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Feedback In Distance Learning: Do Student Perceptions Of Corrective Feedback Affect Retention In Distance Learning?

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Feedback In Distance Learning:

Do Student Perceptions Of Corrective Feedback Affect Retention In Distance Learning?

by

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A thesis submitted in partial fulfillment
of the requirements for the degree of
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Feedback in Distance Learning:

Do student perceptions' of corrective feedback affect retention in distance learning?

Lori Kielty

ABSTRACT

The purpose of this study was to determine if there was a correlation between students' perception of corrective feedback and retention in online classes. A total of 134 community college students were enrolled in six online classes taught by three full-time instructors. The research questions addressed were as follows:

- RQ1. How are the students' perception of corrective feedback and student retention related?
- RQ2. Are students who attend course orientation meetings more likely to complete the course?
- RQ3. Are students who attend distance learning technical workshops more likely to complete the course?
- RQ4. Are students who have taken other online classes more likely to complete the course?
- RQ5. How are the students' perceived computer skills and student retention related?

An exit survey was administered to gather quantitative data, which was then analyzed using Pearson's Phi Coefficient and Spearman's Rank Order Correlation. The study failed to indicate a sign significant relationship between (a) attending course orientation and retention, (b) attending technical workshops and retention, (c) prior online experience and retention, and (d) students' perception of computer experience and

retention. The data indicates a significant relationship between students' perception of corrective feedback and retention.

It is important to note that despite every attempt to solicit students who dropped the course, the students who dropped tended not to return the survey. Therefore, the sample did not accurately represent the population. As a result of the sampling error, there is little variability in the dependent measure; thus, the results have the potential of being biased.

Based on the research finding for this study, educators would benefit from research studies that focus on the following: (a) exploring procedural changes (i.e. increasing the number of useable surveys, increasing the number of respondents, increasing the efficiency and effectiveness of the data validation process, and increasing the generalizability of the study), (b) exploring student perception of quality, timeliness and consistency of corrective feedback, and (c) conducting individual case studies with online students.

Chapter 1

Introduction

The number of students seeking a flexible alternative to traditional classroom instruction has spurred the rapid growth of distance learning. The demand for distance learning is not only evident in educational institutions, but also in business and industry which exhibit an incremental need for training in an alternative environment. To have a competitive advantage in a demanding workforce, individuals are continually seeking opportunities for acquiring new skills or for revising existing skills. To meet the needs of students, business and industry, educational institutions have been forced to develop and implement a wide range of academic disciplines in alternative environments.

The field of education uses the terms distance learning and distance education interchangeably. A distance learning environment can range from a simple correspondence course, to a course that integrates sophisticated, interactive content. “...Distance learning takes place when a teacher and student(s) are separated by physical distance, and technology (i.e., voice, video, data, and print), often in concert with face-to-face communication...” (Willis, 2002, ¶1). Although there are many delivery methods used in distance learning, this research will focus on community college, Internet-based/online classes.

The concept of distance learning is not new (McIsacc & Grunawarden, 1996). The roots of distance learning date back to the 19th century (Hanson, et al, 2003, History of Distance Education). The development of the postal system provided educational institutions the medium required to offer correspondence courses (Phipps & Merisotis,

2003). Although correspondence courses did not remain a popular form of distance learning, the instruction did fill a niche for its time. However, as technology progressed, distance learning went through tremendous changes. The once popular correspondence courses were gradually replaced with more innovative approaches to distance learning. These drastic changes in the distance learning environment have required educators continually to seek more affordable and efficient ways of delivering high-quality, interactive content to a diverse population.

In the 20th century the development of radio, television and other media resulted in many new distance learning opportunities that allowed distance learning to grow (Hanson, et al, 2003). Today distance learning may incorporate the following: (a) voice, such as interactive technologies of telephone, audio conferencing, and short-wave radio, and passive audio tools such as tapes and radio; (b) video in the form of still images, film, video tape and real-time moving images combined with audio conferencing; (c) data such as computer-assisted instruction, computer-managed instruction and computer-mediated education; and (d) and print in the form of textbooks, study guides, workbooks, course syllabi and case studies (Willis, 2002).

It is clear that distance learning encompasses all technologies and provides life-long learning to all ages. Distance learning is used at all levels of education including Pre-K through grade 12, higher education, home-school education, continuing education, corporate training, military and government training, and telemedicine (U.S. Distance Learning Association, 2003). The U.S. Department of Education's National Center for Education Statistics released a new report titled "Distance Education at Degree-Granting Postsecondary Institutions: 2000 – 2001". The report states that more than half of the

nation's two and four-year institutions, representing 2,320 institutions, offered distance learning courses in 2001 – 2002, totaling approximately 3.1 million enrollments.

Additionally, the study showed that public institutions were more likely than private institutions to offer distance education courses. Ninety percent of two-year and 89 percent of four-year public institutions offered distance learning courses. Private, two-year institutions were considerably lower at 16 percent, and four-year institutions at 40 percent (Waits & Lewis, 2003).

The technological revolution and the fact that “the population is getting older and adults are increasingly pursuing advanced degrees” have been the driving force behind the unparalleled increase in the area of distance learning (Danesh, et al, 2003, ¶7).

According to the United States Distance Learning Association, the United States is “faced with retraining 50 million American workers, corporate America is using distance learning, both internally and externally, for all aspects of training” (USDL, 2003).

Furthermore, a great deal of money is saved each year by using distance learning to train employees. Training in the distance learning environment has proven to be more effective and more efficient than training with traditional methods (USDL, 2003).

Distance learning is a perfect fit for the varying schedules of nontraditional students (Eskey, 2003); therefore, educators express optimism that distance learning will encourage more students to seek higher education (Dubois, 2003, Working Connections Presentation). Over the past twenty years, the number of credits community college students enroll in each semester has declined. Responsibilities due to job and family commitments have resulted in students taking fewer credit hours each semester. At this pace, it takes approximately 12 years to complete a four-year degree (Dubois, 2003,

Working Connections Presentation). As the student profile changes, educational institutions are forced to provide alternative delivery methods. Distance learning is a viable solution for learners who face obstacles, due to job responsibilities and family commitment, when seeking an education (Danesh, 2003). Students do not necessarily want to take online classes, but their responsibilities prohibit them from completing degrees in the, on-campus environment (Dubois, 2003, Working Connections Presentation). Thus, distance learning fills a critical need. Without distance learning opportunities, many students would not be able to complete their education in a timely manner, or at all.

Statement of the Problem

One of the biggest challenges in distance education is student retention (Student Retention). With the estimated 2.2 million distance learners in the U.S. by the end of 2002, identifying the reason(s) students are not completing distance learning courses is important to the instructional technology field (Rezabek, 2001). Only after researchers identify the reasons for high attrition rates can educators develop strategies to reduce these rates. Drop rates for distance learning courses are consistently higher than traditional courses. As a result, many researchers feel that distance learning education is inferior to traditional education (Diaz, 2002). However, there are a vast number of reasons for distance learning students to drop out of classes.

Students probably drop out of distance learning courses for reasons different from those in traditional courses. Instructional technologists need to know more about why students drop courses; researchers should not assume that drops are synonymous with academic non-success, nor should they discredit distance education as an alternative

means of instructional delivery (Diaz, 2002). It is important to understand why students drop out of distance learning classes so that the appropriate steps can be taken to reduce student drop rates. “Students need support and direction to enable them to make the transition from traditional classroom environments to self-directed learning, particularly tools to help them monitor their progress and obtain timely feedback on their activities” (Sherry, 1996 Factors which influence success, ¶4). Factors such as the amount and nature of feedback received from the instructor and facilitators of a distance learning course play a part in the eventual success of the student (Deans, 1998).

Feedback is one of the most important concepts in learning (Theory into Practice, 2003). The feedback received from the instructor plays a part in the success of the student (Deans, 1998). The lack of effective feedback “...is the potential “Achilles heel” of distance education (Willis, 2002, Learning is enhanced, ¶1). Therefore, instructors need ensure that feedback is integrated into the instructional design process of distance learning classes.

Importance of the Study

Distance learning has seen phenomenal growth over the past five years. This growth clearly shows the demand for distance learning courses. If educational institutions follow through with their plans to increase the number of course offerings, it is safe to assume that the growth of distance learning will continue to be significant over the next few years (2001). It appears that distance learning will continue to be utilized by an increasing number of students who find it difficult, and in some cases impossible to attend traditional face-to-face instruction. Distance education programs provide educational opportunities to learners who would otherwise not receive an education. As a

result, educators need to seek ways of improving student retention in online classes. Improving corrective feedback is a viable solution to the retention problem. Distance learning is a dynamic process, (Spitzer, 2001) and as such, requires continuous revisions and fine tuning to be an effective instructional delivery method. Improving corrective feedback needs to be a part of the ongoing refinement process.

Research Questions

The study will focus on the following research questions (RQ):

- RQ1. How are the students' perception of corrective feedback and student retention related?
- RQ2. Are students who attend course orientation meetings more likely to complete the course?
- RQ3. Are students who attend distance learning technical workshops more likely to complete the course?
- RQ4. Are students who have taken other online classes more likely to complete the course?
- RQ5. How are the students' perceived computer skills and student retention related?

Research question one addresses the primary focus of the research - students' perception on corrective feedback. However, factors other than the actual feedback received by the instructor may effect to the students' perception of corrective feedback. Factors that may effect the students' perception of corrective feedback include the students' (a) attendance at the course orientation meeting, (b) attendance at a distance learning technical workshop, (c) previous experience with online classes,

and (d) perception of their computer skills. Therefore, research questions two through five were constructed to address these concerns.

Definition of Terms

The following terms will be used throughout the study:

Distance Learning as referenced in this study "... takes place when a teacher and student(s) are separated by physical distance, and technology (i.e., voice, video, data, and print), often in concert with face-to-face communication" (Willis, 2002, ¶1). A definition of distance learning at the institution in this study involves any formal approach to learning in which the majority of instruction occurs while the instructor and learners interact synchronously or asynchronously at a distance employing technology to facilitate the educational experience with learners (Bennett, 2003).

Online Class is a form of distance education delivered over the Internet (Johnson, et al, 2000). At this institution, online classes are defined as classes that are distributed through the Internet and allow for flexibility in time and/or place constraints normally encountered in traditional, on-campus classes (Bennett, 2003).

Hybrid Classes and Web-Enhanced Classes are used interchangeably, referring to classes that are a blend of a traditional and an online class.

Retention is defined by the researcher as a student who completes the course with an institutionally recognized grade, not an incomplete (I grade) or withdraw (W grade).

WebCT is the Learning Management System that is used to deliver online courses at the institution in the study.

Learning Management Systems are software programs used to deliver online courses.

Corrective Feedback is defined by the researcher as any comments or suggestions an instructor gives a student (verbally or in writing) on any assignments, quizzes and exams.

Distance Learning, Help-Desk Technician is a staff member who provides technical support to faculty developing online classes and students taking online classes.

Limitations

1. With a vast amount of training and classes available online, the level of experience may vary from student to student. Even though the research participants were from classes that are typically taken the first year of college, the students will enroll in the online classes with different levels of computer experience. With the instructor, the distance learning help desk technician, and the researcher promoting additional training workshops, the gap in the computer experience required to complete an online class is expected to decrease.
2. The researcher attempted to collect data from all students enrolled in the online classes selected for this study. However, there is a possibility that students may not want to participant in the study, or students may bypass the instructor and drop the class before completing the survey. The number of students choosing not to participate in the study or dropping a class in the study before completing the survey is expected to be very small; therefore, it will not have a significant effect on the results of the study.

3. Although the researcher and the professor attempted to have all participants who chose to drop the class complete an exit survey, there is the possibility that some participants may drop a course without completing an exit survey. This number is expected to be very small; thus, it will have no significant effect on the results of the study.

Assumptions

1. It is assumed that students will answer the exit survey questions honestly.
2. The sample population's perceived level of experience will be similar to students at other community colleges.

Summary of Chapter 1

“Distance learning has become a core educational strategy in the 1990s, with a reach that extends to a broad cross-section of institutions and curriculum providers around the world” (Walsh, 2003, ¶1). The need for distance learning is evident at educational institutions, business and industry. With an increasing demand for training, educational institutions will need to continue to seek innovative approaches to delivering high-quality training in nontraditional environments. Since one of the most serious challenges in distance learning is identified as student retention, further research is necessary to identify the reason students are not completing online classes. The purpose of this study is to determine if there is a correlation between student perception of corrective feedback and student retention in online classes, and if so, to identify the strength of the relationship. The results of this study will guide instructional technologists in the development and implementation of online classes, as well as instructors delivering online classes.

Chapter 2

Literature Review

Introduction

The literature reviewed for this study included that which (a) identified the theory related to corrective feedback, (b) described the role of the instructor in a distance learning environment, (c) described types of feedback used in education, and (d) identified Learning Management Systems used in online education.

Distance education, which was once considered “a poor and often unwelcome stepchild within the academic community, is becoming increasingly more visible as a part of the higher education family” (Phipps & Merisotis, 1999; Danesh, et al 2003, Historical and Definition, ¶5). With a significant increase in the number of enrollments, courses, degrees and certificate programs being offered through distance learning, measures need to be devised and implemented to decrease the number of students who drop online classes. The retention problem in distance learning classes will increase as instructors are pressured into moving to the distance learning arena. With a heightened sense of competitiveness to get classes online (Willis, 2000), educational institutions are encouraging instructors who do not necessarily want to teach online to develop and teach distance learning classes (Dubois, 2003, Working Connections Presentation). Many instructors are encouraged to teach online to be able to offer complete degrees or certification programs through distance learning. However, developing and delivering distance learning classes takes more time and effort on the part of the instructor. A key to effective distance learning facilitation is the instructor’s willingness and enthusiasm to

embrace the technology (Spitzer, 2001). With such a demand to offer online courses, there is an increase in the opportunities for mismatching traditional faculty to the online environment (Dubois, 2003, Working Connections Presentation). As instructors struggle to cope with the overwhelming demands of teaching a distance learning course, providing students with corrective feedback on their progress becomes an ongoing challenge.

Theoretical Frameworks

The effect of feedback in an educational environment has been studied as early as 1911. “Any approach to instructional design should be grounded in a theory or conception of the teaching-learning process” (Gibson, 1998, p. 78). A well grounded theory provides instructors with guidelines for design decisions (Gibson, 1998). Gibson paraphrases Winn and states that, “without a guiding conception, instructional design is reduced to a set of techniques or procedures” (1998, p. 78). Theories that have contributed to the concept that feedback is critical in the learning process include the following: connectionism theory, operant conditioning theory, experiential learning theory, and conditions of learning theory.

Connectionism Theory

Thorndike’s law of effect, which falls under connectionism theory, states that feedback acts as a connector between responses and preceding stimuli (Mory, 1996). The stimuli and response framework allows students to form associations, that lead to learning. For example, as the instructor responds to student questions, quizzes and exams (the stimuli) with corrective feedback (responses), learning occurs. The associations that are formed become strengthened or weakened depending on the nature and frequency of

the stimulus and response pairing (Theory Into Practice, 2003). Thorndike's connectionism theory paved the way for others to study feedback.

Operant Conditioning Theory

Reinforcement is the key element in Skinner's operant conditioning theory. Skinner's study of programmed instruction led to the conclusion that feedback in programmed instruction served as both a reinforcer and a motivator. When learners are presented with stimuli, response will follow (Theory Into Practice, 2003; Galbraith, 2003). The use of positive and negative reinforcement strengthens the stimulus – response bond (Galbraith, 2003).

Experiential Learning Theory

According to Carl Rogers, the humanistic teacher is primarily a facilitator of learning (Tomei, 2003). Unlike a traditional teacher who assumes full responsibility for the learning process, a humanistic teacher shares the responsibility of learning with the students (Theory Into Practice, 2003). To encourage students to be self-motivated independent learners, instructors should give frequent, early, positive feedback. Students should also have the opportunity to practice skills and receive feedback regarding their performance (Major & Levenburg, 1999; Davis, 2003). In addition, students expect their instructors to provide timely and quality feedback (Illinois Online Network, 2003).

Conditions of Learning Theory

Gagne's conditions of learning theory states that the same types of instructional activity are needed for all learning processes and learning outcomes (Theory Into Practice, 2003). The nine instructional events that provide the necessary conditions for learning include the following: (a) gaining attention, (b) informing learners of the

objective, (c) stimulating recall or prior learning, (d) presenting the stimulus, (e) providing learning guidance, (f) eliciting performance, (g) providing feedback, (h) assessing performance, and (i) enhancing retention and transfer. Gagne's theory suggests that when feedback is given, marking all examples as correct/incorrect, the student is reinforced for a certain behavior. Gagne goes beyond the behavioral aspect and adds assessing performance and enhancing retention and transfer (Theory Into Practice, 2003).

Some have used the terms reinforcement and feedback interchangeably; however, the two words have very different meanings depending on the context. Although Thorndike and Skinner have contributed to the concept of feedback, their views are from a behavioral perspective. From a behavioral perspective, reinforcement is defined as "... a stimulus, event, or outcome that occurs following a response that increases the likelihood that the learner will produce the same (or a similar) response in the future" (Zook, 2001, p. 322).

Unlike the other theorists, Gagne adds a cognitive dimension to stimulus response-based studies – e.g., intellectual skills. Zook defines the cognitive perspective of reinforcement by paraphrasing Bangert-Drowns, Kulik, Kulilk, & Morgan, as "...meaningful information that learners can use to guide and regulate their own learning processes, not just external consequences that strengthen stimulus-response associates" (2001, p. 322). Furthermore, the cognitive function of reinforcement is known as feedback, which is defined as "...any communication provided to learners to inform them of the quality of their performance and to help them improve the quality of their learning" (Zook, 2001, p. 322).

Role of the Instructor

Distance learning instructors take on the role of a “facilitator, rather than a communicator of a fixed body of information” (Sherry, 1996, *Theories and philosophies*, ¶6). The “instructor’s responsibility includes assembling course content and developing an understanding of student needs” (Willis, 2003, *Key Players in Education* ¶3). A distance learning environment requires the instructor give “up some control over the teacher-led learning process” (Buckley, et al, 2003, *Academia/Teacher Perspective*, ¶1). Changes distance learning teachers face may include the following: (a) changing from oracle and lecturer to consultant, guide, and resource provider; (b) becoming expert questioners, rather than providers of answers; (c) providing structure to student work and encouraging self-direction; (d) moving from a solitary teacher to a member of a learning team; (e) moving from total control of the teaching environment to sharing with the student as fellow learner; and (f) the breakdown of the teacher-learner hierarchy (Berge, 2003). The learning process must be designed to “...encourage and challenge learners to construct their own meaning and create new knowledge” (Gibson, 1998, p. 91).

The World Wide Web enables educational institutions a convenient and inexpensive medium to deliver online education to a diverse population (Hara, 2003). Educational administrators are enticed by the money-making potential of online classes (University of Illinois Faculty Seminar, 1999, p. 17). Many educational institutions have rushed to implement distance learning programs (Green). As a result, instructors were provided with little or no training in developing or teaching online classes (Price, 2003). With no seat or time restrictions in online classes, the classes could be virtually open to everyone. However, “because high quality online teaching is time and labor intensive, it

is not likely to be the income source envisioned by some administrators” (University of Illinois Faculty Seminar, 1999, p. 2). “Teaching the same number of students online, at the same level of quality as in the classroom requires more time and money” (University of Illinois Faculty Seminar, 1999, p. 2).

The increased workload is due in part by the students’ expectation that the instructor is available 24 hours a day, seven days a week. In addition, students often expect instant responses to questions, discussion postings, quizzes and exams (Ikpa, 2000). When students need assistance, the thought of waiting 24 or 48 hours for an e-mail response from the instructor, or waiting a week or two for feedback on an essay is not acceptable to many students. Distance learning students find the turn-around time to be one of the major disadvantages of distance learning (Zvacek, 2003). Research shows learning occurs more rapidly and with more generalizability when students receive immediate and continual feedback (Spira, 1998). However, the increased workload makes it difficult for instructors to respond in the timeframe that meets student expectations. Therefore, students need to be informed early in the semester how long the instructor will take to respond to questions and grade assignments, quizzes and exams. Providing students with reasonable expectations about when they should receive feedback will reduce anxiety (Ikpa, 2000).

Distance learning environments have required instructors to take a critical look at existing methods of providing students with corrective feedback. Teaching in a distance learning environment eliminates most of the visual cues instructors rely on to adjust their instructional methodologies (Smaldino, 2003). Distance learning instructors can no longer rely on the same student-teacher interaction provided in a traditional classroom.

With the absence of face-to-face interaction instructors lack the non-verbal visual cues and body language that are used in the communication process. In a distance learning environment instructors do not have the advantage of quickly glancing around the room to verify that students are paying attention or to engage in conversation after class to verify that students understand the course material (Smaldino, 2003). Therefore, feedback has been identified as a key to effective distance learning facilitation. Non-responsiveness is extremely discouraging to distance learning students. It is critical to provide students with prompt feedback, but for distance learners this feedback is most important (Spitzer, 2001). Compared to traditional instruction, instructor feedback in the distance learning environment is more of an individualized process. This process requires instructors to provide students with feedback on a consistent basis.

Defining Feedback

Feedback is one of the most important concepts in learning (Theory into Practice, 2003). Ideally instructors would provide each student with detailed, personal feedback on all assignments, quizzes and exams. However, the time constraints in teaching an online class prohibit instructors from providing such extensive feedback on a consistent basis (Graham, et al, 2001). Therefore, instructors should be aware of the types of feedback that should be integrated into distance learning classes. The literature shows an extensive amount of research on the types of feedback common in the educational environment. The types of feedback discussed in the literature include: acknowledgment feedback, informational feedback, immediate feedback, delayed feedback, and corrective feedback.

Acknowledgment Feedback

Acknowledgement feedback is feedback that confirms or assures the student that some event has taken place. For example, the student submits an assignment through e-mail and the instructor responds with a message that informs the student that the assignment was received without a problem. In distance learning classes, acknowledgement feedback is often neglected because it requires purposeful effort on the part of the instructor (Graham, et al, 2002). In a distance learning environment, instructors should give immediate acknowledgement feedback upon receipt of an assignment since the student lacks the assurance of having physically "handed-in" the assignment (Achtemeier, et al, 2003).

Informational Feedback

Informational feedback is feedback that is informational or evaluative. Responding to student questions and posting assignment grades or comments are examples of informational feedback (Graham, et al, 2002).

Immediate Feedback

“Immediate feedback refers to the various types of feedback that become immediately accessible to the student as the student engages the learning process” (Bogen, et al, 2001, ¶3). For example, quizzes or exams can be set up to provide the correct answer with an explanation of why the answer is correct or incorrect.

Delayed feedback

“Delayed feedback refers to the type of feedback given to a test-taker at the end of the questioning process, e.g., participant answers all of the questions, submits his or her evaluation, and then receives the correct answers” (Bogen, et al, 2001, ¶4). Craig Ogilvie,

(2003) from Iowa State University, conducted study on the effects on immediate and delayed feedback. Students were provided with detailed and specific feedback after submitting the assignment; however, one group received immediate feedback whereas the other group received delayed feedback. The group that received feedback immediately after submitting the assignment showed slightly higher gains than students who received feedback delayed by a few days. In addition, Draper (1999) states that Bangert-Drowns, Kulik, Kulik, and Morgan conducted a meta analysis that reviewed 53 studies that compared immediate feedback to delayed feedback in test-like events. The researchers concluded that immediate feedback is more effective (p. 9).

Corrective Feedback

Feedback can be said to describe any communication or procedure given to inform a learner of the accuracy of a response (Mory, 1996). As evidenced in the literature, there are many types of feedback that a student could receive from an instructor. The type of feedback that will be studied in this paper is corrective feedback. A working definition of corrective feedback is any comments or suggestions an instructor gives a student (verbally or in writing) on any assignments, quizzes and exams. Corrective feedback does more than simply inform the student whether an answer is correct; it provides the student with specific suggestions on how to improve the answer or gives additional information or resources to help guide the student to the correct answer. In most cases this procedure leads to a better understanding of the course material. Therefore, instructor feedback should not only supply students with information about their performance, but it should provide the student with self-assessment (Looms, 1997). Factors such as the amount and nature of feedback received from the instructor of a

distance learning course play a part in the eventual success of the student (Deans, 1998). Students need to be given useful and corrective feedback throughout a course (Smith-Gratto, 2003). Suggestions for improving feedback include: (a) making detailed comments on written assignments that refer to additional sources for supplementary information; (b) returning assignments without delay; (c) taking note of students who do not participate during the first session and contacting them individually; and (d) integrating a variety of delivery systems for interaction and feedback, including one-on-one conference calls, e-mail and computer conferencing (Willis, 2002).

Learning Management Systems

Many of the first online courses required instructors to rely on a Web master to update and maintain their online classes (Dubois, 2003, Working Connections Presentation). With the rapid growth in the number of online classes, updating and maintaining multiple Web pages for numerous classes became very laborious. As online classes evolved, there became a need to have instructors manage their own course content. The development of Learning Management Systems provided instructors with the tools to easily manage course content (Dubois, 2003, Working Connections Presentation). Built-in features that assist instructors in developing online classes include a bulletin board, chat area, e-mail, discussion groups, calendars, and online assessment. In addition, administration features allow instructors to create student accounts, archive e-mail messages, discussion groups and grade assignments (Hazari, 2003). The features available in learning management systems have the potential to add to the efficiency and effectiveness of an online class (Dubois, 2003, Working Connections Presentation).

WebCT and BlackBoard are two of the most popular Learning Management Systems used by Florida community colleges for administering online classes (Cobb, 2003, Working Connections Presentation). However, a new learning management system called Desire2Learn is expected to become very popular because it combines the flexibility inherent in WebCT and the ease of use of BlackBoard (Sharpio, 2003, Desire2Learn Demonstration).

WebCT and BlackBoard have formed partnerships with textbook companies that offer Web-based courses. Both instructors and students benefit by these partnerships. Instructors can use a textbook that has course content available online that is ready to use, or, if desired, modifications can be made to customize or personalize the content. The partnerships benefit the students by providing additional course content, as well as online test banks. Online quizzes and exams can be very time consuming for instructors to create; however, with textbook companies providing the test banks instructors are able to offer more testing opportunities online (Hazair, 1998). Quizzes or exams that are conducted online using course management systems can be set up to provide feedback immediately or to provide feedback after all the students have submitted the particular quiz or exam, making it easier for the instructor to provide prompt feedback.

Summary of Chapter 2

The literature suggests that feedback is an important element in the instructional process. Not only do students use feedback to improve performance, (CLIO Centre for Assessment Studies, 2000), but students expect feedback (Illinois Online Network, 2003). With distance learning opportunities growing at a tremendous rate, educators need to ensure that corrective feedback is integrated into the instructional design process of distance learning classes.

Chapter 3

Method

Introduction

The purpose of the study was to determine if there is a correlation between students' perception of corrective feedback and student retention in online classes. The research questions attempted to meet the developmental goals of offering a creative approach towards solving instructional design problems, while at the same time contributing to the design principles that can guide future development efforts (Reeves, 2000).

The study focused on the following research questions:

- RQ1. How are the students' perception of corrective feedback and student retention related?
- RQ2. Are students who attend course orientation meetings more likely to complete the course?
- RQ3. Are students who attend distance learning technical workshops more likely to complete the course?
- RQ4. Are students who have taken other online classes more likely to complete the course?
- RQ5. How are the students' perceived computer skills and student retention related?

Description of the Institution

The institution selected for this study was a community college that has offered distance learning classes since 1988. The first distance learning courses consisted of

telecourses, which required students to watch video tapes provided by third-party vendors or in some cases produced by the instructor. Since videotaping an entire class was extremely time consuming, instructors typically turned to third-party vendors to purchase video instruction. Continually renewing the licenses that were required to distribute video instruction became cost prohibitive. Not long after the inception of telecourses, the institution progressed to interactive classes. The telecourses and interactive classes met the need for the time; however, these technologies were very limited. Rapid technological advances, equal access issues, and cost paved the way for an alternative medium for delivering online classes.

In April, 1997, the institution made the decision to offer online classes. At that time five full-time instructors and one adjunct instructor volunteered to develop six online classes scheduled to be offered in fall 1997. Enthusiastically, the instructors, with the help of the Web master and one another, designed and implemented their classes in fall 1997. In fall 2002, the college-wide goal of offering a complete Associates of Arts degree online was met.

The development of online classes created the need for a distance learning committee to oversee the development and implementation of the new learning environment. As a result, a task force was established to identify the institution's distance learning mission statement and to create a working definition of distance learning. Later, a distance learning committee, consisting of administrators, faculty, and staff, was established to oversee the institution's distance learning issues.

Distance Learning Mission Statement

The institution's Distance Learning Committee Mission Statement states that "Distance Learning strives to provide flexible, accessible, quality courses to students who desire an alternative delivery method for learning" (Bennett, 2003, Distance Learning page).

Institution's Definition of Distance Learning

The Distance Learning Task Force studied various definitions for distance and distributed learning and adopted the following working definitions for this institution:

1. "Distance learning... "involves any formal approach to learning in which the majority of instruction occurs while the instructor and learners interact synchronously or asynchronously at a distance, employing technology to facilitate the educational experience with learners.
2. Distance learning responds to the needs and goals of students for flexible, accessible programs and courses and takes place in the form of online courses via the Internet, telecourses, and interactive television courses through video conferencing equipment in the classrooms. In online and telecourses some on-campus meetings may be necessary dependent upon the class and the instructor.
3. Academic, learning resources, student services, technical, and administrative support are provided for all forms of distance learning programs and courses.

A community college has an open door policy that applies to traditional classes, as well as online classes. However, not all students are ideal candidates for online learning. As a result, the distance learning committee developed and deployed a self-test for potential online students. From the institution's home page, students can access the

self-test entitled “Are Online Classes Right For You?” This brief, twelve-question self-test is designed to help students identify if they have the hardware, software, Internet connection, and basic computer experience necessary to take an online class. The self-test is for personal use; instructors do not have access to the results of the test, nor do the results of the self-test prohibit students from registering for online classes.

Research Design

Descriptive studies play a significant role in the field of education. Although descriptive research does not measure cause and effect, the information provided by descriptive research can help isolate variables that can be used to measure cause and effect (Knupfer & McLellan, 1996). The results of the study are expected to determine if there is a correlation between students’ perception of corrective feedback and student retention in online classes, as well as to provide other researchers with several areas to address in future studies.

A study was conducted with approximately 135 students enrolled in the following online classes at a community college in the southeastern United States: Principles of Micro Economics and Principles of Macro Economics taught by a full-time Associate Professor; World Civilizations 1 and World Civilizations 2, taught by a full-time Associate Professor; and Web Programming 1 and Advanced Computer Applications, taught by a full-time Associate Professor. An exit survey was used to measure the following (a) students’ perception of corrective feedback and retention, (b) attending course orientation and retention, (c) attending technical workshops and retention, (d) prior online experience and retention, and (e) students’ perception of computer

experience and retention. The survey was administered one week prior to the last day to withdrawal from the class without a “W” grade.

The instructors of the classes in this study conducted an on-campus course orientation meeting. At this meeting the professors reviewed the course syllabi. Students were encouraged to attend technical training workshops conducted by the distance learning, help-desk technician. Training workshops were conducted during the first three weeks of class; however, the distance learning, help-desk technician was available during the semester for one-on-one instruction when students requested assistance.

Instrumentation

An exit survey was used to gather quantitative data (See Appendix A). The survey consisted of dichotomous, discrete and Likert scale questions. Questions 1 through 9 on the exit survey measured the independent variables; question 10 was used as the preliminary measure of the dependent variable.

Variables

Independent Variables

Questions 1 through 9 on the exit survey were used to measure the independent variables. Questions 1 and 2 were dichotomous questions which values ranged from 1 through 0, (Yes = 1) and (No = 0). Question 3 was a discrete-valued question that ranged from 0 through 9. Question 4 was a Likert scale question that ranged from 4 through 0. Specifically, from *Excellent* (4 points), *Good* (3 points), *Average* (2 points), *Fair* (1 point), and *Poor* (0 points). Questions 5 through 9 were Likert scale questions which values ranged from 4 through 0. Specifically, from *Strongly Agree* (4 points), *Agree* (3 points), *Neutral* (2 points), *Disagree* (1 point), and *Strongly Disagree* (0 points).

SQ1: Did you attend the orientation meeting for this class? Course orientation meetings are held prior to the drop/add period; therefore, students enrolling during the drop/add period will not attend the orientation meeting for the class. Orientation is not mandatory. Although all the course information that is covered at the orientation meeting is available on the course Web site for each class, students who do not attend the orientation may not be as prepared for taking the class online. Both the instructor for each of the classes and the distance learning, help-desk technician are available after the drop/add period to assist students in getting caught up in the class.

SQ2: Did you attend a Distance Learning technical workshop this semester? Students enrolling in online classes have a broad range of technical skills. As a result, some students lack the computer skills required to be successful in an online class. Technical workshops are offered every semester to provide students with additional technical skills. Not only do the workshops cover the features in WebCT that are normally a part of an online class, such as discussions, email, uploading files, testing, etc., but the workshop also covers downloading data files from a textbook company Website, zipping files, and hardware and software requirements for online classes. These workshops are voluntary and are scheduled during the day, nights and weekends to accommodate online students.

SQ3: How many online classes have you taken in the past? With an extensive amount of training and classes online, the level of experience may vary from student to student. The institution in this study has offered online classes since fall 1997; therefore, instructors expect students to have a wide range of experience with online classes.

SQ4: How would you rate your computer skills? The participant's perception of their computer skills may not be an accurate measure of their actual computer skills. As a

result, it is expected that there will be a gap between the perceived skill level and actual skill level.

Survey questions 5 through 9 on the exit survey were used to measure the independent variable, students' perception of corrective feedback. The exit survey questions used to measure the independent variable included the following: (a) SQ5: The instructor provided corrective feedback on assignments, (b) SQ6: The instructor provided corrective feedback on exams/quizzes, (c) SQ7: The corrective feedback I received in this class had an affect on me completing the class, (d) SQ8: I was satisfied with the corrective feedback I received in this class, and (e) SQ9: I was satisfied with the quality of the corrective feedback received in this class. These five exit survey questions were analyzed collectively. The vice president for instruction, the chair of the distance learning committee, and the researcher devised a scale to categorize the independent variable. The categories included (a) high corrective feedback, which ranged from 16 through 20 points, (b) medium corrective feedback, which ranged from 11 through 15 points, and (c) low corrective feedback, which ranges from 0 through 10 points.

Dependent Variable

Question 10 on the exit survey *Do you anticipate completing this course?* was used as a preliminary measure of the dependent variable, retention. The researcher used the final grade report to verify the completion rate for each class.

The vice president and chair of the distance learning committee reviewed the survey for content validation; revisions continued until valid questions were constructed.

Sampling Strategy

Students who registered for Principles of Micro Economics, Principles of Macro Economics, World Civilizations 1, World Civilizations 2, Web Programming 1 and Advanced Computer Applications were included in this study. One student registered in more than one class in the study; however, the student was only a research participant in one class. The researcher randomly selected to which class the student was assigned.

Procedures for Data Collection

One week prior to the last day to drop the course without a W grade, students received a letter by postal mail containing information about the study (see Appendix B), the exit survey and an informed consent form. The letter identified the purpose and the importance of the study, as well as reassured students that their responses would be confidential. Students were instructed to complete the informed consent form and the exit survey within five weeks and return it to the researcher by stamped, self-addressed envelope. Students who choose not to participate were not included in the study.

The researcher avoided sending the survey too early in the semester as to give the students an opportunity to receive feedback from their instructor. Additionally, the researcher chose not to send the survey at the end of the semester as to avoid missing the students who dropped the course before the official drop date.

Participants choosing to drop a course must obtain the instructor's signature prior to submitting a drop slip to the Admissions and Records Office. Participants who dropped the class were not dropped from the study unless they chose to withdraw from the study. Participants were instructed in writing, to contact the researcher if they choose to withdraw from the study.

Research Questions and Hypotheses

To determine if the students' perception of corrective feedback and retention are related, the following research questions were constructed:

- RQ1. How are the students' perception of corrective feedback and student retention related?
- RQ2. Are students who attend course orientation meetings more likely to complete the course?
- RQ3. Are students who attend distance learning technical workshops more likely to complete the course?
- RQ4. Are students who have taken other online classes more likely to complete the course?
- RQ5. How are the students' perceived computer skills and student retention related?

Based on the research questions, the following null hypotheses, variables, and analytical methods were developed. This information is presented in the following tables corresponding to the different research questions.

Research Question 1: Perception of Corrective Feedback

Table 1

Research Question 1

RQ1. How are the students' perception of corrective feedback and student retention related?	
Survey Questions	SQ5. The instructor provided corrective feedback on assignments. SQ6. The instructor provided corrective feedback on exams/quizzes. SQ7. The corrective feedback I received in this class had an affect on me completing the class? SQ8. I was satisfied with the corrective feedback I received in this class. SQ9. I was satisfied with the quality of the corrective feedback received in this class.
Null Hypothesis	H_{01} : Corrective feedback does not have an affect on student retention in online classes.
Independent Variable	Student perception of corrective feedback (PCFTotal)
Dependent Variable	Retention (RET)
Method of Analysis	Spearman's Rank Order Correlation (Spearman's rho)

Research Question 2: Attend Course Orientation

Table 2

Research Question 2

RQ2. Are students who attend course orientation meetings more likely to complete the course?

Survey Question	SQ1. Did you attend the orientation meeting for this class?
Null Hypothesis	H ₀₂ : Attending the course orientation does not have an affect on student retention in online classes.
Independent Variable	Attending course orientation (ACO)
Dependent Variable	Retention (RET)
Method of Analysis	Pearson's Phi Coefficient

Research Question 3: Attend Technical Workshop

Table 3

Research Question 3

RQ3. Are students who attend distance learning technical workshops more likely to complete the course?

Survey Question	SQ2. Did you attend a Distance Learning technical workshop this semester?
Null Hypothesis	H ₀₃ : Attending technical workshops do not have an affect on student retention in online classes.
Independent Variable	Attending technical workshop (ATW)
Dependent Variable	Retention (RET)
Method of Analysis	Pearson's Phi Coefficient

Research Question 4: Previous Online Classes

Table 4

Research Question 4

RQ4. Are students who have taken other online classes more likely to complete the course?

Survey Question	SQ3. How many online classes have you taken in the past?
Null Hypothesis	H ₀₄ : Prior online experience does not have an affect on student retention.
Independent Variable	Prior online classes (POC)
Dependent Variable	Retention (RET)
Method of Analysis	Spearman's Rank Order Correlation (Spearman's rho)

Research Question 5: Perceived Computer Skills

Table 5

Research Question 5

RQ5. How are the students' perceived computer skills and student retention related?

Survey Question	SQ4. How would you rate your computer skills?
Null Hypothesis	H ₀₅ : Students' perception of computer skills does not have an affect on student retention in online classes.
Independent Variable	Perception of computer skills (POC)
Dependent Variable	Retention (RET)
Method of Analysis	Spearman's Rank Order Correlation (Spearman's rho)

Procedure for Data Analysis

This descriptive study attempted to find if there is a correlation between the following: (a) students' perception of corrective feedback and retention, (b) attending course orientation and retention, (c) attending technical workshops and retention, (d) prior online experience and retention, and (e) students' perception of computer experience and retention. Once the surveys were completed the data was recorded in a spreadsheet program and then imported into the Statistical Analysis System (SAS) for data analysis.

Pearson's Phi Coefficient was used to calculate the relationship between (a) attending course orientation and retention and (b) attending technical workshops and retention. Spearman's Rank Order Correlation (Spearman's rho) was used to calculate the relationship between (a) participant's perception of corrective feedback and retention, (b) prior online experience and retention; and (c) students' perception of computer skills and retention. The researcher controlled for Type I error by establishing a risk level of .05, which means that significant results at the .05 level could occur by chance no more than five times out of 100 (Glass & Hopkins, 1996).

Summary of Chapter 3

The purpose of the study was to determine if there is a correlation between students' perception of corrective feedback and student retention in online classes. The study included 134 students enrolled in six courses at a community college located in the southeastern United States. An exit survey was used to gather quantitative data that was imported into the Statistical Analysis System (SAS) for data analysis. The null hypotheses were tested using Pearson's Phi Coefficient and Spearman's Rank Order Correlation.

Chapter 4

Results

Introduction

The purpose of the study was to determine if there is a correlation between students' perception of corrective feedback and student retention in online classes. A total of 134 surveys were mailed to the students enrolled in six different classes. The courses used in the study were Principles of Micro Economics, Principles of Macro Economics, World Civilizations 1, World Civilizations 2, Web Programming 1 and Advanced Computer Applications. The research questions addressed were as follows:

- RQ1. How are the students' perception of corrective feedback and student retention related?
- RQ2. Are students who attend course orientation meetings more likely to complete the course?
- RQ3. Are students who attend distance learning technical workshops more likely to complete the course?
- RQ4. Are students who have taken other online classes more likely to complete the course?
- RQ5. How are the students' perceived computer skills and student retention related?

A total of 59 participants (44.03%) responded to the survey. Of the 59 surveys received seven (11.86%) did not contain a signed informed consent form and two (3.39%) were missing data; therefore, the data from these surveys were not included in the study.

The distribution of retention rate for six online courses was examined collectively. The following tables indicate the relationship between (a) students' perception of corrective feedback and retention, (b) attending course orientation and retention, (c) attending technical workshops and retention, (d) prior online experience and retention, and (e) students' perception of computer experience and retention.

It is important to note that despite every attempt to solicit students who dropped the course, the students who dropped tended not to return the survey. Therefore, the sample did not accurately represent the population. As a result of the sampling error, there is little variability in the dependent measure; thus, the results have the potential of being biased.

Research Question 1: Students' Perception of Corrective Feedback

Table 6

Research Question 1 Results

RQ1. How are the students' perception of corrective feedback and student retention related?					
Null Hypothesis	H ₀₁ : Corrective feedback does not have an affect on student retention in online classes.				
Independent Variable	Student perception of corrective feedback (PCFTotal)				
IV Scale	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
IV Distribution: SQ5	20	23	4	1	2
IV Distribution: SQ6	23	10	9	5	3
IV Distribution: SQ7	21	18	4	5	2
IV Distribution: SQ8	17	21	7	3	2
IV Distribution: SQ9	15	8	22	3	2
Dependent Variable	Retention (RET)				
DV Distribution	Yes = 47 No = 3				
Method of Analysis	Spearman's Rank Order Correlation (Spearmans' rho)				
Result	Significant relationship between PCFTotal and RET.				
IV Descriptive Statistics	N = 50 Mean = 14.64, Std Dev = 4.98 , Variance = 24.80 Skewness = -1.10 , Kurtosis = 1.27, Outliers = 2				
IV Inferential Statistics	r _p = .34 p = .02 < a = .05 r ² = .12				

A new composite variable was created from exit survey questions 5 through 9. Each of these values could be answered in a range from 0 through 4. Therefore, the variable PCFTotal could range from 0 through 20.

RQ1: How are the students' perception of corrective feedback and student retention related? The hypothesis that corresponded to this research question is: H_{01} : *Corrective feedback does not have an effect on student retention in online classes.* The independent variable measured is *student perception of corrective feedback*; the dependent variable is *retention*. The independent variable is a composite variable consisting of the responses of exit survey questions 5 through 9. The questions were as follows: (a) SQ5: The instructors provided corrective feedback on assignments, (b) SQ6: The instructor provided corrective feedback on exams/quizzes, (c) SQ7: The corrective feedback I received in this class had an affect on me completing the class, (d) SQ8: I was satisfied with the corrective feedback I received in this class, and (e) SQ9: I was satisfied with the quality of the corrective feedback received in this class.

The PCFTotal values form a negatively skewed (-1.10), bi-modal distribution with a major modal of 20 and a minor modal of 14. The mean is 14.64 and the standard deviation is 4.98. The kurtosis value of 1.27 indicates a moderate leptokurtic distribution.

A Spearman's Rank Order Correlation (Spearman's rho) revealed a positive correlation (.34) between the independent and dependent variables. A correlation of .34 between perception of corrective feedback and retention indicates that perception of corrective feedback has a positive impact upon retention. The data indicates that this is significant because $p = .02 < .05$.

Table 7

PCFTotal Analysis

IV	Mean	Standard Deviation	Skewness	Variance	Kurtosis	Correlation	p	r ²
PCF5/SQ5	3.16	.96	-1.65	.91	3.40	.37	.01	.15
PCF6/SQ6	2.88	1.26	-0.86	1.57	-0.3	.35	.01	.12
PCF7/SQ7	3.02	1.13	-1.18	1.28	.62	.36	.01	.13
PCF8/SQ8	2.96	1.05	-1.13	1.10	1.07	.36	.01	.13
PCF9/SQ9	2.62	1.10	-0.22	1.22	-0.52	.36	.01	.13

Table 7 represents the individual breakdown of the composite variable PCFTotal. Looking at each question individually, rather than as a collective group, reveals a slightly stronger relationship (.37) between survey question 5: “The instructor provided corrective feedback on assignments and RET”. Survey question 6: “The instructor provided corrective feedback on exams/quizzes.” has the lowest correlation (.35). Survey question 7: “The corrective feedback I received in this class had an affect on me completing the class.”, survey question 8: “I was satisfied with the corrective feedback I received in this class.” and survey question 9: “I was satisfied with the quality of the corrective feedback received in this class.” indicate a positive correlation (.36) between the independent and dependent variables.

Research Question 2: Attend Course Orientation

Table 8

Research Question 2 Results

RQ2. Are students who attend course orientation meetings more likely to complete the course?

Null Hypothesis	H ₀₂ : Attending course orientation does not have an affect on student retention in online classes.
Independent Variable	Attending course orientation (ACO)
IV Distribution	Yes = 42 No = 8
Dependent Variable	Retention (RET)
DV Distribution	Yes = 47 No = 3
Method of Analysis	Pearson's Phi Coefficient
Result	No significant relationship was found between ACO and RET.
IV Descriptive Statistics	N = 50 Mean = .84, Std Dev = .37, Variance = .14 Skewness = -1.91, Kurtosis = 1.73, Outliers = 0
IV Inferential Statistics	r _φ = -.09 p = .54 > a = .05 r ² = .01

RQ2: Are students who attend course orientation meetings more likely to complete the course? The hypothesis that corresponded to this research question is: *H₀₂: Attending course orientation does not have an affect on student retention in online classes.* The independent variable measured is *attending course orientation*; the dependent variable is *retention*. The independent variable is addressed by the responses of exit survey question one – Did you attend the orientation meeting for this semester?

The ACO values form a dichotomous distribution, which is a special case of a bimodal distribution because the answer was either yes or no. The results contain a major mode, students attending the course orientation, and a minor mode, students not attending the course orientation. The mean is .84 and standard deviation is .37. A kurtosis value of 1.73 indicates a moderate leptokurtic distribution.

A Pearson's Phi Correlation revealed a negative correlation (-.09) between the independent and dependent variables. A correlation of -.09 between attending course orientation and retention indicates that attending the course orientation has a negative impact upon retention. However, this is not statistically significant because $p = .54 > \alpha = .05$. This is supported by the r^2 value (.01) which indicates that .01% of the variation in retention can be explained by the variation in ACO.

Research Question 3: Attend Technical Workshop

Table 9

Research Question 3 Results

RQ3: Are students who attend distance learning technical workshops more likely to complete the course?

Null Hypothesis	H ₀₃ : Attending online technical workshops does not have an affect on student retention in online classes.
Independent Variable	Attending technical workshop (ATW)
IV Distribution	Yes = 47 No = 3
Dependent Variable	Retention (RET)
DV Distribution	Yes = 47 No = 3
Method of Analysis	Pearson's Phi Coefficient
Result	No significant relationship was found between ATW and RET.
IV Descriptive Statistics	N = 50 Mean = .06, Std Dev = .24, Variance = .06 Skewness = 3.82, Kurtosis = 13.12, Outliers = 0
IV Inferential Statistics	$r_{\phi} = .05$ $p = .72 > \alpha = .05$ $r^2 = .003$

RQ3: Are students who attend distance learning technical workshops more likely to complete the course? The hypothesis that corresponded to this research question is: *H₀₃: Attending online technical workshops does not have an affect on student retention in online classes.* The independent variable measured is *attending course orientation*; the dependent variable is *retention*. The independent variable is addressed by the responses of exit survey question two – Did you attend a Distance Learning technical workshop this semester?

The ATW values form a dichotomous, bi-modal distribution with a major mode of 47, indicating that 47 out of 50 participants did not attend the technical workshop. The minor mode consisted of three students indicating that they attended the technical workshop. The mean is .06 and standard deviation is .24. A kurtosis value of 13.12 indicates an extreme leptokurtic distribution.

A Pearson's Phi Correlation revealed a positive correlation (.05) between the independent and dependent variables. A correlation of .05 between the attending technical workshops and retention indicates that attending technical workshops has a positive impact upon retention. However, this is not statistically significant because $p = .72 > \alpha = .05$. This is supported by the r^2 value (.003) which indicates that .003% of the variation in retention can be explained by the variation in ATW.

Research Question 4: Perceived Computer Skills

Table 10

Research Question 4 Results

RQ4. Are students who have taken other online classes more likely to complete the course?

Null Hypothesis	H ₀₄ : Prior online experience does not have an affect on student retention.									
Independent Variable	Prior online classes (POC)									
IV Scale/Number of Classes	0	1	2	3	4	5	6	7	8	9
IV Distribution	15	7	5	8	5	2	2	1	1	4
Dependent Variable	Retention (RET)									
DV Distribution	Yes = 47 No = 3									
Method of Analysis	Spearman's Rank Order Correlation (Spearman's rho)									
Result	No significant relationship was found between POC and RET.									
IV Descriptive Statistics	N = 50									
	Mean = 2.68 , Std Dev = 2.78, Variance = 7.73									
	Skewness = 1.02, Kurtosis = 0.16, Outliers = 0									
IV Inferential Statistics	r _p = -.09									
	p = .55 > a = .05									
	r ² = .01									

RQ4: Are students who have taken other online classes more likely to complete the course? The hypothesis that corresponded to this research question is: *H₀₄: Prior online experience does not have an affect on student retention.* The independent variable measured is *previous online classes*; the dependent variable is *retention*. The independent variable is addressed by the responses of exit survey question three – How many online classes have you taken in the past?

The POC values form a positively skewed distribution (1.02) with a mean of 2.68 and a standard deviation of 2.78. A kurtosis value of .16 indicates a slightly leptokurtic distribution. The data indicates that 15 students have never taken an online class; seven students have taken one; five students have taken two, eight students have taken three; five students have taken four; two students have taken five; two students have taken six; one student has taken seven; one student has taken eight; and four students have taken nine online classes.

A Spearman's Rank Order Correlation (Spearman's rho) revealed a negative correlation (-.09) between the independent and dependent variables. A correlation of -.09 between previous online classes and retention indicates that previous online classes has a negative impact upon retention. A negative correlation between POC and RET is not statistically significant because $p = .55 > \alpha = .05$. This is supported by the $r^2 (.01)$ indicating that there is little variation.

Research Question 5: Perceived Computer Skills

Table 11

Research Question 5 Results

RQ5. How are the students' perceived computer skills and online class retention related?

Null Hypothesis	H ₀₅ : Students' perception of computer skills does not have an affect on student retention in online classes.
Independent Variable	Perception of computer skills (PCS)
IV Scale	Excellent Good Average Fair Poor
IV Distribution	23 20 5 2 0
Dependent Variable	Retention (RET)
DV Distribution	Yes = 47 No = 3
Method of Analysis	Spearman's Rank Order Correlation (Spearman's rho)
Result	No significant relationship was found between PCS and RET.
IV Descriptive Statistics	N = 50 Mean = 3.28 , Std Dev = .81 , Variance = .65 Skewness = -1.05, Kurtosis = .78 , Outliers = 2
IV Inferential Statistics	r _p = -.21 p = .15 > a = .05 r ² = .04

RQ5: How are the students' perceived computer skills and online class retention related? The hypothesis that corresponded to this research question is: *H₀₅: Students' perception of computer skills does not have an affect on student retention.* The independent variable measured is student's *perceived computer skills*; the dependent variable is *retention*. The independent variable is addressed by the responses of exit survey question four – How would you rate your computer skills?

The PCS values form a negatively skewed distribution (-1.05) with a mean of 3.28 and a standard deviation of .81. A kurtosis value of .78 indicates a slightly leptokurtic distribution. The data indicates the following distribution for survey question 4: Excellent = 23, Good = 20, Average = 5, Fair = 2 and Poor = 0.

A Spearman's Rank Order Correlation (Spearman's rho) revealed a negative correlation (-.21) between the independent and dependent variables. A correlation of -.21 between perception of computer skills and retention indicates that perception of computer skills has a negative impact upon retention. A negative correlation between PCS and RET is not statistically significant because $p = .15 > \alpha = .05$. This is supported by $r^2 (.04)$ which indicates that .04% of the variation in PCS can be explained by the variation in PCS.

Survey Question 10

Table 12

Survey Question 10 Results

SQ10. Do you anticipate completing this class?

Dependent Variable (DV) Retention (RET)

DV Distribution Yes = 47 No = 3

Descriptive Statistics N = 50

Mean = .94, Std Dev = .24, Variance = .06

Skewness = -3.82, Kurtosis = 13.12

Survey question 10: *Do you anticipate completing this course?* was used as the preliminary measure of the dependent variable, retention. Final grade reports were used to verify completion rates. Forty-seven out of 50 participants (94%) indicated that they anticipated completing the class. The RET values form a negatively skewed distribution (-3.82) with a standard deviation of .24. A kurtosis value of 13.12 indicates an extreme leptokurtic distribution.

Summary of Data Analysis

Table 13

Data Analysis

Research Question	Survey Question	Variable	Correlational Method ¹	Result	Interpretation
RQ1	SQ5 – 9	PCF5 – 9 (PCFTotal)	Spearman's Rank Order	$r_p = .34$	Positive correlation between PCFTotal & RET Negatively skewed distribution Significant relationship between PCFTotal & RET
RQ2	SQ1	ACO	Pearson Phi Coefficient	$r_\phi = -.09$	Negative correlation between ACO & RET Dichotomous distribution No significant relationship between ACO & RET
RQ3	SQ2	ATW	Pearson Phi Coefficient	$r_\phi = .05$	Positive correlation between ATW & RET Dichotomous distribution No significant relationship between ATW & RET
RQ4	SQ3	POC	Spearman's Rank Order	$r_p = -.09$	Negative correlation between POC & RET Positively skewed distribution No significant relationship between POC & RET
RQ5	SQ4	PCS	Spearman's Rank Order	$r_p = -.21$	Negative correlation between PCS & RET Negatively skewed distribution No significant relationship between PCS & RET

Table 13 represents a summary of the results for each research question. Each research question has a corresponding survey question, variable name, correlational method, and summary of the interpretation of the results.

Summary of Chapter 4

A total of 134 community college students registered in Principles of Micro Economics, Principles of Macro Economics, World Civilization 1, World Civilization 2, Web Programming 1 and Advanced Computer Applications were surveyed. Of the 134 surveyed, 59 (44.03%) students responded. Of the 59 surveys received, 50 surveys were used in the study; seven surveys were excluded because there was no signed informed consent and two were excluded for missing data. No significant relationship was found between (a) attending course orientation and retention, (b) attending technical workshops and retention, (c) prior online experience and retention, and (d) students' perception of computer experience and retention. However, the data indicate a significant relationship between the students' perception of corrective feedback and retention.

Chapter 5

Summary, Conclusions, And Recommendations

Summary

According to distancestudies.com, one of the biggest challenges in distance education is student retention. With the estimated 2.2 million distance learners in the U.S. by the end of 2002, identifying the reason(s) students are not completing distance learning courses is important to the instructional technology field (Resekba, 2001).

The purpose of this study was to determine if there is a correlation between students' perception of corrective feedback and student retention in online classes. Other potentially influencing factors were also observed. The research questions addressed were as follows:

- RQ1. How are the students' perception of corrective feedback and student retention related?
- RQ2. Are students who attend course orientation meetings more likely to complete the course?
- RQ3. Are students who attend distance learning technical workshops more likely to complete the course?
- RQ4. Are students who have taken other online classes more likely to complete the course?
- RQ5. How are the students' perceived computer skills and student retention related?

The research study began with a concern that students dropped out of distance learning classes because of the lack of corrective feedback. A study was conducted with 134 students enrolled in the following online classes at a community college in the southeastern United States: Principles of Micro Economics, Principles of Macro Economics, World Civilizations 1, World Civilizations 2, Web Programming 1, and Advanced Computer Applications. An exit survey was used to measure the following (a) students' perception of corrective feedback and retention, (b) attending course orientation and retention, (c) attending technical workshops and retention, (d) prior online experience and retention, and (e) students' perception of computer experience and retention.

Conclusion

This study failed to indicate any significant relationships between (a) attending course orientation and retention, (b) attending technical workshops and retention, (c) prior online experience and retention, and (d) students' perception of computer experience and retention. However, the data indicate a significant relationship between the students' perception of corrective feedback and retention. It is also interesting to note that just getting feedback was as important as the quality of the feedback.

A problem with the procedure indicates that the results are not representative of the sample population. Students who dropped tended not to return the survey. As a result of the sampling error, there is little variability in the dependent measure; thus, the results have the potential of being biased.

Although the findings are not statistically significant for exit survey questions 1 through 4, it is important to remember that the majority of the students who responded to the exit survey were the students who anticipated completing the class. Only three of the

18 students who dropped their class completed the exit survey. Consequently, the results are not representative of the sample population. Further research is needed to identify why the students who were not successful in the class also chose not to complete the exit survey.

The majority of students who dropped did not complete the exit survey. A total of 18 students dropped; however, only three of those students responded to the survey. With only three students completing the survey there is not enough data to confidently state that there is a relationship between the independent variables and the dependant variable. The fact that 50 out of 134 students responded indicates the sample size was not a problem. The problem was that the sample that responded was not representative of the sample that was targeted. The sample that responded was the students who completed the course, not the students who dropped the course.

A composite variable was created with questions 5 through 9 on the exit survey. The results of these questions were used to identify the students' perception of feedback. The vice president for instruction, the chair of the distance learning committee, and the researcher devised a scale to categorize the independent variable. The categories included (a) high corrective feedback, which ranged from 16 through 20 points, (b) medium corrective feedback, which ranged from 11 through 15 points, and (c) low corrective feedback, which ranges from 0 through 10 points. The mean for the composite variable is 14.64, which indicates that the students' perceived they received medium corrective feedback.

Recommendations

With the estimated 2.2 million distance learners in the U.S. by the end of 2002, identifying the reason(s) students are not completing distance learning courses is important to the instructional technology field (Resekba, 2001). The results of this study, while informative, show a need for additional research in distance learning. Not only is it important for this study to be replicated to see if the findings hold up, but educators would benefit from additional research studies that focus on the following: (a) exploring procedural changes, (b) exploring student perception of quality, timeliness and consistency of corrective feedback, and (c) conducting individual case studies with online students.

Procedural Changes

Despite every attempt to solicit students who dropped the course, the students who dropped the course tended to not return the survey. As a result, changes to the procedure of this study are necessary to (a) increase the number of useable surveys, (b) increase the number of respondents, (c) increase the efficiency and effectiveness of the data validation process, and (d) increase the generalizability of the study.

Of the 59 surveys collected, nine surveys (15.25%) were not used because of missing data or improperly signed informed consent forms. The number of usable surveys could be increased if the researcher met students at the course orientation meeting to explain the purpose and importance of the study and to obtain properly signed informed consent forms. Additionally, the researcher could verify that the informed consents are completed correctly before the end of the meeting.

Creating an online survey has the potential of increasing the number of respondents. If students could access the survey by clicking on a link from their online course website, more students may be inclined to complete the survey. Furthermore, the survey could be designed to notify the student if a question was left blank, which would eliminate the submission of incomplete surveys.

The data validation process would be enhanced by including a place on the exit survey for the student's name and the name of the course. The student's name and the course name entered at the top of the survey would enhance the data validation process by allowing the researcher to verify the data more efficiently and effectively.

This study included participants from six online classes at one community college. Conducting a random sample from all the online classes at the college, or a random sample from several community colleges with similar demographics would increase the generalizability of the results.

Perception of quality, timeliness and consistency of corrective feedback

A composite variable was created with questions 5 through 9 on the exit survey. The results of these questions were used to identify the students' perception of feedback. Although survey question 5: *Did the instructor provide corrective feedback on assignments?* indicated a slightly stronger relationship (.37) than survey questions 6 through 9, which indicated correlations of .35, .36, .36, .36, respectively. However, there was no significant variance in the correlations of the five questions. The respondents' perceived just getting feedback was as important as the quality of the feedback. Perhaps modifying the existing questions or expanding the questions used to measure the students' perception of corrective feedback may help online course developers or online

instructors to identify specific areas that need improvement. Creating survey questions to identify the students' perception of the quality, timeliness and consistency of the corrective feedback received in online classes has the potential of providing researchers with valuable data.

Conduct individual case studies

The results of this study indicate that the dichotomous questions on the exit survey did not reveal valuable data. Survey question 1: 'Did you attend the course orientation?' for the class and survey question 2: 'Did you attend a distance learning technical workshop?' does not provide meaningful data. Students may have attended either the course orientation meeting or the workshop and found them to be helpful; however they may have found them to be a waste of time. Identifying the strengths and weaknesses of each would provide instructors with the information required to revise the meetings to be more effective.

Developing a survey with open-ended questions has the potential to produce more meaningful data. Conducting individual case studies with students who drop online classes would provide researchers with rich qualitative data. The qualitative data might provide more specific reasons on the student's perception of (a) the role of the instructor in online classes, (b) the role of the student in online classes, (c) the level of computer skills required to be successful in online classes, and (d) the type of feedback that is beneficial to online students. The rich qualitative data collected from individual case studies would provide educators with the data required to create significant changes that has the potential to enhance the field of distance learning.

Future research in distance learning should focus on exploring procedural changes, exploring student perception of quality, timeliness and consistency of corrective feedback, and conducting individual case studies with online students. Research in these areas has the potential of leading to methodologies to enhance the online environment for both the student and the instructors. Furthermore, the popularity of distance learning for secondary students continues to grow. Having this type of data may improve teaching strategies for all levels of instruction.

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Appendices

Appendix A: Exit Survey



Evaluation of Corrective Feedback in Online Classes

Your participation is critical to the success of this study. Based on your online course this semester, please answer the following questions. All responses will remain confidential.

1. Did you attend the orientation meeting for this class? ___ Yes ___ No
2. Did you attend a Distance Learning technical workshop this semester? ___ Yes ___ No
3. How many online classes have you taken in the past?
___ 0 ___ 1 ___ 2 ___ 3 ___ 4 ___ 5 ___ 6 ___ 7 ___ 8 ___ 9
4. How would you rate your computer skills?
___ Excellent ___ Good ___ Average ___ Fair ___ Poor

Corrective Feedback is defined as any positive comments or suggestions an instructor gives a student (verbally or in writing) on any assignments and quizzes/exams. Based on this definition of feedback, please answer the following questions.

5. The instructor provided corrective feedback on assignments.
___ Strongly Agree ___ Agree ___ Neutral ___ Disagree ___ Strongly Disagree
6. The instructor provided corrective feedback on exams/quizzes.
___ Strongly Agree ___ Agree ___ Neutral ___ Disagree ___ Strongly Disagree
7. The corrective feedback I received in this class had an affect on me completing the class?
___ Strongly Agree ___ Agree ___ Neutral ___ Disagree ___ Strongly Disagree
8. I was satisfied with the corrective feedback I received in this class.
___ Strongly Agree ___ Agree ___ Neutral ___ Disagree ___ Strongly Disagree
9. I was satisfied with the quality of the corrective feedback received in this class.
___ Strongly Agree ___ Agree ___ Neutral ___ Disagree ___ Strongly Disagree
10. Do you anticipate completing this course? Yes No

Appendix B: Informational Letter

October 21, 2003

Lori Kielty
Central Florida Community College
PO Box 1388
Ocala, FL 34474

Dear Student:

Your help is needed to enhance Central Florida Community College's online classes. Students registered in Professor Hiatt's Micro Economics and Macro Economics online classes; and Professor Kirk's World Civilizations 1 and World Civilizations 2 online classes have been selected to take part in the following research project. *Feedback in Distance Learning: Do student perceptions of corrective feedback affect retention in distance learning?*

Your participation in the study is strictly voluntary. The data gathered from your survey will be confidential; your instructor will not be informed of individual responses. The results of the research project will not include your name or any other information that would identify you in any way.

What you need to do?

- 1) Sign and date the informed consent form.
- 2) Complete the short 10 question exit survey.
- 3) Return the informed consent form and the survey in the enclosed self-addressed stamped envelope by November 1, 2004.

If you have any questions, please feel free to contact me at (352) 854-2322 x1383, or kieltyl@cf.edu.

Sincerely,

Lori Kielty, Instructor
Business and Technology