed, in part, because different courses require different kinds of assessment and also, in part, because I keep learning about different possibilities in online teaching.
148. No
149. I still basically use the same assessments but their skill level have changed to a higher level
150. No, because I feel that what I have used have been a good evaluation.
151. Yes. The internet course I teach is English 114, Professional Research and Reporting. I have eliminated short answer quizzes to assess knowledge gained from reading

assignments, and require essay answers to assess critical reading skills as well as basic writing skills.

152. No

153. Hardly, however, I am planning on redoing the entire course over the summer.

154. Somewhat. I have added more discussion questions and individual projects.

155. No

156. Yes, often the number of students impacts the methods of assessment. An internet course is much more time consuming than a seated class.

157. Yes. Instead of typical test. started adding projects and weekly reports

158. No

159. No

VITA

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