EXAMINATION AND SURVEY OF USER SATISFACTION WITH INTERNET-BASED LEARNING COMPARED TO TRADITIONAL CLASSROOM-BASED LEARNING

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An Examination and Survey of User Satisfaction with Internet-based Learning Compared to Traditional Classroom-based Learning

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Abstract

Melinda Kushniroff. AN EXAMINATION AND SURVEY OF USER SATISFACTION WITH INTERNET-BASED LEARNING COMPARED TO TRADITIONAL CLASSROOM-BASED LEARNING. (Under the direction of Dr. Clarence Holland) School of Education, April, 2008.

Although some research has been done in the internet-based learning discipline, user satisfaction with internet-based classes compared to traditional classroom-based learning requires more attention and research due to the substantial and continued growth in this area. During the 2007 Fall semester, 720 university undergraduate students, internet-based and traditional classroom-based, were randomly sampled with the only requirement that the students be participating in at least one internet class and one traditional classroom-based learning during that same period. Student Course Evaluation Responses to the research questions were obtained with the answers anonymously submitted. Additionally, invitations were e-mailed to other participants such as faculty who have taught or were currently teaching internet and traditional classroom-based learning, university internet-based learning administration, and university internet-based learning technology management and additional students to complete the survey. The results of the study were based upon the opinions of the respondents and suggested that internet-based learning, when set up and administered correctly, is as an effective methodology of learning for individuals as compared to the traditional classroom-based learning. Suggestions for further research are also included.

Dedication

This dissertation is dedicated first and foremost to my husband, Tony, for his continued support, inspiration and love in all parts of my life. He is my best friend as well as the love of my life.

It is also dedicated to my mother, Nola Fagaly, who went Home to be with our Lord on October 8, 1999. Her inspiration comes to me daily because I know that when God throws open the windows of heaven every morning, she is right in front of heaven, cheering me on. It will bring her so much joy and pride to say, “We have a doctor in the family!”

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Chapter 1: Introduction of Study

Chapter 1 of this dissertation contains background on the topic of examining and surveying user satisfaction with internet-based learning compared to traditional classroom-based learning**,** the problem statement, professional significance, overview of methodology, and definitions of key terms. The focus of this dissertation was the examination and survey analysis of user satisfaction with internet-based learning compared to traditional classroom-based learning. There is a lack of study and research on user satisfaction with internet-based learning compared to traditional classroom-based learning. This topic was explored in terms of (a) examination and survey of effectiveness of internet-based classes to traditional classroom-based learning; (b) examination and survey of effective teachers and students in an internet-based environment versus a traditional classroom-based environment; (c) examination and survey of collaborative learning community communication in internet-based classes to traditional classroom-based learning; and (d) user survey and opinion of the cost and benefits of internet-based classes versus traditional classroom-based learning. The functional nature of this examination and survey could simply be referred to as "clicks or bricks?" (internet-based learning versus traditional classroom-based learning).

Background

The classroom environment (e.g., circumstances, objects, or conditions by which students were surrounded) changed significantly during the 20th century. Classrooms evolved from one-room schoolhouses constructed of wood, brick and mortar to learning

opportunities available in an internet-based, virtual "cyberspace" environment (Sakurai, 2004). Prior to the late 19th century, the learning environment or classroom was always face-to-face, teacher to students, at a specific physical site at a specific time. However, in the late 19th century, "distance education" emerged in the form of correspondence courses (Stadtlander, 1998). The purpose of this "distance education" was to provide an opportunity for education to individuals who were, for various reasons, unable to attend the actual classroom setting at the assigned site.

Refinement in technology enabled educators to begin use of teleconferencing as a means of face-to-face instruction with students. This method of instruction was referred to as computer-mediated communication (CMC). During the 1960s and 1970s, a number of research studies examined the effectiveness of this style of instruction (Stadtlander, 1998). This methodology allowed a number of individuals to talk at the same time. In addition, CMC allowed for equal participation of the students (Stadtlander). After the advent of CMC, Interactive Television (ITV) emerged. ITV was a format of synchronous classes held over an interaction network. In this format, the instructor may have been in a different location or classroom, but the class was live and interactive. The instructor could see and hear the students at the remote site and vice versa using this technology. The result was that students at the remote site could join a class being taught on campus (Stadtlander). The upside of this format was more students from remote areas could participate in classes without the cost and time of travel. The concerns were that classes must be conducted at a location that had the appropriate technology, and the student

achievement at the remote locations was not as high as those students actually in the classroom with the instructor (Stadtlander).

During the 1990s, enrollment in postsecondary education, in general, was on the decline. Thus, initially, internet-based learning technology was a strategy to attract students back to the higher education arena (Stadtlander, 1998). Unfortunately, because the primary strategy was simply to attract students, no thought was given to the effects on the perception of student learning. In 2001, more than 1,100 institutions of higher education in the United States offered courses in an internet-based environment (Elvers, Polzella & Graetz, 2003). Today, almost every school either has internet-based courses available or is considering implementation of this technology. A number of Ivy League schools have launched successful initiatives on internet-based learning and are rapidly building their programs. As a result, enrollment in internet-based courses continues to escalate. The concept of a site campus with face-to-face participation has evolved to an "individual remote participant" model (Benigno & Trentin, 2000). In today's internet-based instructional world, a few educational institutions are considered the premier providers, attracting a diversified student body although most of the top academically rigorous universities offer internet-based learning. It is clear that internet-based learning is a distinct and imperative part of the higher education world and not simply a fad that will go away. Thus, the examination and survey of user satisfaction with internet-based classroom compared to the traditional classroom-based learning is critical.

In today's educational scenario, the environment in which students learn best is of considerable importance to educators in the climate of accountability for teaching and

learning (Cassidy & Eachus, 2000; Denig, 2004; United States Department of Education, 2002). Teachers in higher education are acutely concerned about the need to demonstrate that curriculum and instruction are having the desired effects in the traditional classroom as well as the virtual classroom (Diaz & Cartnal, 1999). In many cases, no consideration has been given to the impact an internet-based delivery system has on the perception of student learning nor has an internet-based delivery system been compared to the traditional classroom-based delivery system in terms of the perception of student learning.

It has been suggested that it is important to recognize or use strategies that are consistent with the optimum learning effectiveness whether it be internet-based learning or traditional classroom-based learning (Brillinger, 1990; Davidson, 1984; Gee, 1990; Graff, 2003; Harrison, Andrews, & Saklofske, 2003; Honigsfeld & Dunn, 2003). It has also been suggested that even if instructors do not adjust their teaching to better match learning effectiveness, students can benefit by knowing how to manage their learning effectiveness through ongoing screening and making necessary adjustments in either the internet-based environment or the traditional classroom-based environment themselves (Fleming & Mills, 1992; Guilford, 1981).

It has not been clear from research if there are differences between students' learning based on whether learning takes place in a distance or residential format (King, Young, Drivere-Richmond & Scharader, 2001; Papp, 2001; Shih, Ingebritsen, Pleasants, Flickinger & Brown, 1998; Tucker, 2000; University of Idaho, 2006). These particular authors have identified internet-based learning programs as a separate, distinct entity

from residential classes, but raised the question about the effects on the perception of student learning on the individuals who seek out the internet-based learning medium because of the lack of this type of research in this particular area. Because internet-based learning programs are increasingly utilized in higher education (Ascough, 2002; Carswell, Thomas, Petre, Price & Richards, 2000; Lock & Wilson, 2002), certain authors believe it to be of the utmost importance to study the effects of internet-based learning on the perception of students' learning so that teaching methodologies can be changed and enhanced for this particular group of learners.

One of the most frustrating factors facing the early advocates of internet-based learning was the perception that the quality of these offerings would always be inferior to that of traditional classroom-based instruction. However, the evidence from higher education academic leaders suggested that the question of "can internet-based learning be as good as" may soon be replaced by "how is internet-based learning better"? Allen and Seaman (2006), in their research, provided the following specific evidence: (a) a majority of academic leaders (57%) already believe that the learning outcomes for internet-based education are equal to or superior to those of traditional classroom-based instruction; (b) nearly one third of these same academic leaders expect that learning outcomes for internet-based education will be superior to traditional classroom-based instruction in three years, and nearly 75% of them expect learning outcomes for internet-based education to be equal to or better than traditional classroom-based instruction; and (c) every grouping of institutions expects the same relative improvement in the learning outcomes of internet-based instruction compared to traditional classroom-based

instruction over the next three years. This holds true both for institutions that offer internet-based education and for those which do not.

Interest and enrollment in internet-based courses continues to explode at many universities. At a large university located in the Midwest researched in this study, the growth in participation in internet-based classes was in excess of 90% during the 2006-2007 school year. The surge in internet-based learning has created focus on the effect on the perception of student learning, but also caused a realization by many university faculty members of the need to focus on techniques to create interactive participation and collaborative learning in their internet-based classes. Internet-based learning in its best form is learner-centered and learner-focused (McCombs & Whisler, 1997).

It has not been clear from literature what other factors influenced students' choice of internet-based classes versus traditional classroom-based learning. However, some examples appear to be distance to a college campus from a student's home may be prohibitive for a commuting nontraditional classroom-based student or a student living at home with their parents (Gunawardena & Boverie, 1993; King et al., 2001). Students' physical attributes (impairment or mental or physical disability) appeared to be a significant factor in the choice of internet-based classes versus traditional classroom-based learning (Adams, 1998; Courtney, Vasa, Luo & Muggy, 1999; Lorenzo, 2001, University of Idaho, 2006; Van Dusen, 2000). Convenience, in terms of scheduled class time versus nonscheduled class time was an important consideration for internet-based classes versus traditional classroom-based learning. Family commitment was also of great consequence in terms of a students' schedule and other daily living concerns

(Adams; Lorenzo; University of Idaho; Van Dusen). Finally, the cost of internet-based learning versus traditional classroom-based learning was a key element for many students in this important educational decision (Courtney et al., Van Dusen; University of Idaho; Vasa, et al., 1999).

In terms of a thorough definition of internet-based learning, Desmond Keegan (1995) appears to have the clearest concept when he states that "distance education and training results from the technological separation of teacher and learner which frees students from the necessity of traveling to a fixed place, at a fixed time, to meet a fixed person in order to be trained" p. 123). Additionally, Plato stated, "learning occurs in the mind, independent of time and place" (University of Guelph, 2002, p. 34).

For example, if it is found that many students as a group in the internet-based learning area achieve a certain effect, some have advocated that when individual students involved in internet-based learning exhibit a trend toward more positive effects when a certain methodology is used, student awareness of this particular methodology prior to or at the beginning of the course of study could be valuable because theoretically, a curriculum that is adaptable to student learning is time better spent for the student (Honigsfeld & Dunn, 2003).

Statement of the Problem

The advent and rapid intensification of internet-based learning in today's world has led to new questions relative to students' satisfaction in this rapidly increasing segment compared to students in the traditional classroom-based learning higher education segment. With the veritable growth in internet-based classes and the expected,

continued expansion in this area, the effectiveness of internet-based learning to traditional classroom-based learning must be examined and surveyed from the user point of view so that educators can build and teach appropriate, fulfilling and useful classes in both the virtual world and the traditional classroom-based world.

As of this time, it has not been found by this researcher whether any studies measuring intangible constructs from a user perspective has been researched thoroughly to understand the effect of both types of "classrooms" on the perception of student learning. Thus, the problem statement for this study is "What are the effects of internet-based learning versus traditional classroom-based learning on student learning from a user perspective."

Research Questions

The research questions used to examine and comprise the sample survey of intangibles analysis in this study were:

1. Is technology-assisted internet-based learning perceived as effective as traditional classroom-based learning?
2. What are the characteristics of effective internet-based learning students and teachers compared to the characteristics of effective traditional classroom-based students and teachers?
3. How important is teacher-student and student-student interaction in the internet-based process compared to the traditional classroom-based learning and in what form(s) can this interaction most effectively take place?

4. What cost and benefit factors should be contemplated when choosing an internet-based learning environment or a classroom-based environment for higher education? How are these costs offset by benefits to the learners?

Professional Significance of the Study

Given the increasing, widespread appeal for internet-based classes in higher education (Fleming & Mills, 1992; Honigsfeld & Dunn, 2003; Tucker, 2003), further study has been warranted and reasonable. Studying the phenomena in the internet-based learning population, the users can reveal information pertinent to this explosion within the confines of the learning environment. Additionally, given the huge evolution in internet-based learning programs today, particularly at the University, it was of great value to examine and study the perception of student satisfaction with internet-based and traditional classroom-based learning programs from the users' perspective. Because internet-based learning is not a fad and large amounts of University capital has been and continues to be spent on the expansion of internet-based learning, the data may lead to conclusions that could assist teachers in future curricular and instructional design that best meets students' needs in internet-based learning.

It should also be noted that students of different ages or cultural backgrounds may learn differently thus providing another possible guide for effective internet-based classes and traditional classroom-based learning. Acquiring information relative to the impact of age and cultural background on the effects of perception on student learning in internet-based learning classes versus traditional classroom-based learning may lead to

conclusions that could significantly influence both internet-based and traditional classroom-based learning. This is especially noteworthy at a time when students of various age groups and cultures are enthusiastically enrolling in internet-based learning at the collegiate level (Cho & Forde, 2001; Heffler, 2001, Sun & Chen, 1997).

Also identifying the impact of students' physical ability and limitations on internet-based learning programs' enrollment may allow the programs to adjust for greater accessibility and better learning. Although Lorenzo (2001) suggested that many internet-based learning programs have not or are not accommodating students with physical disabilities, Palloff and Pratt (2003) disagree with this statement as they believe the needs of physically-challenged students can be addressed very easily in the internet-based learning environment by keeping the course design and curriculum in mind during the planning and implementation phases.

Overview of Methodology

The examination and survey of user satisfaction with internet-based classes compared to traditional classroom-based learning began with the planning stage. Survey research begins with a question that the researcher believes can be answered most appropriately by means of the survey method (Ary, Jacobs, Razavieh, & Sorensen, 2006). In this case, the researcher determined the sample survey of intangibles was the most appropriate survey method for this study.

The second step in the study was to define the population. Because the researcher is a faculty member at the large, Midwestern University, the population at the University was selected because access to information was more easily obtained. Additionally, the

large, Midwestern University is committed to excellence to internet-based learning and traditional classroom-based learning (University 2007-08 Strategic Plan, 2007).

The third step in this research was to select a sample representative of the population. The 720 students selected were all enrolled in the "Educational Psychology" class offered at the University, Fall 2007 semester. This class is required for all Education majors and an elective for many other academic programs. The 720 students from the large, Midwestern University were randomly (arbitrarily picked by numbering all sections of the class and drawing the numbers out) selected from the internet-based classes and the traditional classroom-based learning of Educational Psychology in order to achieve a high-quality mix. Other research participants were faculty who had taught or were currently teaching internet-based and traditional classroom-based classes at the University, University internet-based learning administration and technology management as well as students who matched the qualifications of taking at least one internet course and one traditional classroom-based course during the Fall 2007 semester.

The fourth step was constructing the instrument. Since users' opinions were sought, the researcher determined the sample survey of intangibles was the instrument to be used.

Basic guidelines were used to formulate good questions. The guidelines are as follows:

1. Questions were relatively short, simple and direct.
2. Questions were phrased so that every respondent could understand them.
3. Questions were phrased to elicit unambiguous answers.

4. Questions were phrased to avoid bias that may have predetermined a respondent's answer.
5. Questions were avoided that might be misleading because of unstated assumptions.
6. Leading questions that imply a desired response were avoided.
7. Questions that could elicit embarrassment, suspicion or hostility in the respondent were avoided.
8. "Doubled-barreled" questions that attempted to ask two questions in one were avoided.
9. Alternatives to each questionnaire item were exhaustive.
10. The questionnaire was kept brief and easy to complete.
11. The respondents were given the information necessary to answer the questions (Ary et al., 2006).

The format of the research questions was open-ended, with the exception of Research Question 1 on SurveyMonkey (a survey creator website), because there were a great number of possible answers, and the researcher could not predict all the possible answers. Research Question 1 on SurveyMonkey was closed-ended because the possible responses were limited to *strongly agree, agree, no opinion, disagree*, and *strongly disagree*; however, it was a requirement for the respondent to make a comment regarding their answer to Research Question 1.

The researcher conferred with 15 other faculty members with whom the researcher had not worked with prior to this study regarding if the four research

questions were valid and appropriate for the intended use of the survey. The faculty members were from three different departments within the large, Midwestern University: (a) Business Department; (b) Education Department; and (c) Health Sciences Department. All 15 faculty members independently agreed that the research questions were understandable, concise, easy to read and valid for this study's purpose. Additionally, seven former internet-based students from the large, Midwestern University were asked to review the research questions. They, too, all independently agreed that the research questions were understandable, concise, easy to read and valid for this study's purpose.

The fifth step was conducting the survey. The 720 internet-based and traditional classroom-based, randomly selected students in the School of Education at a large university located in the Midwest completed the Student Course Evaluation Responses to the research questions in this study. Since the 720 students completed these questions during their Student Course Evaluations and had the questions on a separate sheet that was collected separately from the course evaluations, anonymity was preserved since there was no student identification. The survey instructions contained clear information regarding the project, assurance that participation was voluntary, and who to contact with any questions. The subject's turning in of the survey itself demonstrated implicit consent (Southeastern Private University, 2007). This research contained Student Course Evaluation Responses to the research questions as well as additional electronic questionnaires required to produce an adequate survey sample at a large university

located in the Midwest from internet-based classes and traditional classroom-based learning.

The sixth step began with the data collection and storage in secure internet-based files for electronic data and a fireproof file cabinet for any paper data. Data was stored electronically on password protected flash drives, by research question and was coded very quickly after receipt so subjects could not be identified directly or indirectly through identifiers. Anonymity was imperative in order to not conflict with state and/or federal laws and regulations.

Additionally, invitations were sent using SurveyMonkey to faculty who have taught or were currently teaching internet-based and traditional classroom-based learning at the University, University internet-based learning administration and technology management. In addition, invitations were sent to students who match the qualifications of taking at least one internet-based course and one traditional classroom-based course during the Fall 2007 semester. The reasoning for using an internet survey creator when e-mailing invitations to people to take the survey was that a link was created to the survey thereby again preserving anonymity when someone responded to the research questions rather than receiving a return e-mail response that identified the respondents. As this information was gathered and used by the researcher, no discussion or divulging of the information was done where the anonymity of the respondents was compromised. All subjects were over the age of 18 and able to make competent decisions regarding participation in the dissertation study.

The large university located in the Midwest researched in this dissertation was established in 1830, with a 2007-2008 school year enrollment as of September, 2007, of 99,100 students with 69,276 registered as full-time; 21,260 participating in full-time, distance-learning programs (University 2007-08 Strategic Plan, 2007). The university attracts students from more than 90 different countries (21% are of international ethnicity) and serves multiple age groups (University, 2007). The university is accredited by the North Central Association of Colleges and Schools, Higher Learning Commission and continues to market aggressively its internet-based learning program in a robust manner. It is also accredited by the National Council for Accreditation of Teacher Education (NCATE), The Association to Advance Collegiate Schools of Business (AACSB), and Association of Collegiate Business Schools and Programs (ACBSP).

Operational Terms

Internet-based learning is a field of education that focuses on the pedagogy/andragogy, technology, and instructional systems design that aim to deliver education to students who are not physically "on site." Rather than attending courses in person, teachers and students may communicate at the time of their own choosing by exchanging printed or electronic media, or through technology that allows them to communicate in real time. Internet-based learning appeals to some people for different reasons. Some do not want to sit in a classroom; others are busy juggling hectic lives and

want to be able to have the flexibility to learn anytime and anywhere. Other people want to earn internet-based degrees because they have found a program in a distant location instead of locally that appeals to them. Whatever the reason for internet-based learning, it is more popular and more feasible than ever. In this study, internet-based learning students were defined as those learners currently enrolled in an internet-based class during the Fall 2007 semester or those learners enrolled previously in an internet-based class.

In terms of traditional classroom-based learners, the following list is what some educators think of traditional classroom-based learning: (a) chalkboard; (b) worksheets; (c) lecture; (d) teacher directed; (e) memorization; and (f) regurgitation. Traditional classroom-based learners are those learners that have a strategy of education at a residential university or college that places improvement on the perception of student learning at the center of decision-making processes and policies at all levels of the institution. It is characterized by the use of clear, measurable goals and student outcomes, and the direct involvement of learners in activities that produce deeper understanding of the content through the development of skills that are readily transferable to life and work. An additional central goal is to prepare self-directed learners who can continue learning beyond their formal education.

Residential learners can also be described as those students who attend classes in a traditional classroom-based manner at a "brick and mortar" university or college. In most cases, including this dissertation, the terminology "face-to-face" excludes

teleconferencing as that particular medium is considered to be part of the internet-based learning field as it uses similar technology and media.

The definition of effective student learning according to Dr. W. Edwards Deming, as cited by Jenkins (2003), was: (a) improved basic skills (e.g. math, writing); (b) improved digital age literacy skills (e.g., technological, cultural and global awareness); (c) improved inventive thinking skills (e.g., creativity, problem solving, higher order, sound reasoning); and (d) improved effective communication and interpersonal skills (e.g. writing, public speaking) teamwork, collaboration; and improved productivity skills.

Additionally, the Indiana Department of Education (2007) provided this definition: "student learning is the mastering of skills and knowledge expected of students for a particular subject area at a particular grade level for kindergarten through postsecondary education" (p. 11).

Classifying physical ability focused on students' capacity for utilizing the technology required to engage (computer usage) for internet-based classes and accessing the actual classroom in the case of traditional classroom-based learners. It involved students with physical impairments such as poor vision, hearing or motor ability.

Other facets, according to Giroux (1992), which were taken into consideration, were: (a) gender, (b) age, (c) convenience, (d) family commitments, (e) commuting distance, (f) cost, and (g) spiritual background. Giroux's work referred to all these components in consideration of the elements of the study of human culture.

A sample survey of intangibles is defined as a survey of opinions that are not directly observable but must be inferred from responses made by the subjects to the

questionnaires or interviews. When sampling is performed well, the inferences made concerning the population are quite reliable and trustworthy as they are in this study.

Organization of Study

The examination and survey of user satisfaction with internet-based learning compared to traditional classroom-based learning on the perception of student learning is an important concept in higher education today. The practice of using technology to deliver coursework in higher education has seen a veritable explosion. The use of technology has not only created new opportunities within the traditional classroom-based learning, it has expanded learning experiences to the virtual "classroom."

In many cases, no consideration had been given to the impact an internet-based delivery system had on the perception of student learning nor had an internet-based delivery system been compared to the traditional classroom-based learning in terms of a user survey.

This study directly questioned the users. It also answered the same challenges as Brundage, Keane & Mackneson (2005) suggest distance learners must face and overcome to be effective: (a) becoming and staying responsible for themselves; (b) owning one's strengths, desires, skills and needs; (c) maintaining and increasing self-esteem; (d) relating to others; and (e) clarifying what is learned.

Because of the dynamic expansion in internet-based learning, the challenges that internet-based learners face as well as the apparent lack of studies regarding the user satisfaction with internet-based learning compared to traditional classroom-based learning, this dissertation was able to provide a unique, experience-filled and fresh perspective on the topic.

The study methodology followed the six basic steps in a survey technique. Those steps are: (a) planning; (b) defining the population; (c) sampling; (d) constructing the instrument; (e) conducting the survey; and (f) processing the data. Because of the importance of face validity in this type of survey, the researcher conferred with 15 other faculty members with whom the researcher had not worked with prior to this study regarding if the four research questions were valid and appropriate for the intended use of the survey. The faculty members were from three different departments within the large, Midwestern University: (a) Business Department; (b) Education Department; and (c) Health Sciences Department. All 15 faculty members independently agreed that the research questions were understandable, concise, easy to read and valid for this study's purpose. Additionally, seven former internet-based students from the large, Midwestern University, were asked to review the research questions. They, too, all independently agreed that the research questions were understandable, concise, easy to read and valid for this study's purpose.

Expected results answered questions relative to the user satisfaction with internet-based classes compared to traditional classroom-based learning. In other words, the primary aim of this dissertation was to answer the question of examining and surveying the user satisfaction of internet-based classes compared to traditional classes on the perception of student learning. Secondary questions of importance related to (a) gender, (b) age, (c) convenience, (d) family commitments, (e) commuting distance, (f) and cost were also examined and explored.

Chapter 2: Literature Review

Introduction

This literature review contributed to determining what is already known about the question or puzzle that is the focus of this inquiry (Herr & Anderson, 2005). It functioned as another set of perspectives that provides useful information to be incorporated into the accounts emerging in the research process (Stringer, 2004). Additionally, it aided in anticipating directions this research might take (Herr & Anderson).

In this study, it was important to emphasize that, despite the large volume of written material concentrating on internet-based learning, there is a relative paucity of true, original research dedicated to explaining or predicting phenomena related to internet-based learning, particularly in combination with survey analysis to classroom-based learning. From this limited group of original research, three broad measures of distance education were usually examined. These included: (a) student outcomes, such as grades and test scores; (b) student attitudes about learning through distance education; and (c) overall student satisfaction toward internet-based learning (Gold, 2005).

However, there have been key shortcomings to other research in this subject area, such as the fact that the studies did not use randomly selected subjects. Moreover, validity and reliability of the measurements were questionable and there was no control of the "reactive effects" (a number of factors associated with the way in which a study is conducted and the feelings and attitudes of the students involved; Gold, 2005).

Specifically, in research studies completed by highly reputable sources, the American Federation of Teachers (2001), the National Education Association (2003) and

the Institute for Higher Education Policy (2005), all three sources concluded that their analysis revealed several methodological flaws such as extremely small sample size, high subject mortality or the lack of minimal data to compute effect size. Following are some of the other key shortcomings of research on the effectiveness of internet-based learning on the perception of student learning noted in literature review of each study:

1. Much of the research did not control for extraneous variables and therefore did not show cause and effect.
2. The studies did not use randomly selected subjects.
3. The validity and reliability of the instruments used to measure student outcomes and attitudes were questionable.
4. Many studies did not adequately control for the feelings and attitudes of the students and faculty – what the educational research refers to as "reactive effects."

The sheer weight of opinion in previous research studies was not taken as conclusive of itself since most of it is based on anecdotal evidence offered by persons and institutions with stakes in the techniques being evaluated, or in the very programs, they were evaluating. Furthermore, in studies where some attempt had been made to gather empirical data, the research had been undertaken by schoolteachers or university faculty with extremely limited resources (Gold, 2005). As a result, the methodology of many of the research designs was weak with regard to such factors as the populations being studied; the treatments given, the statistical techniques applied, and the validity, reliability, and generalizability of the data on which the conclusions were based (Gold). This dissertation took into account these key shortcomings. Additionally, in a sample

survey of intangibles, opinion of the users is not directly observable but is inferred from responses made by the subjects to questionnaires or interviews. When sampling is performed well, as it was in this study, the inferences made concerning the population are quite reliable and provide excellent data.

Many educators have asked if internet-based learning students learn as much as students receiving traditional classroom-based instruction do. Research comparing internet-based learning to traditional classroom-based instruction indicated that teaching and studying at a distance can be as effective as traditional classroom-based instruction when the methods and technologies used are appropriate to the instructional tasks, there is student-to-student interaction, and when there is timely teacher-to-student feedback (University of Idaho, 2006).

Additionally, institutions have embraced internet-based education as a delivery method for the following reasons:

1. Eighty-one percent of all institutions of higher education offer at least one fully internet-based or blended course.
2. Complete internet-based degree programs are offered by 34% of the institutions.
3. Among public institutions, the numbers are even more compelling; with 97% now offering at least one internet-based course and 49% now able to offer a complete internet-based degree program.
4. Perhaps most telling, when asked about the role of internet-based education for the future of their institution, 67% of the institution's

5. administration answered that it is a critical long-term strategy for their institution.

According to the article "Learning on the Internet" by Kozma (2006), understanding how learners interact with and use the unique capabilities of the internet learning format is essential to understanding the effect of the internet on learning. What are the ways users can use the internet capabilities to influence learning for particular students, tasks and situations? When this influence is understood, the development of the distance education field will grow and thus contribute to the improvement of teaching and learning.

Although internet-based learning is growing at a phenomenal rate, there is still, however, disagreement about the actual impact of internet-based learning. Clark (2005) has stated, "the internet is a mere vehicle that delivers instruction, but does not influence student learning any more than the truck that delivers groceries causes changes in our nutrition." (p. 52). Consequently, internet-based learning is being expanded to hybrid internet classes, technology-enhanced internet classes, two-way video conferencing, etc. in order to provide more than a "mere vehicle" (2005, p. 52).

Within a context of rapid technological changes and shifting market conditions, the American education system is challenged with providing increased educational opportunities without increased budgets. Many educational institutions are answering this challenge by developing internet-based programs. At the most basic level, internet-based education takes place when the instructor and the student(s) are separated by physical

distance, and technology, often in concert with face-to-face communication that is used to bridge the instructional gap. These types of programs can provide adults with a second chance at a college education, reach those disadvantaged by limited time, distance or physical disability, and update the knowledge base of workers at their places of employment (University of Idaho, 2006).

Wagner, Hollman & Gorton (2005, p. 102) believe internet-based instruction is actually a paradigm shift from the "student as a participant" to the "student as a worker" and the effect is determined by the student. The dilemma that faced these researchers was the same that is facing most university instructors. If it is a given that internet-based learning is not vanishing from the education arena and that most of the delivery issues of the past (i.e., hardware compatibility, student isolation and technological training), could be remediated, then would there be any significant difference in the perception of student learning between students taking a course in an internet-based environment versus those who received instruction in the traditional classroom-based model. Additionally, these researchers were interested in whether there would be any difference in the perceptions of these two groups, internet-based and traditional classroom-based, about their learning opportunities.

Some research work examined the users' opinions of the effects of internet-based learning (Kubala, 1998; Drennan & Kennedy, 2005). Kubala stated in his research that internet-based learning has "no effect on student learning" (p. 147). Drennan and Kennedy found in their study there is a negative effect on student learning when the internet is used as compared to traditional classroom-based instruction. However, these

same authors acknowledge that much more research in this area needed to be done; hence, this dissertation and the research that is part of it.

Electronic Pedagogy, Andragogy, or Heutagogy?

Fidishun (2001, p. 172) found that:

> Higher education has given priority to the integration of technology into the curriculum. As this has occurred, institutions are faced with the many issues that surround making the lessons succeed technologically . . . It is, therefore, easy for the instructional design of such curricula to be put on the side while we get technology issues under control. Faculty need to focus on learning theory in the design of instructional technology so that they can create lessons that are not only technology-effective, but that are meaningful from the learner's standpoint.

Although some faculty may disagree, using the principles of adult learning theory may help move faculty members closer to meeting the needs of the virtual student.

As noted by the National Center for Education Statistics (2002), internet-based learners span an age range from late adolescence to late adulthood. Approaching these learners from the standpoint of how adults learn, also known as andragogy (Knowles, 1992) can help bridge the gap between faculty-centered and learner-centered models of course delivery. Electronic pedagogy, according to Palloff and Pratt (1999), is promoting the use of best practices in the internet-based classroom. Heutagogy is focused more on the learner and a learner-centered educational process (Hase & Kenyon, 2000). It is self-directed learning. The concept of self-directed learning can be applied to both internet-

based classes and traditional classroom-based learning as students must be responsible for their own learning (Hase & Kenyon).

Application of Piaget's Theories

In his research on human development, Piaget (1924) theorized that intellectual adaptation (i.e., effects on the perception of student learning in an internet class versus a traditional classroom-based learning), requires a balance between assimilation and accommodation. Piaget suggested that assimilating actions are the result of the integration of internal cognitive organization and reflective abstraction and accommodating actions are the result of external adaptation and active involvement; both actions reflecting the dynamic nature of learning. Piaget proposed that prior to the achievement of mature cognitive development, a state of disequilibrium exists between assimilating and accommodating processes and after maturity is achieved, a stable equilibrium emerges.

Piaget (1977, p. 216) wrote:

> Psychological assimilation as well as biological assimilation is the transformation of the external world in such a way as to render it an integral part of oneself. In the case of intelligence, it is the integration of external objects to the schemata of subjective actions, fusing a preexisting schema and a new object.

Piaget described the objects of the external world as resistant to assimilation and that accommodation is a tendency of the organism to compensate for resistance of the object to assimilation by creating a new alternative, or tertium, between the application and non-application of the schema to a certain object. Assimilation and accommodation

are the two poles of the same activity of adaptation that characterizes any biological organism (1977, p. 216).

The relationship of internet-based classes to traditional classroom-based learning has its roots in Piaget's (1997) work on intellectual adaptation especially concerning the concepts of assimilation and accommodation.

Application of Carl Jung's Theories

Jung's research (1924) suggested that two classes of people exist: (a) extroverted and (b) introverted. His research significantly developed the idea of individualism, that is, people think and learn differently from one another, and hence the effect of internet-based classes versus traditional classroom-based learning on the perception of student learning is individual. People or students, specifically, think and learn differently from one another. Jung further differentiated the mind as capable of thinking, feeling, sensation, and possessing intuition. He further suggested that one or more of these might predominate in any given person (student) at any given time.

Jung (1940) has written that characteristics inherent to the individual take precedence over group influences. Thus, according to Jung, internet-based classes versus traditional classroom-based learning have an individual effect on students. However, while Jung believed in man's uniqueness and individuality, he resisted the notion that people cannot change or vary. He also wrote, consistent with his contemporary, Piaget, that accommodating and assimilating actions shape and mold people over time and circumstances. Consistent with Piaget's theory, the accommodating and assimilating actions of the effect of the perception of student learning in internet-based classes versus

traditional classroom-based learning appear to validate that students can change the effects on their learning if so desired.

Student Perceptions: Internet-based Setting versus Traditional, Classroom-based Setting

The concept of a site campus with face-to-face participation has evolved to an "individual remote participant" model (Benigno & Trentin, 2000, p. 134). To have an effective internet-based course, Hines & Pearl (2002) suggested that there are four levels of learner interactions to incorporate. These levels of interactions include: (a) interfaces with content; (b) instructors; (c) classmates; and (d) self. Students need "to be involved in the process of activities" (Benigno & Trentin, p. 136).

In a similar study in which traditional classroom-based and internet-based education participants were surveyed, Althaus (2004) examined the academic performance of students who had face-to-face discussions versus those who used on-line discussions such as Blackboard's Discussion Board. Althaus found that students who were involved in internet-based discussions created responses that were more thoughtful because they had more time to read and think about their responses compared to students in a traditional classroom-based setting. Althaus also found that the student in the internet-based class earned higher grades than that of the student in the traditional classroom-based learning (Christopher, Thomas, & Tallent-Runnels, 2004). However, there is a paucity of scientifically sound research regarding student perceptions of learning in an internet-based environment versus a more traditional classroom-based setting. The exploration to date indicates variation in the study results.

Traditional classroom-based education programs do not fit adequately into the schedules of adult learners. The use of an internet-based forum appeals as an alternative way to complete a degree (Kozlowski, 2002). According to Kearns, Shoaf, & Summey (2004), most students were satisfied with the flexibility of an internet-based education platform. The "convenience, flexibility, and course quality were the primary motivators for taking internet-based courses" (Kearns et al., 2004, p. 56). In addition, accessibility of content resources, the frequency, and timeliness of faculty feedback, and the use of innovative learning environments were other advantages over traditional classroom-based learning modalities. However, a majority of students said they would take another internet-based course.

Bocchi, Eastman, and Swift (2004) also found that flexibility was a key satisfaction indicator for internet-based learners. Bocchi et al. determined that curiosity, scheduling issues, and a strong desire to attempt internet-based courses were drivers of whether students sought to learn in a traditional classroom-based environment or in an internet-based environment. Leasure, Davis, & Thievon (2000) discovered that the traditional classroom-based learning afforded students the opportunity for direct interaction with decreased procrastination and immediate feedback fostering more meaningful learning experiences than that which is found in an internet-based forum. However, Leasure et al. also discovered that an internet-based forum afforded the student flexibility with various methods of communication, which increased student confidence. Buckley (2003) found that since "internet-based communications moves the ear to the

eye as the dominant form of language . . . this same processing contributed to feelings of isolation and interfered with collaborative learning processes" (p. 201)

Faculty Perceptions: Internet-based Setting versus Traditional Classroom-based Setting

Research by Leasure et al. (2000) indicated that key factors affect faculty perceptions of both experiences. Responding to student demand for internet-based learning environments requires faculty to venture into a nontraditional classroom-based learning. In spite of a willingness to try this style of teaching, multiple issues surface, which are not present in a traditional classroom-based setting. These issues are broadly included under the umbrella of a pedagogical paradigm shift.

The challenge for the college educator is that many students that are taking advantage of distance education are those with problems in the regular classroom. These problems may include behavioral as well as students in need of a more advanced curriculum. Teachers at the college level need to be adequately prepared for internet-based instruction and knowledgeable about their student population.

Faculty prepares internet-based curriculum prior to the launch of the class and this ensures a common thread runs through each of the lectures. These tasks place an extra burden on internet-based faculty, requiring advanced preparation, and planning than is necessary for the traditional classroom-based learning faculty. Faculty must adjust to the different nature and requirements of internet-based classes. Leonard Presby, a professor at William Paterson University, explained, "Faculty members are often surprised at how much extra time is involved when they first teach an internet-based course" (Sakurai, 2004, p. 106). It is a common expectation that internet-based faculty will be available to

respond to students' questions five to seven days a week. Some institutions offering internet-based classes expect faculty to be prompt in responding to students' questions, often within 24 hours. Presby estimated that the time an internet-based instructor must spend in contact with students is about double that of the traditional classroom-based learning (Sakurai, p. 107).

Internet-based learning environments require the instructor to facilitate extensive written communications. While the hours are long involve posting and responding to threaded questions, evaluating student work and answering concerns and questions, the upside is "the learning appears more profound as the discussions seemed both broader and wider" (Smith, Ferguson, & Caris, 2002, p. 67). Further, internet-based communications forces the voicing of all the students whereas in a traditional classroom-based learning, learners may not contribute to discussions. In an internet-based classroom, students cannot verbally participate, as there is a requirement to post meaningful contributions for all to see in each class and share scholarly materials. Shifting to the role of facilitator requires faculty to reconsider the presentation of the materials. In a face-to-face class, students wait for the instructor to start class, hand out syllabi, and follow the instructor's lead. Smith et al. noted, "In internet-based instruction, the student initiates the action by going to the website, posting a message or doing something" (p. 101). Additionally, due to anonymity, students may feel certain equality with faculty while posting messages. Faculty, however, enjoy the dynamics when proper communication takes place. Internet-based faculty must think about how material is presented because eye-to-eye contact is absent. Teaching moves instructors from the

traditional classroom-based role of in front of the room, "on stage" (Ryan, Carlton, & Ali, 2004, p. 123) to a facilitation role, where an instructor cannot check body language to scan learner concern or understanding. Smith et al. found that to break "pieces of the information into small parts and sequence each part in such a way as to make sense to someone who is reading the information internet-based, helped instructors to feel the internet-based experience provided worthwhile challenges" (p. 139). Once the initial challenges of a paradigm shift are overcome, faculty report that teaching internet-based is an "intellectually challenging forum which elicits deeper thinking on the part of the students," and "has some definite advantages that may make . . . the work worth the effort" (Smith et al., p. 140).

Guilford's Structure-of-Intellect Model

Because this dissertation studied the user perspective of the effectiveness of the perception of student learning in internet-based classes versus traditional classroom-based learning, various classifications of intelligence were examined. In 1967, Guilford developed a theory wherein he described various classifications. The theory is based on a multi-factorial analysis of intelligence (operation, product, and content). Most relevant and pertinent to this dissertation, were his references to assimilation, accommodation, and discussion of divergent and convergent thinking styles. Assimilation, as Guilford described it, is to incorporate new elements into existing structures of knowledge (incorporating food into the body as a metaphor). The new elements are "worked over" before full assimilation is realized. Accommodation refers to modifying an already existing structure to adapt to new elements. In other words, the existing structure (the

student) is modified, but new elements are not changed because of the accommodation process. Divergent thought processing is a concept that pertains primarily to information retrieval and requires students to produce their own answers and not choose from potential answers presented to them. This particular process is much more suitable to internet-based learning due to the fact it is much more self-taught and self-thinking. This thought process is marked by flexibility, originality, versatility and elaboration. Guilford (1981) asserted at the time that he believed these thought processes are outside the domain of standardized intelligence tests. Convergent thinking is marked by the use of logical deduction to a unique answer which appears to more comparable to a traditional classroom-based environment since in the regular classroom, the teacher lectures on a theory and the students give an answer based on what they've just been taught. In contrast to divergent production, input information for convergent thinking is adequate to determine a distinct answer that is more pertinent to internet-based classes since internet classes requires thoughtful, probing answers and thought-provoking responses to other students.

Student Side of Internet-based and Traditional classroom-based Learning Communities

Wenger (1999) states that:

> Issues of education should be addressed first and foremost in terms of identities and modes of belonging, meaning that it is the social aspects of education and the students' need to belong to a group that are the most important aspects" (p. 59). Wenger believed that after these important issues are addressed in an educational setting, the instructor can then turn to transfer of skills and information. This fact

appears to be true in any learning community – internet-based or traditional classroom-based (p. 60).

The value of education, according to Wenger, was in social participation and the active involvement in community (p. 61). Social identity drives learning. Learning communities today, internet-based or classroom-based, are formed around issues of identity and shared values (Palloff & Pratt, 1999).

The Constructivist Learning Theory

Constructivists believe that real learning can only occur when the learner or student is actively engaged in operating, or mentally processing incoming stimuli, unconsciously or consciously. Therefore, the Constructivists' theory seems to be in support of internet-based learning because internet classes require more mental stimulation in an unconscious manner than do traditional classroom-based learning. As a theory for epistemology, constructivism plays a central role in cognitive science, a role akin to that of causality for the physical sciences (University of Massachusetts, 2005). Constructivism is also an alternative epistemology of how people learn and assimilate new knowledge. Humans are active, knowledge-searching creatures that transfer and interpret experience using developed biological and mental structures (Gold, 2005). They assimilate new knowledge by producing cognitive structures that are similar to the experiences they are engaged in. They then accommodate themselves to these newly developed knowledge structures and use them within their collection of experiences as they continue to interact with the environment (Black & McClintock, 1996). Constructivism is less content-oriented and more learner-centered; the designer goal is to create information object rich and socially meaningful (i.e., communication and

collaboration filled) learning environment. Additionally, Constructivism provides no specific answers, but frames the questions and the acceptable answers. These statements, too, align themselves more with internet learning because in most cases, there are no correct or incorrect answers in discussion board learning on the internet, but rather opinions, thoughts and responses.

The constructs according to the Constructivists' philosophy are:

1. Knowledge is constructed – not transmitted.
2. Prior knowledge affects the learning process.
3. Initial understanding is local and not global.
4. Building useful knowledge structures requires effortful and purposeful activity (University of Massachusetts, 2005).

The following statement made by Jean Piaget seems to succinctly sum up the constructionist learning theory: "To present an adequate notion of learning one must first explain how the individual manages to construct and invent, not merely how he repeats and copies." (Time 100, 2006, p. 15)

Culture, Gender, Lifestyle and Geography Issues for Internet-based and Traditional Classroom-based Students

Cultural Issues

The use and expanded application of the internet in learning has increased the educational techniques, projects and assignments available as learning devices for students. Students in remote parts of the country and world can be reached as well as underserved populations. The diversity of learning styles and the tempo and pace at

which students learn can be broken down as well as eliminate the barriers of time and space and give access to students who speak different languages (Joo, 1999).

However, according to Joo (1999), some cultural issues may emerge in an internet-based class such as:

1. Some content may be sensitive, in some contexts, particularly subjects such as political science, history, and religion. Material that may be considered politically correct in Western culture could be deemed offensive in another culture.
2. Although graphic material can help bring some courses alive, it is imperative to be careful when incorporating graphic material, audio, and video in order to ensure that the material does not reinforce cultural stereotypes.
3. Some students may be uncomfortable with the informal language that is used in an internet-based class. In addition, submitting assignments in English may pose significant problems for non-native English speakers taking a course from an American institution; they lack strong written English skills.
4. Translated texts may be obscure or the translations may not be accurate.
5. Access to and reading of internet class websites may be problematic for some non-native English speakers. For example, Arab language speakers generally read from right to left rather than left to right as English speakers do.

6. In some cultures, it is considered extremely rude for students to question instructors thus some students may be afraid to ask questions that are valid and useful.

From a cultural perspective, it is imperative that internet-based instructors as well as traditional classroom-based instructors be aware of these important issues on the effect on the perception of student learning.

Gender Issues

Shapiro (1997) writes in his studies that internet-based learning is more "equal" and that women and other marginalized groups are able to participate and complete thoughts, (i.e., blur barriers; p. 41). However, Herring (1994) writes that internet-based interaction and the effect on the perception of student learning is merely a reflection of real-world conversations where men typically dominate. Herring's observations by noting that even though computer-networking systems obscure physical characteristics, many women find that gender follows them into the internet-based community and sets a tone for their public and private there. In other words, stereotypical behavior continues in the internet-based community.

Since the gender issue is of significance on the effects of the perception of student learning, an instructor may use the following techniques to eliminate the gender problem in both the internet-based classroom and the traditional classroom-based learning:

1. Rotate facilitation among students so that all voices are heard.
2. Rotate leadership of small, collaborative groups.

3. Incorporate collaborative assignments, which support women's needs for group work and support.
4. Confront inappropriate use of language or any behavior that is not seen as promoting equity.
5. Hold all students responsible for completing assignments.
6. Call on students who are not participating by reaching out to them to determine what is interfering with their participation or asking them directly for their ideas on a topic.

Lifestyle Issues

Included in lifestyle issues are literacy and physical and mental disabilities. Palloff & Pratt (2003) believe it is imperative those students, whether in a traditional classroom-based or internet-based classroom learning community, must have their needs concerning literacy and disability properly handled or the students' frustration level will build up and they will simply drop out (p. 14). Some suggestions for handling these issues in the classroom are as follows:

1. Encourage students to check internet postings offline before making a permanent posting. In the traditional classroom-based learning, encourage students to have a "second reader" to look at their work to ensure accuracy and completeness.
2. Keep course design simple in both internet and traditional classroom-based learning.
3. Students, along with their advisors, should ensure they will not be overwhelmed with too many classes and too much work.

4. In internet classes, use Bobby Worldwide to check for compliance to the American with Disabilities Act (ADA) (Palloff & Pratt, 2003).

Geographical Issues

Issues of geography, for both traditional classroom-based and internet-based classes, can support or interfere with a student's ability to attend classes. For a traditional classroom-based learning student, the geographical issues are obvious. If there is no school with a certain mile radius and they live at home, commuting becomes an issue. Correspondingly, if a student is commuting, it is probably because the student or student's family cannot afford for them to live on campus with all the additional expenses. Additionally, for internet students, the inability to receive adequate internet service is a deterrent. Thus, it is imperative when studying the effects on the perception of student learning, to keep the "geographically challenged" student in mind as well as the sacrifices they may be making to attend school in either a traditional classroom-based sense or an internet class.

Need for Additional Research: Unanswered Questions

What are the learning styles for traditional classroom-based students and internet-based learning students and do they differ? If so, in what ways are they different? Understanding the learning characteristics of both internet-based learners and traditional classroom-based learners may lead to a better appreciation of the effects on the perception of student learning and be valuable for curriculum and instruction planning in both the internet-based and traditional classroom-based mediums. Additional study needs to address this question in consideration of other variables such as students' age, cultural background, and physical ability. It is imperative to understand the effects of these

variables as well as how the users recognize the effects of internet-based classes and traditional classroom-based learning on the perception of student learning.

Many educators believed that prior research has tended to emphasize student outcomes for individual courses rather than for a total academic program. An area that needs attention is the lack of studies dedicated to measuring the effectiveness of total academic programs taught using internet-based learning compared to traditional classroom-based instruction. Virtually all the comparisons or studies in the past focus simply on individual courses rather than total academic programs. Academic programs taught in the traditional classroom-based manner measure a summary of outcomes, certain cognitive skills and verbal, quantitative, subject matter competence, critical thinking and psychosocial changes such as self-esteem, development of attitudes and values, moral development and career choice and development. Can internet-based learning provide these same attributes? The answer remains to be seen.

Kassop (2003) enumerated 10 distinct ways that internet-based education excels. They are: (a) student-centered learning; (b) writing intensity; (c) highly interactive discussions; (d) geared to lifelong learning; (e) enriched course materials; (f) on-demand interaction and support services; (g) immediate feedback; (h) flexibility; (i) an intimate community of learners; and (j) faculty development and rejuvenation.

Although these attributes can be said to excel in internet-based learning, they also can be applied to traditional classroom-based learning in a very collaborative learning environment. Kassop (2003) also does concede that internet-based education can be done well, but is not necessarily, so at all institutions and that traditional classroom-based education can be done well also.

Summary of Literature Review

Jung (1924), Piaget (1924), and Guilford (1981) wrote extensively on the topic of the theoretical framework for the psychology of learning that can be applied in the traditional classroom-based learning and the virtual classroom. While all support the concept of individuation or individualization, they did differ on their opinions of classification and nomenclatures. Jung identified extroversion and introversion as two basic human types and emphasized the concept of individuation, while Piaget theorized that people learn through processes of assimilation and accommodation. Guilford identified diverging and converging processes used by both traditional classroom-based and internet learners. These studies provided the foundation for later work on experiential learning.

Additionally, the Constructivist theory supports that real learning can only occur when the learner or student is actively engaged in operating, or mentally processing incoming stimuli, unconsciously or consciously. Therefore, the Constructivists' theory seems to be in support of internet-based learning because internet classes require more individual mental stimulation and self-discipline than do traditional classroom-based learning wherein the teacher "does the work" by lecturing throughout the class.

The issues of gender, culture, lifestyle and geography have also been researched and through the examination and survey of user satisfaction with internet-based learning compared to traditional classroom-based learning on the perception of student learning.

Again, it is essential to note that, despite the large volume of written material concentrating on internet-based learning, there is a relative scarcity of true, original research dedicated to explaining or predicting phenomena related to internet-based

learning, particularly in the area of examining and surveying the user satisfaction with internet-based classes compared to traditional classroom-based learning.

Internet-based education has a place in our educational setting, but further research and study is required to ensure this exciting enhancement to our educational environment.

Chapter 3: Methodology

In Chapter 2, the literature was thoroughly reviewed and from this review, the researcher determined a need for this particular study. Chapter 3 overviews the reasoning of using a sample survey of intangibles for the study, the general perspective, the research context, the research participants, the instruments used in data collection, procedures used, data analysis and a summary of the methodology. It should be noted that the study made no attempt to examine the effects of the content on the reader. Instead, it was to contribute to the body of knowledge concerned with the users of internet-based learning and traditional classroom-based learning which met the criteria of the study.

Because of the type of survey initiated in this study, the researcher determined that a sample survey of intangibles would provide the most valid and useful information. However, a sample survey of intangibles can provide a most challenging type of survey (Ary et al., 2006). This type of survey seeks to not only measure attitudes, opinions, values, or other psychological and sociological constructs, but also the skills involved in identifying or constructing appropriate measures and employing the scores on these measures to make meaningful statements about the constructs involved (Ary et al., 2006). Surveys of intangibles are limited by the fact that the data collected is only indirectly measuring the variables with which they are concerned. However, since the seriousness of this limitation depends on how well the survey measures the intangible variable, this study reduced this limitation by a thorough review and measurement process by the researcher.

In this study, it was important to stress that, despite the large volume of written material concentrating on internet-based learning, there is a relative paucity of true, original research dedicated to explaining or predicting phenomena related to internet-based learning. From this limited group of original research, three broad measures of the effectiveness of distance education were usually examined. These included (a) student outcomes, such as grades and test scores; (b) student attitudes about learning through distance education; and (c) overall student satisfaction toward internet-based learning.

However, there were key shortcomings to this research such as the fact that studies did not use randomly selected subjects. Moreover, validity and reliability of the measurements were questionable and there was no control of the "reactive effects" (a number of factors associated with the way in which a study is conducted and the feelings and attitudes of the students involved; Gold, 2005). This dissertation took into account these key shortcomings.

Basic guidelines were used to formulate good questions. The guidelines are as follows:

1. Questions were relatively short, simple and direct.
2. Questions were phrased so that every respondent could understand them.
3. Questions were phrased to elicit unambiguous answers.
4. Questions were phrased to avoid bias that may have predetermined a respondent's answer.
5. Questions were avoided that might be misleading because of unstated assumptions.
6. Leading questions, which imply a desired response, were avoided.

7. Questions that could elicit embarrassment, suspicion or hostility in the respondent were avoided.
8. "Doubled-barreled" questions that attempted to ask two questions in one were avoided.
9. Alternatives to each questionnaire item were exhaustive.
10. The questionnaire was kept brief and easy to complete.
11. The respondents were given the information necessary to answer the questions (Ary et al., 2006).

The format of the research questions was open-ended, with the exception of Research Question 1 on the SurveyMonkey internet site, because there were a great number of possible answers and the researcher could not predict all the possible answers. Research Question 1 on the SurveyMonkey website was closed-ended because the possible responses were limited to *strongly agree, agree, no opinion, disagree*, and *strongly disagree*, however, it was a requirement for the respondent to make a comment regarding their answer to Research Question 1.

The General Perspective

The methodology for answering the research questions of this sample survey of intangibles began with the planning stage. Survey research begins with a question that the researcher believes can be answered most appropriately by means of the survey method (Ary, et al., 2006). In this case, the researcher determined the sample survey of intangibles was the most appropriate survey method for this study.

The second step in the study was to define the population. Because the researcher is a faculty member at a large, Midwestern University, the population at the University

was selected because access to information was more easily obtainable. Additionally, the large, Midwestern University is committed to excellence in internet-based learning and traditional classroom-based learning (University 2007-08 Strategic Plan, 2007).

The third step in this research was to select a sample representative of the population. The 720 students from the large, Midwestern University were randomly (arbitrarily picked by numbering all sections of the class and drawing the numbers out) selected from the internet-based classes and the traditional classroom-based learning of Educational Psychology in order to achieve a high-quality mix. The 720 students were all enrolled in the "Educational Psychology" class offered at the University, a class that is required for Education majors and an elective for many other academic programs. Other research participants were faculty who had taught or were currently teaching internet-based and traditional classroom-based classes at the University, University internet-based learning administration and technology management as well as students who matched the qualifications of taking at least one internet-based course and one traditional classroom-based course during the Fall 2007 semester.

The fourth step was constructing the instrument. Since users' opinions were sought, the researcher determined the sample survey of intangibles was the instrument to be used. The researcher conferred with 15 other faculty members with whom the researcher has not worked with prior to this study, regarding whether the four research questions were valid and appropriate for the intended use of the survey. The faculty members were from three different departments within the large, Midwestern University: (a) Business Department; (b) Education Department; and (c) Health Sciences Department. All 15 faculty members independently agreed that the research questions

were understandable, concise, easy to read and valid for this study's purpose. Additionally, seven former internet-based students from the large, Midwestern University were asked to review the research questions. They, too, all agreed that the research questions were understandable, concise, easy to read and valid for this study's purpose.

The fifth step was conducting the survey. The 720 internet-based and traditional classroom-based, randomly selected students in the School of Education at a large university located in the Midwest, completed the Student Course Evaluation Responses to the research questions in this study. Since the 720 students completed these questions during their Student Course Evaluations and had the questions on a separate sheet that was collected separately from the course evaluations anonymity was preserved since there was no student identification. The survey instructions contained clear information regarding the project, assurance that participation was voluntary, and who to contact with any questions. The subject's turning in of the survey itself demonstrated implicit consent (Southeastern Private University, 2007).

The 720 internet-based and traditional classroom-based students completed the Student Course Evaluation Responses to the research questions in this study in order to gain a user perspective. Invitations were also sent using SurveyMonkey to faculty who were currently teaching internet-based and traditional classroom-based learning at the University, University internet-based learning administration and technology management. In addition, invitations were sent to students who matched the qualifications of taking at least one internet course and one traditional classroom-based course during the Fall 2007 semester to gain a user perspective from different sources. Due to the nature of the Student Course Evaluation Responses, data was also collected

such as gender, age, academic major, semester and grade point average. The e-mailed invitations included questions regarding data such as age and gender. Results also include age and gender statistics.

Additionally, invitations were sent using the web survey creator to former college faculty who had taught internet-based and traditional classroom-based learning. Invitations were also sent to the researcher's doctoral classmates at the Southeastern Private University.

Secondary questions of importance related to (a) gender; (b) age; (c) convenience; (d) family commitments; (e) commuting distance; (f) cost; and (g) spiritual background were also examined in this survey study.

Research Context

Data collection (part of the sixth step of survey research) was completed during the latter part of the Fall semester of 2007, taking place at a large, public University located in the Midwestern United States. The University serves an undergraduate and graduate population of students in the arts and sciences in addition to professional programs. The large University located in the Midwest researched in this dissertation was established in 1830, with a 2007-2008 school year enrollment as of September, 2007, of 99,100 students with 69,276 registered as full-time; 21,260 participating in full-time, distance-learning programs (University 2007-08 Strategic Plan, 2007). Student population continues to grow with their eight satellite campuses located in different areas throughout the state. The University attracts students from more than 90 different countries (21% are of international ethnicity) and serves multiple age groups (University, 2007). The university is accredited by the North Central Association of Colleges and

Schools, Higher Learning Commission and continues to aggressively market its internet-based learning program in a robust manner as well as incorporate their internet-based learning best practices. Those best practices include the following:

1. Best practice encourages student-faculty contact.
2. Best practice encourages cooperation among students.
3. Best practice encourages active learning.
4. Best practice gives prompt feedback.
5. Best practice emphasizes time on task.
6. Best practice communicates high expectations.
7. Best practice respects diverse talents and ways of learning.

The University is also accredited by many other agencies such as NCATE, AACBS, and ACBSP, which added to their credibility as an outstanding educational institution.

Research Participants

Undergraduate students from the School of Education comprised the 720 students that were asked the research questions in their Student Course Evaluation Responses. The 720 students were all enrolled in the "Educational Psychology" class offered at the university, a class that is required for Education majors and an elective for many other academic programs. The 720 students were randomly selected from the internet-based classes and the traditional classroom-based learning of Educational Psychology in order to achieve a high-quality mix.

Other research participants were faculty who have taught or were currently teaching internet-based and traditional classroom-based classes at the University,

University internet-based learning administration and technology management as well as students who match the qualifications of taking at least one internet course and one traditional classroom-based course during the Fall 2007 semester.

Instruments and Procedures Used in Data Collection

Applications to both the university located in the Midwest and the Southeastern Private University Institutional Review Board (IRB) for an expedited review were made and approved on October 12, 2007 and October 18, 2007 respectively. Appropriate personnel at both universities as well as the Dissertation Chair and the researcher hold copies of the IRB's.

The methodology for answering the research questions of this study as well as the survey of the relationship of internet-based classes to traditional classroom-based classes from the users began with the validation of the research questions. Subjects are more inclined to respond to questions they perceive to be relevant and meaningful than to questions whose purpose they do not comprehend (Ary et al., 2006). The researcher conferred with 15 other faculty members with whom the researcher has not worked with prior to this study regarding whether the four research questions were valid and appropriate for the intended use of the survey. The faculty members were from three different departments within the large, Midwestern University: (a) Business Department; (b) Education Department; and (c) Health Sciences Department. All 15 faculty members independently agreed that the research questions were understandable, concise, easy to read and valid for this study's purpose. Additionally, seven former internet-based students from the large, Midwestern University were asked to review the research

questions. They, too, all independently agreed that the research questions were understandable, concise, easy to read and valid for this study's purpose.

After the validity of the research questions was confirmed, the 720 students completed the Student Course Evaluation Responses to the research questions contained in this dissertation:

1. Is technology-assisted internet-based learning perceived as effective as traditional classroom-based learning?
2. What are the characteristics of effective internet-based learning students and teachers compared to the characteristics of effective traditional classroom-based students and teachers?
3. How important is teacher-student and student-student interaction in the internet-based learning process compared to the traditional classroom-based learning and in what form(s) can this interaction most effectively take place?
4. What cost and benefit factors should be contemplated when choosing an internet-based learning environment or a classroom-based environment for higher education? How are these costs offset by benefits to the learners?

Additionally, invitations were sent using a survey method to faculty who have taught or were currently teaching internet-based and traditional classroom-based learning at the University, University internet-based learning administration and technology management as well as students who match the qualifications of taking at least one internet course and one traditional classroom-based course during the Fall 2007 semester.

Since the 720 students completed these questions at the end of their course and since the questions were on a separate sheet that was collected separately from the course evaluations, anonymity was preserved since there was no student identification. Since the survey instructions contained clear information regarding the project, assurance that participation is voluntary, and who to contact with any questions, then the subject's turning in of the survey itself demonstrated implicit consent (Southeastern Private University, 2007).

The research was used to gather an adequate sample survey of intangibles from a large University located in the Midwest from internet-based classes and traditional classroom-based learning. Data was collected and stored in secure internet-based files for electronic data and a fireproof file cabinet for any paper data. Data was stored electronically on password protected flash drives, by research question and was coded very quickly after receipt, so subjects could not be identified directly or indirectly through identifiers. Anonymity was imperative in order to not conflict with state and/or federal laws and regulations. Additionally, other data (gender, academic major, semester and grade point average) were numbered and separated.

SurveyMonkey was used with the reasoning that e-mailing invitations to people to take the survey was that a link was created to the survey thereby again preserving anonymity when someone responded to the research questions rather than receiving a return e-mail response which may identify the respondents. As this information was being gathered and used by the researcher, no discussion or divulging of the information gathered was done where the anonymity of the respondents' was compromised in any form. Moreover, as indicated previously, the use of a survey system allowed the

gathering of information to be done in an efficient and anonymous manner as well. All subjects were over the age of 18 and able to make competent decisions regarding participation in the dissertation study. However, as noted above, anonymity of the students, faculty and others was guaranteed.

Data Analysis

Because this study was a survey sample of intangibles, the following methodologies were used:

1. Planning. Survey research began with questions that the researcher believed could be answered most appropriately by means of the survey method.
2. Defining the population. One of the first steps taken in this research study was to define the population to be surveyed. In this study, Student Course Evaluation Responses from the 720 internet-based and traditional classroom-based students as well as the e-mail questionnaire responses from the other additional participants were used as the sampling frame.
3. Sampling. Because the researcher could not survey the entire Midwestern University, a sample was selected from a highly populated class that was representative of the users of internet-based and traditional classroom-based learning. Additionally, SurveyMonkey invitations were sent to a group of subjects that would yield a representative sample of other types of users.
4. Constructing the instrument. The researcher conferred with 15 other faculty members with whom the researcher has not worked with prior to

this study regarding whether the four research questions were valid and appropriate for the intended use of the survey. The faculty members were from three different departments within the large, Midwestern University: (a) Business Department; (b) Education Department; and (c) Health Sciences Department. All 15 faculty members independently agreed that the research questions were understandable, concise, easy to read and valid for this study's purpose. Additionally, seven former internet-based students from the large, Midwestern University were asked to review the research questions. They, too, all independently agreed that the research questions were understandable, concise, easy to read and valid for this study's purpose.

The validated research questions were open-ended, with the exception of Research Question Number 1, as there were a great number of possible answers that could not be predicted. Research Question Number 1 was a closed-ended question as all the possible, relevant responses to a question were specified, and the number of possible responses was limited.

5. Conducting the survey.
6. Processing the data.

The analysis was based upon a codebook developed by the researcher employing a process adapted from Weston et al. (2001) and Fereday and Muir-Chochrane (2006). This approach was undertaken as part of the interpretive processes to extend and clarify peoples' understanding of the issue and identify priorities for action (Stringer, 2004).

Special attention was given to the validity of the survey to ensure that the survey had face validity. In other words, it appeared valid for its intended purpose. The methodology for answering the research questions of this study as well as the survey of the relationship of internet-based classes to traditional classroom-based classes from the users began with the validation of the research questions. Subjects are more inclined to respond to questions they perceive to be relevant and meaningful than to questions whose purpose they do not comprehend (Ary et al., 2006). The researcher conferred with 15 other faculty members with whom the researcher has not worked with prior to this study regarding whether the four research questions were valid and appropriate for the intended use of the survey. The faculty members were from three different departments within the large, Midwestern University: (a) Business Department; (b) Education Department; and (c) Health Sciences Department. All 15 faculty members independently agreed that the research questions were understandable, concise, easy to read and valid for this study's purpose. Additionally, seven former internet-based students from the large, Midwestern University were asked to review the research questions. They, too, all independently agreed that the research questions were understandable, concise, easy to read and valid for this study's purpose.

Two important variables influenced the validity of this survey. First, how important was the topic to the respondent? Second, did the survey protect the respondents' anonymity? In this survey, the topic was of great interest to all the respondents because of their involvement in the internet-based learning program. Secondly, anonymity was guaranteed using an anonymous internet survey site.

Trustworthiness is a demonstration that the researcher's interpretations of the data are credible, or 'ring true,' to those who provided the data (Herr & Anderson, 2005). This was accomplished through continued review by the researcher, dissertation committee chair, dissertation committee and other researchers.

Credibility in survey research concerns the truthfulness of a survey's findings. Credibility or truth-value in this research involved how well this researcher has established confidence in the findings based on the research design, participants and context. Hammersley (1992) noted that "an account is valid or true if it represents accurately those features of the phenomena that it is intended to describe, explain, or theorize" (p. 61). Krefting (1991) suggested that a survey study is considered credible when it "presents such accurate descriptions or interpretations of human experience that people who also share that experience would immediately recognize the description" (p. 124). This research accomplished its credibility or internal validity by the use of consensus, referential or interpretive adequacy, theoretical adequacy and control of bias.

Dependability seeks to ensure that research procedures are adequate for the purposes of the study (Stringer, 2004). This was addressed in this research by providing an audit trail of documents chronicling the data, actions, decisions, and interpretations, using code-recode procedures in which coding of data was checked for consistency and corroboration seeking multiple data sources or multiple methods [which] result in similar findings (Ary et al., 2006).

The final validity concern in this study was confirmability. Confirmability was achieved through an audit trail in which documents, the Student Course Evaluation

Responses and the internet survey findings from the beginning of the process to the ending procedures were chronicled.

Summary of the Methodology

The methodology for conducting this survey followed the six steps involved in survey research: (a) planning; (b) defining the population; (c) sampling; (d) constructing the instrument; (e) conducting the survey; and (f) processing the data. The survey research questions were open-ended, with the exception of Research Question Number 1, as there were a great number of possible answers that could not be predicted. Research Question Number 1 was a closed-ended question as all the possible, relevant responses to a question were specified, and the number of possible responses was limited.

The researcher used the type of validity evidence for sample survey of intangibles that was based on content of the research questions. The evidence was gathered by having competent, knowledgeable colleagues and users examine the items to judge whether the questions were appropriate for measuring what they were suppose to measure and whether they were a representative sample of the behavior domain under investigation (Ary et al., 2006). The evidence assured face validity for this study.

The 720 students completed the Student Course Evaluation Responses to the research questions in this study. Since the 720 students completed these questions at the end of their course evaluations and the questions were on a separate sheet that were collected separately from the course evaluations preserved anonymity since there is no student identification. If the survey instructions contained clear information regarding the project, assurance that participation is voluntary, and who to contact with any questions,

then the subject's turning in of the survey itself demonstrated implicit consent (Southeastern Private University, 2007).

This research contained Student Course Evaluation Responses to the research questions as well as additional electronic questionnaires as required to make an adequate comparison at a large University located in the Midwest from internet-based classes and traditional classroom-based learning. Data was collected and stored in secure internet-based files for electronic data and a fireproof file cabinet for any paper data. Data was stored electronically on password protected flash drives, by research question and was coded very quickly after receipt so subjects could not be identified directly or indirectly through identifiers. Anonymity was imperative in order to not conflict with state and/or federal laws and regulations.

Additionally, invitations were sent using SurveyMonkey to faculty who have taught or were currently teaching internet-based and traditional classroom-based learning at the University, University internet-based learning administration and technology management as well as students who matched the qualifications of taking at least one internet course and one traditional classroom-based course during the Fall 2007 semester. The reasoning for using an internet survey method when e-mailing invitations to people to take the survey was that a link was created to the survey thereby again preserving anonymity when someone responds to the research questions rather than receiving a return e-mail response that identifies the respondents. As this information was being gathered and used for this dissertation, no discussion or divulging of the information gathered was done where the anonymity of the respondents' may be compromised. In addition, as indicated previously, the use of the internet survey creator allowed the

gathering of information to be done in an efficient and anonymous manner as well. All subjects were over the age of 18 and able to make competent decisions regarding participation in the dissertation study. However, as noted above, anonymity of the students was guaranteed.

The large University located in the Midwest researched in this dissertation was established in 1830, with a 2007-2008 school year enrollment as of September, 2007, of 99,100 students with 69,276 registered as full-time; 21,260 participating in full-time, distance-learning programs (University 2007-08 Strategic Plan, 2007). The university attracts students from more than 90 different countries (21% are of international ethnicity) and serves multiple age groups (University, 2007). The university is accredited by the North Central Association of Colleges and Schools, Higher Learning Commission and continues to aggressively market its internet-based learning program in a robust manner. It is also accredited by many other accrediting agencies such as NCATE, AACBS, and ACBSP.

Chapter 4: Results

Examining and surveying user satisfaction with internet-based classes compared to traditional classroom-based learning on the perception on student learning was accomplished by collecting data from multiple perspectives: (a) examination and user survey of effectiveness of technology-assisted internet-based learning to traditional classroom-based learning; (b) examination and survey of the characteristics of effective internet-based learning students and teachers to traditional classroom-based students and teachers; (c) examination and user survey of the importance of teacher-student and student-student interaction in the internet-based education process to the traditional classroom-based learning and analyzing in what form(s) this interaction most effectively takes place; and (d) examination and contemplation of cost and benefit factors when choosing an internet-based learning environment or a classroom-based environment for higher education and the costs offset through benefits to the learners. Results of this study also provided other data such as the ages of the respondents as well as their gender.

The results chapter was organized in terms of the four specific research questions listed above as well as the results of the gender and age statistics. The data was organized efficiently and logically for easier analysis purposes (Schilling, 2006).

The conducting of the survey began with 720 randomly selected, internet-based and traditional classroom-based students in the School of Education at a large university located in the Midwest. The 720 undergraduate students completed the Student Course Evaluation Responses to the research questions in this study. The Student Course Evaluation Responses were completed on December 7, 2007. Survey invitations were

also e-mailed to faculty who have taught or were currently teaching internet-based and traditional classroom-based learning at the university, university internet-based learning administration and technology management as well as students who matched the qualifications of taking at least one internet course and one traditional classroom-based course during the Fall 2007 semester. The internet survey was completed over the period of December 10, 2007 through January 15, 2008 for a sample total of 1,001. A total of 805 participants (720 University students and 85 internet surveys) responded for a response rate of 80.4%.

Once the Student Course Evaluation data was received, it was immediately and quickly coded so subjects could not be identified directly or indirectly. Additionally, the SurveyMonkey data was also immediately coded after the January 15, 2008 survey deadline. Data was stored electronically on password protected flash drives by research question. There was no conflict with state and/or federal laws and regulations arising from a breach of anonymity.

Analysis

Research Question 1

Research Question 1, "Is technology-assisted internet-based learning perceived as effective as traditional classroom-based learning?" provided the following data (n = 805): (a) *strongly agree* – 32.3%; (b) *agree* - 42.1%; (c) *no opinion* – 1.2%; (d) *disagree* – 22.1%; (e) *strongly disagree* – 2.3%.

As the statistics indicate, 74.4% of the 805 responses strongly agreed or agreed that internet-based learning is just as effective as traditional classroom-based learning.

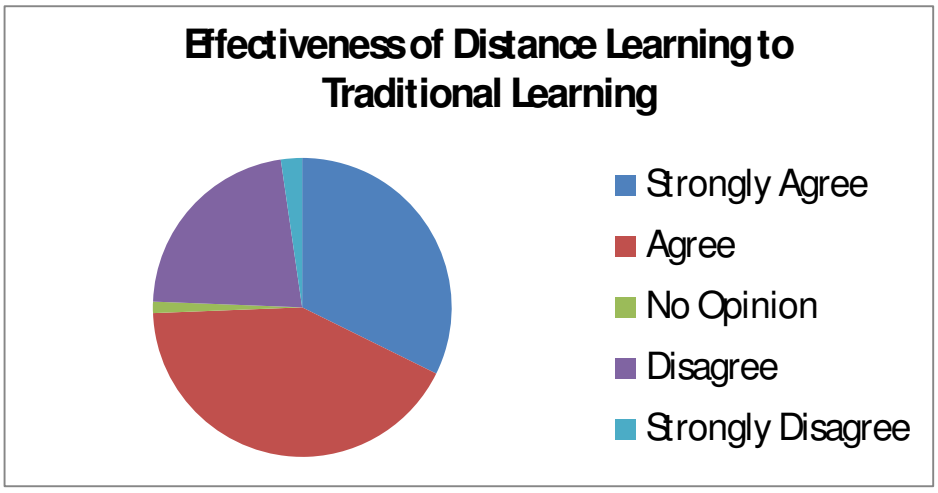

Figure 1. Distribution of Opinions Regarding Effectiveness of internet-based Learning

The themes that resonated and emerged among the comments on this question were: (a) geographical issues, (b) gender issues, (c) lifestyle issues, and (d) cultural issues. Of the 805 responses, the ranking of these four issues was determined by the number of times the issue was discussed or mentioned in the response. The breakdown of discussion was as follows: (a) geographical issues or concerns – 271 responses; (b) gender issues or concerns – 162 responses; (c) lifestyle issues or concerns – 87 responses; and (d) cultural issues or concerns – 69 responses. These four topics represented 73.2% or 589 comments from the total 805 responses.

In this study, the observations provided an exceptional measure of the intangible variable due to the four research questions and what they asked. Additionally, over 80% of the respondents participated which is an extremely high survey rate. As such, following are comments made in the data collection that were inferred from the questionnaires although the opinion was not directly observable:

Geographical issues

1. “Great way to go especially for those of us who went back to school due to loss of job after several years in changing world. I do not have to leave home to get my education.”
2. “I like going away to college and being on my own. Traditional learning is the best for me.”
3. “Traditional learning and moving away from home is a maturing experience that everyone should try if they are able to do so.”
4. “The bomb! Sleep in and stay in my boxers and go to class on my computer - that is living”!
5. “It is hot and people are going for it - both the older adults and younger kids due to convenience. This is especially true if you are supporting yourself and financing your education for that degree so much needed in today's world.”
6. “All my life I wanted to go back to school and when I was messing about on my computer I read about internet-based schools that were accredited and guess what I am ready to graduate!”
7. “I am a single mother and internet based learning is helping me to better myself and support my child”.
8. “Although I miss my family, the experience of living in a different part of the country has been phenomenal. I am also planning to study one semester overseas. Internet learning doesn’t give you that opportunity.”

9. “The closest ‘brick and mortar’ school is 210 miles away. Now I can take classes in the comfort of my own home and become the educated person I’ve always wanted to be. Thank goodness for internet-based learning!”
10. “Everyone needs to experience living away from home and experiencing the true college life if they can afford it. Traditional classroom-based learning are just one way that you can develop friends, become involved in the university and be a part of the entire learning community which you can’t do in internet learning. College is not at all like the movie Animal House and John Belushi and friends.”

Gender issues

1. “I believe that any gender barriers are completely blurred in an internet-based environment.”
2. “In my experience in internet classes, the teachers have done a good job of rotating facilitation among all students so that all voices, men and women, are heard equally.”
3. “The instructors in my internet classes hold all students to equal standards.”
4. “The instructors do an excellent job of keeping the issue of gender out of the internet class.”
5. “There are definitely no gender issues in an internet-based environment where they can be in the traditional learning.”
6. “There is no gender bias of any kind that I have encountered in my internet classes. It is very refreshing.”

7. “I have never noticed any gender bias in my traditional classroom-based learning. The professors seem to treat everyone equally and without prejudice.”
8. “In my traditional classroom-based learning classes, there is absolutely no hint of gender bias. In fact, I believe it is just the opposite.”

Lifestyle issues

1. “Because I notified my teacher that I have a learning disability, she encouraged me to read and re-read my postings to Blackboard, and to also have a second reader, so as to ensure accuracy and eliminate any possible embarrassment I may have felt due to an error on my part. I never worry now that I might look stupid to my virtual classmates.”
2. “Although I am disabled and in a wheelchair, I do not feel that I am treated any differently in my traditional learning. In fact, my classmates and teachers seem to go out of their way to help me.”
3. “The internet instructors are great about making sure all internet classes are set up in a consistent format no matter what class it is. They make sure it is simple to navigate.”
4. “DSL learning allows the student to move at their own pace and depth. This is often the only way some students can complete degree work.”
5. “My advisor always ensures that my schedule is not overwhelming so I do not get frustrated and give up. That is very important to me as I have a learning disability.”

6. “As a student with a learning disability, I find internet classes more suited to my needs and my condition than traditional classroom-based learning. I am not “different” in an internet class.”
7. “Because I have a LD that requires that I get extra time to take tests, my professors are more than happy to work with me and make the test-taking experience as easy as possible even though it is a hassle for them”.

Cultural issues

1. “As a non-native English speaker, I am sometimes uncomfortable with the informal and slang English used in traditional class as I do not understand it. Even the teacher uses slang! The internet classes do not use slang and it has helped allay my fears.”
2. “As an international student from a country that some would say is backward in their treatment of women compared to the U.S., I was, at first, uncomfortable asking my teacher questions because in our country, it is considered rude and impolite for women to question. However, as I have found courage and finally began asking, the American instructors are always more than happy to answer any question with enthusiasm!”
3. “As an international student, I have found that American instructors in traditional learning are very different than those I have had back home. They are very open to opinions, comments, and ideas and actually encourage interaction, which is so wonderful to me. Also, they really know the subject matter we are studying.”

4. "There are so many international students attending school here that if cultural issues are present, I see no negative sign of them and am very comfortable in my traditional class."
5. "Content, in general, in internet classes, seems to be geared toward Western culture and is politically correct as a result."

Research Question 2

What are the characteristics of effective internet-based learning students and teachers compared to the characteristics of effective traditional classroom-based learning students and teachers? The themes that resonated and emerged among the comments on this question were: (a) no difference between internet-based learning and traditional classroom-based learning; (b) more self-discipline in internet-based learning than in traditional classroom-based learning; (c) more opportunity to work independently in internet-based learning; (d) more structured environment in internet-based learning than in traditional classroom-based learning; and (e) more individualized and self-paced in internet-based learning than in traditional classroom-based learning. Of the 805 responses, the ranking of these five issues was again determined by the number of times the issue was discussed or mentioned in the response. The breakdown of discussion was as follows: (a) no difference between internet-based learning and traditional classroom-based learning – 402 responses; (b) self-discipline – 143 responses; (c) working independently - 81 responses; (d) structured environment - 62 responses; and (e) individualized and self-paced learning – 49 responses. These five topics represented 91.5% or 737 comments from the 805 responses.

Again, these observations provided a superb measure of the intangible variable due to the four research questions and what they asked. As such, following are comments made in the data collection that were inferred from the questionnaires although the opinion was not directly observable.

No difference between internet-based learning and traditional classroom-based learning.

1. "I don't think there is any difference - think about it and education is just that - an education if the instructor is good".
2. "No difference at all. They both are excellent and held to the highest of standards no matter what because the instructor should be held responsible."
3. "Traditional learning is only different because you have class at a certain time whereas that is not the case in internet-based learning. Both methods are effective and serve their own purpose."
4. "If the class is set up and run properly by the teacher, then there is no difference whatsoever."
5. "Having taken both traditional and internet classes, I find no difference. In fact, I prefer internet for various reasons, but mostly because the internet instructors seem to put more effort forth in their classes."
6. "There is none if the teacher is doing his or her job and the student is doing his or her part."
7. "With a collaborative learning environment, there is no difference between traditional learning classes and internet-based classes. If the learning environment is not collaborative, neither type is effective."

8. “I can only speak for the internet-based classes and my internet-based instructors were very much in tune with the students leading discussions, assignments, tests and I felt my education was excellent.”
9. “Effective internet-based learning students and teachers stay focused on content, and content related discussion more often. DL students tend to express their opinions more objectively with less tangential qualifying information about why they take their positions.”
10. “I have taken both internet-based classes and traditional classes and I personally like the traditional classroom-based learning better because of the ability to socialize with classmates.”
11. “The teachers must understand the learning process better in internet-based learning. They must develop a pedagogy that utilizes a variety of instructional methods and learning assessments. The traditional classroom-based environment is more forgiving and can be more subjective than learner focused, but in essence they are the same with no differences when it comes to getting a good education as long as the teachers are good.”
12. “Internet-based learning offers more freedom for busy professionals and provides a quality education just as the traditional classroom-based learning does. Traditional classes offer the opportunity for students to have face-to-face contact with the instructor and some students needs that.”
13. “Effective internet-based learning students can complete school work during times that are convenient to their families - like 10:00 p.m. The teachers also have the convenience of grading and responding to student questions when

they are available to do so. Effective traditional students are able to attend classes usually during the day (sometimes at night), but it is based on someone else's schedule. The traditional student is more flexible based on other's schedules. The traditional classroom-based teacher is "old school" and relies on lecture type lessons, but there is no difference in terms of quality of education."

14. "They should be the same provided that both the student and the teacher are going into the program for the right reasons. Example: Student thinking, "Oh, this might be the easy way out of sitting in a boring classroom and having to take up so much time." Or a teacher thinking "Oh, I have a full-time job - easy way to pick up a few bucks" and does not put his or her heart and soul in it. In a classroom, you more or less have one watching the actions of the other. In the internet-based environment, you have to trust this is the case, but after experiencing internet classes, I see absolutely no difference between the quality of education in internet classes versus traditional classroom-based learning."

Self-discipline.

1. "Discipline and more discipline in both internet-based and traditional classroom-based learning".
2. "Primarily, distance learners and teachers have to be excellent time managers and self-disciplined." However, students in traditional learning must be excellent time managers and self-disciplined as well if they are juggling five

classes at a time so I do not think there is any difference in self-discipline requirements."

3. "Having taken both types of classes, I think both require self-discipline. All classes have deadlines and if you miss them, you get a big fat zero."
4. "The ability to work independently is more crucial for DL students; the ability to motivate and interact through technology is vital for DL teachers."
5. "In my opinion, traditional classroom-based students rely more heavily on the instructor's self-discipline, i.e., getting through the course and the syllabus, whereas internet students have to rely on themselves to get through."
6. "Effective internet-based learning students and teachers have to be more intrinsically motivated than traditional classroom-based students and teachers."
7. "Effective internet-based learning students and teachers must be very self-motivated and disciplined. Effective DLP programs must provide professors with a manageable student number for students to receive timely and specific feedback."
8. "Internet-based learning students must have much more self-discipline in order to complete assignments without the structure of a classroom setting. internet-based learning teachers must be able to explain things well via written responses."
9. "Internet-based learning students must be self-motivated in order to effectively complete classes and learn the material. While traditional classroom-based students can be self-motivated as well, it is especially

important for internet-based learning students because all of the work is completed without the supervision and direct contact that traditional classroom-based students have."

10. "I would think there would not be any differences other than perhaps internet-based learning does require heavier self-discipline and self-motivation."
11. "I admit I do not have enough self-discipline so I need a classroom and a teacher to force me to act."
12. "Effective internet-based learning students are able to assimilate information on their own without face-to-face interaction."
13. "Students: Distance-learning students tend to be self-motivated, persistent, and willing to work independently. Ironically, successful distance-learning students also tend to be patient. However, traditional classroom-based students must have these same characteristics in order to be successful."
14. "Must be self-motivated learners and very dedicated in either scenario."
15. "I like being in class with my friends. It is a social time."

As the above comments indicate, self-discipline is a necessary element in both internet-based learning and traditional classroom-based learning in order to be successful.

Ability to work independently.

1. "Internet-based learning students are more independent learners."
2. "Even though I go to my traditional class every week, I still have to work independently."
3. "Internet-based learning students and teachers are more driven and work well independently."

4. “Traditional classroom-based students are under more peer pressure than internet-based students because they face them and their instructors all the time.”
5. “In internet-based technology, there is no true person-to-person relationship so the ability to work independently is imperative.”
6. “Distant learners must set and keep their own schedules. Professors have less opportunity to "guide" the students' work on a regular basis.”
7. “I work very hard independently and do not depend on anyone else to do my work and I am a traditional learning student.”
8. “There is no person-to-person relationship between the instructor and student so the ability to work independently is imperative.”
9. “Individualized instruction and pacing.”
10. “Flexibility and having to study the material, instead of sitting in a classroom and listening to a lecture are big positives for this type of program. I get more out of doing the work myself than listening to a lecture because I have the ability to work independently in an effective manner.”
11. “Distance-learning students tend to be self-motivated, persistent, and willing to work independently. Ironically, successful distance-learning students also tend to be patient.”
12. “Independent, effective time management for both internet-based and traditional classroom-based learning”.
13. “Distance students are more self-directed, self-motivated and able to work more independently than traditional classroom-based students. I believe that

distance learners are goal-minded and are utilizing this type of learning to accomplish their education goals."

14. "Although I am a traditional classroom-based student, I have goals that I want to accomplish just as fast as internet students. I just need the classroom once a week to help verify my thinking."

Structured environment.

1. "Good students are self-disciplined and intrinsically motivated. Good teachers explain material at appropriate levels and engage students in meaningful dialogue about the material. This is true regardless of the environment. The more important criterion, in my opinion, is the general technical savvy of the students and teachers, simply because this will determine the comfort level of participants in an internet-based or traditional classroom-based course."
2. "Internet-based learning teachers have to establish boundaries and that is going to be harder and more structured because they are not face-to-face with the student".
3. "Traditional classes have as much structure as the teacher enforces."
4. "Internet-based instruction has so much more structure than traditional classroom-based learning."
5. "Most of my professors in my traditional classroom-based learning classes are ultra-structured and expect the most from you every class period. It is challenging."

6. “Structure in internet class is stricter than when in a traditional classroom-based learning.”
7. “Organized, structured, well-thought out, prepared lessons are essential in both environments.”
8. “I felt the assignments were more structured and focused to promote further effectiveness to the internet-based learning students.”
9. “Traditional classes are more structured and planned out than any internet-based class I have ever taken. Every minute is accounted for and used.”
10. “As a student, I like the more structured environment internet classes provide to me. Although it is independent, it is much more straight-forward and easy to follow”.

Structure is essential to the effectiveness of both internet-based and traditional classroom-based learning according to the survey results collected in this research.

Individualized and self-paced learning.

1. “Students who do their own work and internalize the information enjoy the advantage of self-paced learning in either internet-based or traditional classroom-based learning.”
2. “Internet-based classes allow for me to basically customize and individualize my education.”
3. “I get as much from my traditional classroom-based learning as I put into them and that is a lot. I work hard and at my own pace.”
4. “I can pace myself through my internet program without feeling any pressure.”

5. "Internet classes allowed me to be the individual that I am instead of part of the "herd" that often happens at traditional classroom-based schools."
6. "Traditional classes offer the opportunity to set your own schedule and work at your own pace. That's why I like it."
7. "Although I have to go class, I work at my own pace to cover the material. No one forces me to work at a different pace."
8. "All learning, internet or traditional classroom-based, is self-paced and individualized because we are all learn differently".

Research Question 3

How important is teacher-student and student-student interaction in the internet-based education process compared to the traditional classroom-based learning and in what form(s) can this interaction most effectively take place? The themes that resonated and emerged among the comments on this question were (a) discussion board participation, (b) e-mail, and (c) internet-based class chat rooms. Of the 805 responses, the ranking of these three issues was again determined by the number of times the issue was discussed or mentioned in the response. The breakdown of discussion was as follows: (a) discussion board participation – 222 responses; (b) e-mail – 193 responses; and (c) internet-based class chat rooms – 94 responses. These three topics represented 63.2% or 509 comments from the total 805 responses.

Once again, in this research, the observations provided an excellent measure of the intangible variable due to the four research questions and what they asked. Following are comments made in the data collection that were inferred from the questionnaires although the opinion was not directly observable.

Discussion board participation.

1. "Imperative! Discussion board provides an excellent mechanism for student-student interaction as well as student-teacher interaction. "Conversations" can be very active and extremely participatory."
2. "Discussion boards work great in my traditional classroom-based learning because you can get quick answers from other students instead of waiting on the teacher."
3. "Interaction is vital and must be intentionally planned. Discussion boards are most effective, but the Live Text group project, of which I was part, seemed effective as well. It is important to keep in mind that just because a class meets in a traditional classroom-based learning also does not mean there will be a great deal of interaction."
4. "Discussion boards work will in the traditional classroom-based learning because sometimes people are afraid to speak up in class but are willing to do so on the discussion boards."
5. "This depends heavily on the student. Those who prefer to learn new material on their own will find this interaction to be relatively unimportant. Those who prefer to learn through discussion will find this interaction critical. Another important criterion is the meaningfulness of the interaction. I have seen discussion board forums that were merely hoop-jumping, and I have seen some (less commonly) that were intended to foster true reflective dialogue. I believe most any form of communication can be effective, again as long as

the standards are set to draw out reflective and genuinely thoughtful dialogue."

6. "Teacher-student interaction is more important than student-student interaction; for most classes I have found more student-student interaction than teacher-student interaction. Teachers need to give more practical feedback on discussion boards and assignments, which is an effective method of communication in either class format – internet-based or traditional classroom-based. I have only had one professor who excelled in this area. Oh, let me tell you without it I would not be ready to graduate if my fellow students had not helped me, my teachers had not helped me and computer support had not helped me."
7. "Blackboard discussion is a key element of effective learning."
8. "Communication in any form is the key, but discussion board is the best and most effective".
9. "Very important! The discussion board has been a vital part of each class that I have participated in. The classes that I enjoyed the most were those in which fellow cohorts went 'above and beyond' the minimum requirements for discussion board and that was a traditional class."
10. "Blackboard is one of those things that works great for students – especially in a traditional class – because they can ask questions and not feel stupid."

E-mail.

1. "E-mail interaction is extremely important. Without interaction, I would not be making it through my program. Effective e-mail is imperative in traditional class and internet-based classes."
2. "A must in whatever format - formal or informal - it is a total must. Without it everyone is lost in cyber space, but for me, e-mail is the most effective method for me to interact and communicate with the instructor."
3. "Even though I take mostly traditional classes, I would be so lost without e-mail to communicate with my teacher and classmates. It is essential to me."
4. "E-mail is very important as a means of internet communication."
5. "It is extremely important that DLS teachers remain supportative in every situation. Adult learners are under extreme pressures. Universities should give DLS professors much lighter workloads to allow them to support their students more effectively. E-mails, phone calls, and discussion boards can be used effectively in DLS programs."
6. "Based on my experience, efficient e-mailing in both traditional classroom-based and internet-based learning environments is very important to ensure effective interaction at all levels."
7. "Communication is the key to any good program internet-based or in-person - no communication - no success. It has been my experience that e-mail makes interaction relatively easy and effective in getting issues resolved."
8. "You actually get a quicker response through e-mail than making an appointment and seeing them face to face"!

9. “E-mail is so much more effective than waiting to ask a question in class.”
10. “E-mail is a necessary tool for any class to be worthwhile and effective.”

As evidenced by these responses, e-mail is quick, easy and practical for effective internet- based and traditional classroom-based learning.

Internet-based class chat rooms.

1. “Communication is so very important! I think chat sessions are the best form of communication and interaction in either traditional classes or internet-based”.
2. “It is very important to establish a relationship in both types of classes. It helps to understand each other better.”
3. “Personally, I have learned more from teacher-student interaction and feedback from internet-based chatting and I am in mostly traditional classes. Student-student interactions are beneficial through discussion boards, but chatting is the most effective since it is live.”
4. “Interaction is extremely important. In internet-based learning, it is imperative to keep in touch with the students regularly through internet-based chats, e-mails, etc although I personally believe internet-based class chats are the best form of communication in internet-based learning. It is timely and effective.”
5. “I love that my traditional classroom-based learning instructor has a “chat hour” every week. We touch base more often and we get a chance to ask questions instead of waiting until the next class.”

As indicated in the coded responses, the participants (n = 805) believed that student-teacher and student-student interaction is imperative in any form for both internet-based and traditional classroom-based learning.

Research Question 4

What cost and benefit factors should be contemplated when choosing an internet-based learning environment or a classroom-based environment for higher education? How are these costs offset by benefits to the learners? The themes that again resonated and emerged in the survey were (a) cost of internet classes versus traditional classroom-based learning; (b) benefits of internet-based classes compared to traditional classroom-based learning; and (c) effectiveness of internet-based classes compared to traditional classroom-based learning. Of the 805 responses, the ranking of these three issues was determined by the number of times the issue was discussed or mentioned in the response. The breakdown of discussion was as follows: (a) cost of internet-based classes versus traditional classroom-based learning – 269 responses; (b) benefits of internet-based classes compared to traditional classroom-based learning – 231 responses; and (c) effectiveness of internet-based classes compared to traditional classroom-based learning – 167 responses.

These three topics represented 82.8% or 667 comments from the total 805 responses. The observations provided a first-rate measure of the intangible variable due to the four research questions and what they asked. As such, following are comments made in the data collection that were inferred from the questionnaires although the opinion was not directly observable.

Cost of internet-based classes compared to traditional classroom-based learning.

1. "Internet classes are a big expense to the student and the school."
2. "Some internet-based learning programs can be very expensive, such as University of Phoenix, but I guess you are paying for convenience."
3. "Overall, the cost of internet classes compared to traditional classroom-based schooling is about the same and the learning is the same as well."
4. "Living on campus is probably more expensive than taking internet-based classes but the experience is once in a lifetime and shouldn't be missed. The learning is the same or better on campus but the experience is the most important thing."
5. "Learning platforms and good internet instructors are a huge cost to the school, but provide flexibility and convenience for the students."
6. "Travel and lodging can be very expensive for residency. However, the ability to attend the school of one's choice, without relocating, is a strong benefit."
7. "Cost, I think, is proportional to what is gained and I think living on campus is the best for any student no matter the cost because you get a better education in traditional classroom-based learning."
8. "Internet-based courses, if prepared effectively, are no less expensive than traditional classes courses to prepare. To fully harness all the additional tools in an internet-based environment can actually make these courses more expensive to produce."

9. “The cost of traditional classroom-based learning is minor given the value received back in terms of education.”
10. “Students benefit by less gas, cars, expenses, and fees with internet-based classes but do they get better learning in internet-based classes? I do not know but I do know that I love my traditional classroom-based learning.”
11. “Costs of technology versus cost of buildings. Learner costs of transportation versus cost of technology (computers, software, etc.) Costs of tuition, extra costs for internet-based learning? Costs of time (family) for traditional classroom-based learners traveling and time in classrooms versus more freedom of time schedules for distance learners. Cost of traveling of rural learners versus convenience of home study. It depends on what the student wants.”
12. “Time is how they passed the cost on to me because I am flying through a program that otherwise in a brick and mortar school would take forever and at my age I don't have forever. I need the degree and a new job to support my kids and wife like I have in the past.”
13. “Traditional classes seem to be cheaper and a better deal so that’s the route I’m taking”.
14. “Technology cost for the college is very high with the internet-based learning platform, the technical support and good instructors.”
15. “Greater funds should be allotted for teacher salaries to give them more time for nurturing students. DLS program growth is centered in word-of-mouth referrals from satisfied students.”

16. “The most important cost factor must be the student-teacher ratio. While the DLP does allow for greater flexibility, professors must still be able to provide effective and timely feedback. If the program doesn't effectively budget for enough teachers, then the quality of the program is jeopardized.”

Benefits of internet-based classes compared to traditional classroom-based learning.

1. “The benefit of internet-based classes to the student is primarily flexibility.”
2. “Students have access to a wider range of courses when they are on campus and taking traditional classes.
3. “They can explore a wider range of programs, since they are not constrained by geography. In my case, I would not be able to participate in an Ed.D. program at this time if it were not for my internet-based program because there are no appropriate programs geographically close to me at this time that fit my full-time employment schedule”.
4. “The benefits of internet-based classes are (1) flexibility; (2) gives me time to do the things I want when I want; (3) don't have to be in class at a particular time.”
5. “Benefits to the learners are choice of instructors and choice of time with traditional classroom-based learning.”
6. “I love internet based learning it has allowed me to achieve my goals at an institution that I would have never had a chance to attend if I had to actually go there in a physical sense”.

7. “I really like my traditional classes learning because of the interface I can have with the instructor and fellow classmates.”
8. “Ease of taking traditional classes relieves stress and frustration on the part of the student.”
9. “Excellent traditional classroom-based education at a price that is reasonable.”
10. “Convenient, flexible and with a lot of opportunities for program choice”.
11. “Good instructors are an advantage of traditional classroom-based learning.”
12. “Being able to choose a college that is further away from my home that offers the degree that I want is a great benefit instead of having to accept whatever degree the colleges near me are offering”.

Effectiveness of internet-based classes compared to traditional classroom-based learning.

1. “Traditional classes are equal to or better than internet-based classes in terms of their effectiveness.”
2. “Internet classes achieve the goal of providing a high quality education with flexibility and convenience for the student.”
3. “Some internet classes do not have the same accreditation as brick and mortar classes so their effectiveness and transferability is shaky.”
4. “Many internet-based programs get you through faster than traditional classes which is efficient and effective for the student.”
5. “Most internet-based learning students are professionals with jobs and need a program that is efficient and internet-based learning accomplishes that goal.”

6. "Traditional classes are more effective because you have face-to-face with the instructor every week."

Participants' age statistics. Respondents included in the study (n = 805) were found to be divided into the following age categories: (a) 18-19 years = 136 responses; (b) 20-29 years = 132 responses; (c) 30-39 years = 194 responses; (d) 40-49 years = 209 responses; (e) 50-59 years = 128 responses; (f) 60-69 years = 5 responses; and (g) 70-79 responses = 1 response. The overall sample mean age was 42 and ages ranged from 18 to 74 years.

Participants' gender statistics. Respondents included in the study (n = 805) were found to be divided into the following gender categories: (a) male = 384 respondents (47.7%), and (b) female = 421 respondents (52.3%).

Chapter 5: Summary and Discussion

Interpretation of the Findings

The examination and survey of user satisfaction with internet-based learning compared to traditional classroom-based learning are an important concept in higher education today. The practice of using technology to deliver coursework in higher education has seen a veritable explosion. The use of technology has not only created new opportunities within the traditional classroom-based learning, but has expanded learning experiences to the virtual classroom.

In this study, it was important to stress that, despite the large volume of written material concentrating on internet-based learning, there is a relative paucity of true, original research dedicated to explaining or predicting phenomena related to internet-based learning. From this limited group of original research, three broad measures of the effectiveness of internet-based learning were usually examined. These included: (a) student outcomes, such as grades and test scores; (b) student attitudes about learning through internet-based learning; and (c) overall student satisfaction toward internet-based learning (Gold, 2005).

This dissertation includes these three measures of effectiveness, but also includes much more user data and information than prior research and enhances what is known about the effectiveness of internet-based classes compared to traditional classroom-based learning.

Statement of the Problem

The advent and rapid intensification of internet-based learning in today's world has led to new questions relative to students in this rapidly increasing segment compared to students in the traditional classroom-based learning higher education segment. With the veritable growth in internet-based classes and the expected, continued expansion in this area, the effect on the perception of student learning must be examined and surveyed, from the user perspective so that educators can build and teach appropriate, fulfilling and useful classes in both the virtual world and the traditional classroom-based world.

It was not found by this researcher whether a comparison of internet-based classes to traditional classroom-based learning had been researched thoroughly to understand the effect of both types of "classrooms" on the perception of student learning. Thus, the problem statement for this study is "What are the effects of internet-based learning versus traditional classroom-based learning on student learning from a user perspective."

Review of the Methodology

The examination and survey of user satisfaction with internet-based learning compared to traditional classroom-based learning began with the planning stage. Survey research begins with a question that the researcher believed could be answered most appropriately by means of the survey method (Ary et al., 2006). In this case, the researcher determined the sample survey of intangibles was the most appropriate survey method for this study.

The next step in the study was to define the population. Because the researcher is a faculty member at the large, Midwestern University, the population at the University was selected because access to information was more easily obtainable. Additionally, the

large, Midwestern University is committed to excellence to internet-based learning and traditional classroom-based learning (University 2007-08 Strategic Plan, 2007).

The third step in this research was to select a sample representative of the population. The 720 students from the large, Midwestern University were randomly (arbitrarily picked by numbering all sections of the class and drawing the numbers out) selected from the internet-based classes and the traditional classroom-based learning of Educational Psychology in order to achieve a high-quality mix. The 720 students were all enrolled in the "Educational Psychology" class offered at the University, a class that is required for Education majors and an elective for many other academic programs. Other research participants were faculty who have taught or were currently teaching internet-based and traditional classroom-based classes at the university, university internet-based learning administration and technology management as well as students who match the qualifications of taking at least one internet course and one traditional classroom-based course during the Fall 2007 semester.

The fourth step was constructing the instrument. Since users' opinions were being sought, the researcher determined the sample survey of intangibles was the instrument to be used. The researcher conferred with 15 other faculty members with whom the researcher has not worked with prior to this study regarding whether the four research questions were valid and appropriate for the intended use of the survey. The faculty members were from three different departments within the large, Midwestern University: (a) Business Department; (b) Education Department; and (c) Health Sciences Department. All 15 faculty members independently agreed that the research questions were understandable, concise, easy to read and valid for this study's purpose.

Additionally, seven former internet-based students from the large, Midwestern University, were asked to review the research questions. They, too, all independently agreed that the research questions were understandable, concise, easy to read and valid for this study's purpose.

The fifth step was to survey the 720 randomly selected students in the School of Education at a large, Midwestern University. The 720 undergraduate students completed the Student Course Evaluation Responses to the research questions in this study. Since the 720 students completed these questions at the end of their course evaluations and the research questions were on a separate sheet that was collected separately from the course evaluations preserved anonymity since there was no student identification. If the survey instructions contain clear information regarding the project, assurance that participation is voluntary, and who to contact with any questions, then the subject is turning in of the survey itself demonstrated implicit consent (Southeastern Private University, 2007).

The format of the research questions was open-ended, with the exception of Research Question 1 on the SurveyMonkey internet site, because there were a great number of possible answers and the researcher could not predict all the possible answers. Research Question 1 on the SurveyMonkey website was closed-ended because the possible responses were limited to *strongly agree, agree, no opinion, disagree*, and *strongly disagree*; however, it was a requirement for the respondent to make a comment regarding their answer to Research Question 1.

This research contained Student Course Evaluation Responses to the research questions as well as additional electronic questionnaires as required to make an adequate

comparison at a large university located in the Midwest from internet-based classes and traditional classroom-based learning.

The sixth step of processing the data began as data was collected and stored in secure internet-based files for electronic data and a fireproof file cabinet for any paper data. Data is stored electronically on password protected flash drives, by research question and was coded very quickly after receipt so subjects could not be identified directly or indirectly through identifiers. Anonymity is imperative in order to not conflict with state and/or federal laws and regulations.

Additionally, invitations were sent using SurveyMonkey (a web survey creator website) to faculty who have taught or were currently teaching internet-based and traditional classroom-based learning at the university, university internet-based learning administration and technology management as well as students who matched the qualifications of taking at least one internet course and one traditional classroom-based course during the Fall 2007 semester. The reasoning for using an internet survey creator when e-mailing invitations to people to take the survey is that a link is created to the survey thereby again preserving anonymity when someone responds to the research questions rather than receiving a return e-mail response that identifies the respondents. As this information was gathered and used by the researcher, no discussion or divulging of the information gathered was done where the anonymity of the respondents' may be compromised. In addition, as indicated previously, the use of the web survey creator allowed the gathering of information to be done in an efficient and anonymous manner as well. All subjects were over the age of 18 and able to make competent decisions

regarding participation in the dissertation study. However, as noted above, anonymity of the students was guaranteed.

The large university located in the Midwest researched in this dissertation was established in 1830, with a 2007-2008 school year enrollment as of September, 2007, of 99,100 students with 69,276 registered as full-time; 21,260 participating in full-time, distance-learning programs (University 2007-08 Strategic Plan, 2007). The university attracts students from more than 90 different countries (21% are of international ethnicity) and serves multiple age groups (University, 2007). The university is accredited by the North Central Association of Colleges and Schools, Higher Learning Commission and continues to aggressively market its internet-based learning program in a robust manner. It is also accredited by many other accrediting agencies such as NCATE, AACBS, and ACBSP.

Summary of the Results

The goal of this study was to examine and survey user satisfaction with internet-based learning compared to traditional classroom-based learning. The study fielded several attention-grabbing conclusions. The conclusions to the four research questions were as follows:

Research Question 1

Approximately 75% of those polled agreed or strongly agreed that internet-based learning was just as effective as traditional classroom-based learning. This seems to overwhelmingly conclude that teaching and studying at a distance, especially that which uses interactive electronic media, is effective, when effectiveness is measured by the level of the perception of student learning, by the attitudes of students and teachers, and

by cost effectiveness. Secondly, students, instructors, and administrators of internet-based learning realize four broad issues or themes that are imperative to address in researching and examining the effectiveness of internet-based learning. These four themes are: (a) geographical issues; (b) gender issues; (c) lifestyle issues; and (d) cultural issues.

Geographical issues. It was clear in this study that geographical issues were considered extremely important as the theme and comments verified. The convenience of working from home at their own pace and on their own time is a big compromise made by internet-based learning students. Students do not have to be physically with the instructor in space and, depending on the method used, they do not have to be together in time as well. This is a great advantage for traditional classroom-based and nontraditional classroom-based students who cannot attend at regular times. The survey also suggested that internet-based learning is helping to draw out a "hidden market" of students in small towns and recent high school graduates who cannot financially or do not want to go away to a bigger city to get an education.

It is important for the instructors to develop a sense of community within the internet-based learning, achieve maximum participation, and get the participants to buy in to the process. The idea of learning as a collaborative process is very important when students are separated by distance (geography). According to research by Palloff and Pratt (2001. p. 97), "collaborative learning processes assist students to achieve deeper levels of knowledge generation through the creation of shared goals, shared exploration, and a shared process of knowledge and meaning". It is up to the instructor to be aware of this thought in the internet-based learning environment and to encourage collaborative

learning and a sense of community among the students even when they are separated by a physical distance (geography).

Gender issues. Although Palloff and Pratt (2003) believe women continue to feel that the world of technology is a foreign territory and that stereotypical behavior of men and women continues in the internet-based learning environment, this survey showed quite the opposite. In the results of this study, it was found that the internet-based environment provides more women-friendly communities along with a methodology of obtaining a higher education without taking a major commitment away from the family compared to the traditional classroom-based learning. In this study, the research showed that students (women in particular) were more comfortable in an internet-based environment because they believed their voices were being heard regardless of their gender. Additionally, the study showed that inappropriate use of language or behavior was confronted on the internet whereas in the traditional classroom-based learning, less control was believed to be maintained and the teacher was not the leader he or she should be.

Lifestyle issues. Although some researchers such as Palloff and Pratt (2003) and Gold (2005) believe that students with disabilities provide additional challenges in the virtual classroom, this study showed that those surveyed felt completely at ease with navigating internet-based learning classes. They felt, as well, that internet-based learning "wiped out" the stigma of being labeled as "different" due to the personal lifestyle challenge. The respondents believed that their internet instructors worked especially hard to ensure their comfort in the class. There were, however, no specific complaints about the traditional classroom-based learning, however, the responses tended to more highly

complementary to internet-based learning as the methodology of choice for a student dealing with lifestyle issues.

Cultural issues. In this study, the respondents believed that "slang" English used in the classroom was a problem for non-native speaking students and found that the internet classes used more proper English that was easier to understand. Additionally, the "Americanization" of some women from men-dominated cultures found it easier to ask questions in internet-based learning classes, as they did not have to overcome their fear of speaking out. However, one theme that resonated through both traditional classroom-based and internet-based learning classes was the Western culture themes found in the classes.

Research Question 2

What are the characteristics of effective internet-based learning students and teachers compared to the characteristics of effective traditional classroom-based, "brick and mortar" students and teachers? The themes, again ranked in order of importance as indicated by the survey that resonated and emerged among the comments on this question were: (a) no difference between internet learning and traditional classroom-based learning; (b) self-discipline in internet-based learning; (c) ability to work independently in internet-based learning; (d) structured environment; and (e) individualized and self-paced internet-based learning.

No difference between internet-based learning and traditional classroom-based learning. The respondents in this study overwhelmingly believed that if a collaborative learning environment is fostered by the instructor, whether it is a traditional classroom-based or an internet-based class, there was no difference in the perception of student

learning. For example, respondents believed that if instructors were responsive and showed interest in the internet class, it was just as effective, or more so at times, as a traditional classroom-based learning, because of the extra effort an internet instructor must put forth to be effective. The respondents believed in the same theory that Palloff and Pratt (2003, p. 67) espouse, that being, "Collaboration + Presence + Community = Quality". It is of the utmost importance to students in both learning formats that the educational process is learner-focused rather than faculty-centered and that appropriate levels of information are delivered through adequate human interaction either by a teacher in the front of the room or an internet-based class chat room.

Self-discipline. The second theme that reverberated in Research Question 2 was the self-discipline required in internet-based learning as compared to traditional classroom-based learning. With the freedom and flexibility offered by the internet-based environment also comes responsibility according to the survey. The internet-based process is one, according to the study, that requires true commitment as well as discipline to keep up with the class and the work required. Additionally, the study showed that communication is the responsibility of the student if a problem occurs as compared to a traditional classroom-based learning where an instructor is able to identify quickly who may be having trouble with the course. However, the signs of a student in trouble in an internet-based class are different, but equally as obvious to an observant instructor that notices a change in the level of participation, difficulty in getting started with the class, expression of frustration in internet-based discussions and dominating of discussions in an inappropriate way.

Ability to work independently. In this research, it was clear that internet-based students were willing to commit a significant amount of time to their studies weekly and did not see the internet courses as an "easy way out" to earn credits or a degree compared to attendance at a traditional classroom-based school. Additionally, the respondents strongly felt that internet-based learning students were, for the most part, much more independent learners than traditional classroom-based students since their studies did not include a teacher in the front of the classroom, but rather the willingness to participate according to the guidelines set out by the instructor or the institution. Internet-based learning students also, according to the responses, are aware that if they do not follow the guidelines of the class they are not only minimizing their own chances for success, but also limiting the ability of their classmates to get the greatest benefit from the course. Thus, in this study, the respondents believed that an internet-based student is one who can and does work collaboratively with fellow learners in order to achieve his or her own learning objectives as well as the objectives set forth in the class. The collaboration with student learners was felt to be much higher in the internet-based learning area than in traditional classroom-based learning where collaboration may not seem as critical since they can rely on an instructor in the classroom.

Another area that arose in the survey is that internet-based learning students have more ability to learn at their own pace rather than at a pace guided by an instructor. The respondents felt this gave them the opportunity to absorb the material better and at their own pace rather than at the pace of the classroom teacher. Time management in internet-based learning was also an issue that respondents felt was imperative wherein traditional classroom-based learning instructors can sometimes tend to not be "so firm" by allowing

obvious special consideration for college athletes and other "special" circumstance students. This fact alone seemed to be highly pervasive and bothersome to students based on the responses. However, the "jealousy" factor was removed as an obstacle in internet classes as compared to traditional classroom-based learning classes. The advantages that student athletes seem to get from their instructors simply due to the fact they are athletes fall to the wayside and the thought of an athlete being one that brings money into the university goes away completely

Additionally, the responses overwhelmingly supported the fact that internet-based learning students and teachers appear to be much more driven and work well independently compared to traditional classroom-based settings. It was believed that traditional classroom-based students tend to depend on their instructors too much for answers instead of working through a problem themselves and coming up with an acceptable solution. The ultimate key to this issue is that internet-based learning students as well as instructors, administrators, etc. know that the ability to work independently is imperative for success in the virtual world.

Structured environment. This study revealed quite emphatically that the success of internet-based learning is an effective, structured environment. The research strongly pointed out that when students are satisfied with their internet-based course and programs, they are more likely to be successful and to stick with them, increasing retention rate. In contrast, many in the study believed, in general, that traditional classroom-based learning was not as structured because the instructor has more ability to change the syllabus, i.e., give either more or less time on an assignment or to spend more time discussing an issue that the students are not understanding as well as they should.

Additionally, traditional classroom-based learning spends quite a bit of time in "housekeeping" activities such as quizzes, collecting homework, giving assignments and answering the same questions more than once because of students who are not effectively listening to the instructor. The internet-based learning classes are more rigid in their schedule with little room for manipulation of classroom time. However, once again, it was apparent in the study that an effective, collaborative learning environment was necessary in whatever learning methodology was used – internet or traditional classroom-based.

The study pointed out that it is critical for good instructors to explain or use a methodology, at appropriate levels, that engages students in a meaningful discussion either in the classroom or in the Blackboard discussion board. Consequently, the offering of activities in the course, whether internet or traditional classroom-based, must have a goal of developing critical thinking that is so essential in the delivery of a learner-centered course. In either scenario, traditional classroom-based or internet, using case studies, simulation, shared facilitation, and jigsaw activities, where students add pieces of information and knowledge to create a coherent whole, helps to develop skills while more fully engaging the learners in the learning process (Palloff & Pratt, 2003). Palloff and Pratt also espouse that "if an instructor has done a good job of laying the support framework for pragmatic dialogue, in either learning environment, the participants, at least partially, will facilitate their own dialogue" (p. 82). Consequently, in the case of internet-based learning, the virtual student will more often pick up the ball and run with it than in brick and mortar class. Traditional classroom-based learning will also facilitate their own discussion, but it is often harder, for a variety of reasons, to get students to

facilitate their own discussions. This is most probably due to peer pressure and the embarrassment of making a mistake. However, no matter how it occurs, collaborative learning activities are the heart of a learner-centered classroom – internet or traditional classroom-based.

Individualized and self-paced learning. In this study, it was clear from the survey respondents that effectiveness in internet-based learning was dependent upon the virtual student establishing goals because once the goals are established, the student can set their own pace for completion and individual study. The respondents liked the fact that it was their decision to set their priorities and their responsibility to manage their time to accomplish their own goals.

Gilbert (2005, p. 27) has noted that there are documented efficient means for studying whether the class is held face-to-face or internet. She suggested a "preview – view – review" approach. This approach works particularly well in either learning scenario. However, Gilbert notes that in order to gain deep learning from an internet-based course, students must also focus on the meaning of what the instructor is offering or has created, connect the new ideas generated to previous knowledge, and relate the class facts and information to real-life experience. In this way, the students will be engaging in the reflective, transformative practices that are hallmark of internet-based learning and they are likely to become self-directed, critical thinkers in the process. The responses in this study validate Gilbert's thinking as they indicate that distance learners like the self-directed, individualized, and self-paced learning style internet-based learning offers and are not part of the "herd" in the brick and mortar institutions.

Research Question 3

How important is teacher-student and student-student interaction in the distance education process compared to the traditional classroom-based learning and in what form(s) can this interaction most effectively take place? The themes on the types of forms of interaction, again ranked in order of importance as indicated by the survey that resonated and emerged among the comments on this question were (a) discussion board participation, (b) e-mail, and (c) internet-based class chat rooms.

According to the survey respondents, communication between teacher-student and student-student in the internet-based learning process is imperative. The survey also showed that the virtual student is not hindered by the absence of visual cues (compared to traditional classroom-based students) in the communication process. Palloff and Pratt (2001, p. 39) have studied a phenomenon known as "electronic personality" which allows students to feel comfortable even without visual cues. The following abilities are imperative for an electronic personality to exist: (a) the ability to carry on an internal dialogue in order to formulate responses; (b) the creation of a semblance of privacy both in terms of the space from which the person communicates and the ability to create an internal sense of privacy; (c) the ability to deal with emotional issues in textual form; (d) the ability to create a mental picture of the partner in the communications process; and (e) the ability to create a sense of presence in the internet-based learning community through the personalization of communications.

In this study, it was extremely obvious that communication, in any form, would serve the purpose of the virtual student. The research did not indicate at any time that any respondent felt an overwhelming loss or need of the visual cue of a teacher in the front of

the room. Communication, in any form, was the key for these respondents and as long as they knew communication was just as important to the instructor, they were more than willing to work with internet-based learning and the lack of a physical presence.

However, it should be noted that it is not, in any sense, a shortcoming for a student that requires a traditional classroom-based learning environment because they need to see and hear their classmates and teacher. It is rather, just matter of preference and learning style, which is most effective for the student.

In this research, nevertheless, electronic communication is more than sufficient for these respondents to be successful and at peace with the virtual world of internet-based learning.

Research Question 4

What cost factors should be contemplated when choosing an internet-based learning environment or a classroom-based environment for higher education? How are these costs offset by benefits to the learners? The themes that were pervasive in the survey were (a) cost of internet-based classes; (b) benefits of internet-based classes; and (c) effectiveness of internet-based classes.

In this study, it was apparent that respondents acknowledged that internet-based learning programs are often more expensive in terms of tuition, but respondents are willing to forego the cost for convenience. Ng (2000) noted, "It is possible for a program to be efficient and cost effective if the outputs which are actually produced do contribute to the program objectives" (p. 101). Ng also noted that "the costs of internet-based courses are affected by how they are implemented: as an enhancement or as the primary teaching medium. If this is not factored in by administration, there may be costs that are

not apparent at first glance" (p. 104). However, to the respondents in this study, cost was a non-issue given the flexibility, convenience and overall effectiveness for their needs. The respondents also discussed the salaries paid to internet instructors and how they should be paid more for the extra work associated with setting up an internet-based learning class.

The two major benefits of internet classes to internet-based learning students were overwhelmingly recognized by the respondents as flexibility and convenience. Flexibility and convenience allowed many of the respondents to attend college whereas without internet-based learning, the student would have no way of obtaining higher education. Traditional classroom-based learning was often cited as prohibitive due to time constraints, distance constraints and lack of classes in the student's area of interest. Internet-based learning also allowed flexibility for those students that were juggling careers, families and other priorities that made attendance at class at a certain time virtually impossible.

The study also brought forward the accreditation stigma associated with internet-based learning classes. The respondents pointed out that regional accreditation is a necessary element for internet-based learning, and before any decision regarding participation in an internet-based learning program, accreditation must be verified. The study also pointed out that an electronically delivered course or program of study results in learning outcomes appropriate to the rigor and breadth of the course credit, degree or certificate awarded from a traditional classroom-based school. Respondents also believed that student experiences result in achievement of intended learning outcomes whether electronically delivered courses provide for synchronous or asynchronous interaction

between faculty and students and among students. Additionally, portions of courses delivered through electronic means adhere to the same principles as courses delivered completely by internet-based means or traditional classroom-based means. The respondents firmly believe that internet-based learning has moved beyond the "correspondence course" disgrace and stigma often associated with internet classes in the past.

Relationship of Current Study to Previous Research

In this study, it was important to emphasize that, despite the large volume of written material concentrating on internet-based learning, there is a relative paucity of true, original research dedicated to explaining or predicting phenomena related to internet-based learning. From this limited group of original research, three broad measures of the effectiveness of distance education were usually examined. These included: (a) student outcomes, such as grades and test scores; (b) student attitudes about learning through distance education; and (c) overall student satisfaction toward internet-based learning (Gold, 2005).

However, there have been key shortcomings to other research in this subject area such as the fact that the studies did not use randomly selected subjects. Moreover, validity and reliability of the measurements were questionable and there was no control of the "reactive effects" (a number of factors associated with the way in which a study is conducted and the feelings and attitudes of the students involved; Gold, 2005).

Specifically, in research studies completed by highly reputable sources, such as the American Federation of Teachers (2001), the National Education Association (2003) and the Institute for Higher Education Policy (2005) have had these shortcomings. These

three sources concluded that their analysis revealed several methodological flaws such as extremely small sample size, high subject mortality or the lack of minimal data to compute effect size. Following are some of the other key shortcomings of research on the effectiveness of internet-based learning on the perception of student learning noted in literature review of each study:

1. Much of the research did not control for extraneous variables and therefore did not show cause and effect.
2. The studies did not use randomly selected subjects.
3. The validity and reliability of the instruments used to measure student outcomes and attitudes were questionable.
4. Many studies did not adequately control for the feelings and attitudes of the students and faculty – what the educational research refers to as "reactive effects."

The sheer weight of opinion in previous research studies should not be taken as conclusive of itself since most of it is based on anecdotal evidence offered by persons and institutions with stakes in the techniques being evaluated, or in the very programs they are evaluating. Furthermore, in studies where some attempt has been made to gather empirical data, schoolteachers or university faculty with extremely limited resources has undertaken the research (Gold, 2005). As a result, the methodology of many of the research designs was weak, with regard to such factors as the populations being compared or otherwise studied; the treatments being given, the statistical techniques being applied, and the validity, reliability, and generalizability of the data on which the

conclusions were based (Gold). However, this dissertation takes into account these key shortcomings by incorporating the following into the study:

1. The sample size was almost 80% of the population evaluated versus any other study previously performed.
2. Anonymity was maintained throughout the study.
3. The statistical treatment was conducted in an anonymous manner using SurveyMonkey.
4. The conclusions were validated and confirmed according to professional standards.

Recommendations for Educators

A single survey such as this one cannot provide a sound basis for making any decisions regarding the effectiveness of traditional classroom-based learning versus internet-based learning classes on the perception of student learning. However, this study does suggest that internet-based learning, when set up and administrated in a correct manner, is an effective methodology of learning for individuals, as compared to the traditional classroom-based learning, that would not have the opportunity to further their education. Internet-based learning also opens the door for those individuals to further their education when in the past that opportunity may not have even been a possibility (Weimer, 2002).

Secondly, the contents of this dissertation may enhance understanding of the effects of the perception of student learning of internet-based classes versus traditional classroom-based learning and encourage further research into the internet-based learning

phenomena where expansion, accessibility and acceptance seem to be critical (Weimer, 2002).

Thirdly, it is possible this dissertation will validate issues of spirituality in internet-based learning. Palloff and Pratt (1999) believed that spirit is the essence of humanity, and because internet-based learning communities are a vehicle through which human beings connect, they are essentially spiritual. Spirituality helps to increase the level of openness and awareness. The increasing openness, which participants communicate in an internet-based class, is spiritual. The connection between people, however, that may happen, touches the spiritual core so regardless of its faults, the electronic community is a spirited community. (p. 58).

It is important to make room and tolerance in the internet-based community for the practice of spirituality on an individual basis with all students taking primary responsibility for their own needs in this area.

Limitations of Study

This study examined and surveyed internet-based and traditional classroom-based students' opinions from only one large Midwestern University and respondents to SurveyMonkey questions. The invitations to participate in the SurveyMonkey data collection were limited to university faculty, technology administrators, selected students and classmates of the researcher. Therefore, the findings of this study should not be generalized to include other higher education institutions, faculty, students and others falling outside the parameters of this study which relates to only the examination and survey of internet-based learning to traditional classroom-based learning on the perception of student learning. Surveys of intangibles are limited by the fact that data

researchers are only indirectly measuring the variables they are concerned about (Ary et al., 2006). However, in this research study, this researcher did not see it as a serious limitation because of how well the observations measure the intangible variable (Ary et al., 2006). Another limitation was that this study was only done for one semester - Fall, 2007 - even though there was a high response rate during that period.

Recommendations for Further Research

The areas that require the most research and study are how students and teachers can become truly learner-focused and using best practices in both internet-based teaching and traditional classroom-based teaching for all in the collaborative learning environment. For example, effective instructors need to focus on best practices such as the following:

1. The balance of power needs to be considered for its impact in light of the instructor acting as a facilitator, encouraging students to take charge of their own learning processes.
2. The function of content should be reviewed for future application for a global learning environment so students will have the opportunity to work together to create knowledge instead of simply providing material for rote memorization. This function applies to both internet-based and traditional classroom-based learning.
3. The role of the teacher should be reviewed in light of its effectiveness in the classroom today. For example, in a learner-centered environment (both internet-based and traditional classroom-based), the instructor is no

longer the key content expert, but rather moves to the side and allows student expertise to emerge.

4. The responsibility for learning should shift if the teacher is to act as a guide and facilitator so the students may take responsibility for their own learning process. Students will only get as much from an internet-based class or a traditional classroom-based class as they put into it.

5. The purpose and processes of evaluation should have a new focus, i.e., evaluation that is in alignment with learning objectives for the course and is consistent with the types of learning activities embedded in the course is likely to yield information about outcomes that is useful not only from the standpoint of course improvement, but also from the standpoint of the perception of student learning.

Another area of key research would be that study which is designed to teach us how the appropriate use of technology and pedagogy could make internet-based learning and traditional classroom-based learning more beneficial for more students. In addition, we need ways to translate the best of such research into the practioners' literature (Palloff & Pratt, 2003).

In closing, as the effectiveness of internet-based learning compared to traditional classroom-based learning continues to be debated and surveyed, clicks or bricks, focusing on inclusion, collaboration, flexibility, good communication and interaction in both types of learning environments, will provide the best benefit to the students and ensure a truly learner-centered environment.

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Appendix A

Invitation and Informed Consent

Melinda C. Kushniroff
Graduate Program
Doctor of Education Candidate
Liberty University
1971 University Blvd.
Lynchburg, Virginia 24502

December 5, 2007

Dear Student and/or Educator:

I am making contact to ask for your brief participation in a research dissertation related to the perception of student learning in regard to internet-based learning versus traditional classroom-based learning classroom learning. The purpose of this dissertation is to survey the relationship of internet-based classes to traditional classroom-based learning on the perception of student learning. The objective of the researcher is to determine in which type of classroom, virtual or traditional classroom-based, student learning is higher as determined by the respondents. The study was approved by the IRB of Liberty University on October 26, 2007, IRB No. 549.

Your name or any other personally identifying marks will not be attached to any of the data. The data will be taken from SurveyMonkey and will be kept in a locked and protected location in the investigator's office. All data gathered and presented will be reported in aggregate. No single response will be identified in any project report.

Further, your participation in this study is entirely voluntary, involving no risk to your physical or mental health beyond those encountered in everyday life, and you may refuse to participate or withdraw from this study at any time without consequence or coercion. Participation in this study is confidential and only the researcher listed above will have access to identity due simply to the e-mailing of this invitation. Confidentiality will be maintained in the degree permitted by the technology used. No guarantees can be made regarding the interception of data sent via the internet by any third parties.

The benefits of participation include advancement of the scholarship of teaching. For questions or synopsis of findings, please contact Melinda C. Kushniroff at mckushniroff@liberty.edu. If you have any questions regarding your rights as a participant in this research, you may contact the Director of Liberty University Office for Research Protection at 434-592-4054.

This is a simple process. Simply, click on this link:

http://www.surveymonkey.com/s.aspx?sm=rATYKHkjjyHXoih4Uu1fww_3d_3d

and complete the survey. When you are done with the survey, click on "Done" and it will be submitted to SurveyMonkey for further analysis by the researcher. My goal is conclude data collection by January 15 or sooner so your prompt response is greatly appreciated. Following this process constitutes your consent to participate in this study. All I ask of you is 10-15 minutes of your time.

Thank you.

Melinda C. Kushniroff
Liberty University Ed.D Candidate

Appendix B

Additional Student Evaluation Course Questions

EDUC 300

Before submitting your responses, please answer the following questions to the best of your availability. Please note that the answers are confidential.

1. **Is technology-assisted internet-based learning perceived as effective as traditional classroom-based, face-to-face learning?**

2. **What are the characteristics of effective internet-based learning students and teachers compared to the characteristics of effective traditional classroom-based, "brick and mortar" students and teachers?**

3. **How important is teacher-student and student-student interaction in the distance education process compared to the traditional classroom-based learning and in what form(s) can this interaction most effectively take place?**

4. **What cost factors should be contemplated when choosing an internet-based learning environment or a classroom-based environment for higher education? How are these costs offset by benefits to the learners?**

Appendix C

Response Summary - SurveyMonkey

1. Age:

	Response Count
view	85
answered question	**85**
skipped question	**0**

2. Gender:

	Response Count
view	85
answered question	**85**
skipped question	**0**

3. Is technology-assisted internet-based learning perceived as effective as traditional, classroom-based learning?

		Response Percent	Response Count
Strongly		29.4%	25

3. Is technology-assisted internet-based learning perceived as effective as traditional, classroom-based learning?

agree		
Agree	**45.9%**	39
No opinion	1.2%	1
Disagree	22.4%	19
Strongly disagree	2.4%	2
view Other Comments and Reflections		59
	answered question	**85**
	skipped question	**0**

4. What are the characteristics of effective internet-based students and teachers compared to the characteristics of effective traditional classroom-based students and teachers?

	Response Count
view	85
answered question	**85**
skipped question	**0**

5. How important is teacher-student and student-student interaction in the distance education process compared to the traditional classroom-based learning and in what form(s) can this interaction most effectively take place?

	Response Count
view	85
answered question	**85**
skipped question	**0**

6. What cost factors should be contemplated when choosing an internet-based learning environment or classroom-based environment for higher education? How are these costs offset by benefits to the learners?

	Response Count
view	85
answered question	**85**
skipped question	**0**