

Teaching Web-Based Research Methods Courses:
Using the IHEP Standards To Evaluate Student and Instructor Experiences

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Abstract: Developed by the Institute for Higher Education Policy (IHEP), "Quality on the Line: Benchmarks for Success in Internet-Based Distance Education" is a comprehensive report that identifies 45 quality measures of effectiveness for distance learning in higher education. The document reports ratings for each benchmark based on a survey of instructors, administrators and students at several institutions. In this study, a 22-item instrument based on the measures from the "Quality on the Line" report was administered to the students and instructor of two sections of an introductory graduate-level, web-based education research methods class at three points in time: prior to the course, during the course, and upon the completion of the course. Overall, the results of the study indicate that the students' and instructor ratings of the course tended to converge as the semester progresses, and that the students' ratings were, for the most part, higher than the normative ratings reported in the IHEP Benchmarks.

Introduction

Distance learning options for students have been available for nearly one hundred years. Correspondence courses were the first distance learning method, and they used the postal system for communication between the instructor and students (Homan, 1997; Passerini & Granger, 2000). Technology-enhanced educational formats became widespread in the 1990s (Starr, 1998). The advent of computer technology provided methods of delivering instruction quickly without removing instructor involvement and intervention from the process. Specifically, video-based and web-based learning environments have facilitated the creation of learning environments where instructors are still a primary component of the educational process but geographically distant from their students. By reducing time and distance barriers distance learning environments offer convenience to students who otherwise might not be able to participate in the formal learning process (Scollin & Tello, 1999).

Web-based learning is now the most common distance learning method used by educational institutions, corporations and individual users for academic or professional purposes (Dringus & Terrel, 1999; Hayes, 2000). According to the U. S. Department of Education's National Center for Education Statistics (Lewis, Snow, Ferris, & Westat, 1999), the number of technology-mediated distance education programs increased by 72 percent in the three year time period between 1994 and 1997. Furthermore, NCES estimated that over 1.6 million students were enrolled in distance education courses in 1997-98.

There are a number of reasons why web-based learning is of particular relevance and interest to professors of educational research. First, the Internet provides a dynamic source of information on research-related topics. For a class session on ethics and research standards,

students can explore the professional standards of the American Educational Research Association, the American Psychological Association, the American Evaluation Association, and other professional organizations – many of which are available online. For a class session on measurement, students can search Buros Mental Measurements Yearbook to read summaries and reviews of published instruments. For a class session on sampling, students can visit an interactive website in which they can input and compare various sample sizes and confidence intervals. A second characteristic of web-based learning is the ability to *personalize* instruction to address students' individual interests. Students in educational research methods courses typically represent an array of graduate degree programs. In any single class, students may be pursuing graduate degrees in elementary or secondary education, special education, educational administration, psychology, counseling, sports sciences, wellness education, instructional technology, and so on. While textbook authors may be limited in the number of practical examples and scenarios they can use to illustrate research concepts, web-based learning can be used as a supplement to textbooks to provide a rich and varied array of published research to appeal to students in a variety of programs. Finally, many students find the subject matter and the complexity of the decision-making process challenging at best, and intimidating more-often-than-not. Students are often reluctant to participate in class or ask questions for fear of "saying something dumb". Accordingly, professors of educational research are challenged to find ways to promote an active learning environment that is also non-threatening for students. The relative anonymity and convenience of computer-mediated communication may be one way to address this need. The value of incorporating web-based instruction in research methods courses notwithstanding, the burgeoning growth of technology-mediated instruction has prompted professors of educational research and other stakeholders in the educational process to call for the development and implementation of quality standards.

Released in 2000 as a follow-up to an earlier study (Phipps & Mersotis, 1999), *Quality on the Line: Benchmarks for Success in Internet-Based Distance Education* is a comprehensive, research-driven report that identifies 45 quality measures for distance learning in higher education (Phipps & Merisotis, 2000). The National Education Association and Blackboard, a leading online education company, commissioned the Institute for Higher Education Policy (IHEP) to produce the report. Through in depth case studies of six leading higher education institutions, IHEP identified the measures and organized them under the domains of Institutional Support Benchmarks, Course Development Benchmarks, Teaching/Learning Benchmarks, Course Structure Benchmarks, Student Support Benchmarks, Faculty Support Benchmarks, and Evaluation and Assessment Benchmarks. Although the benchmarks were primarily developed to use as a standard against which to measure and evaluate the quality of Internet education (24 of the measures were deemed *essential* to ensuring quality Internet-based learning), they can also serve as the foundation for other related research endeavors. In this study, the benchmarks will be used to compare instructor and student expectations about Internet education and to describe how their initial expectations change over the course of a semester.

Literature Review

Two somewhat distinct bodies of literature that guided this study were survey research and course evaluations. The review that follows is not meant to be comprehensive, but rather an introduction to some of the issues related to these two topics.

Survey Research. The differential modes of delivery of surveys and the effect on response rates, has been the subject of several research studies. A study of 1537 Texas Agri-Science teachers compared response rates for an e-mail survey, a web-based survey and a

traditional paper survey (Fraze, Hardin, Bashears, Smith, & Lockaby; 2001) and reported that traditional paper surveys yielded the highest response rate (60%), followed by web-based surveys (43%) and e-mail surveys (27%). A study of 360 active members of the National Association of Science Writers compared response rates using a traditional paper survey, an e-mail survey and an optional web-based survey (Yun, Yun & Trumbo, 2000). An overall response rate of 72% was reported with 230 surveys completed. The response rates for the 230 completed surveys by mode of delivery were paper (71%), web (15%) and e-mail (14%). In a similar comparative study of 361 faculty members, the response rate for the e-mail survey was 29% whereas the response rate for the web-based survey was only 16% (Brawner, Felder, Allen, Brent & Miller, 2001).

Although these studies indicate a better response rate for paper-based surveys compared to web-based surveys, Shannon, Johnson, Searcy, and Allan (2002) suggested that electronic surveys can be effective for targeted populations, more efficient for obtaining faster responses, and can provide responses that can be stored directly into a data file. The authors noted four limitations with electronic surveys: (a) participants are limited to those with access to and comfort with technology, (b) issues related to confidentiality and privacy of information sent over the Internet, (c) credibility and authenticity of respondents, and (d) methodological challenges of replicating paper formatted surveys on web pages. They recommended Internet survey researchers use e-mail to contact potential participants to determine their willingness to participate and their technology capacity. Furthermore, the authors suggested that Internet survey researchers should consider using passwords or PIN numbers to ensure confidentiality and to establish the credibility of the sample. Similarly, Heerwagh and Leuven (2002) reported on a study where two different modes of access control were experimentally manipulated. They concluded that using a login procedure does not decrease response rates, whereas it does increase the overall degree of data quality. With this in mind, the online version of the survey used in this study required participants to use their university login name to access the questionnaire.

Course Evaluations. The topic of student evaluations of teaching has received much attention in the literature. One prevalent theme in the literature is the relationship between student evaluations and grade inflation. Fulda (2000) purports that traditional course evaluations where students rate instructors along a numerical scale indirectly encourages grade inflation and less rigorous coursework, and Wilson (1998) states that professors who are seeking high evaluation ratings must "dumb down material, inflate grades, and keep students entertained." Similarly, Trout (1997) contends that faculty members admit to lowering their grading standards and course requirements to improve their scores on student evaluations.

Several studies have compared instructors' self-ratings with the ratings of their students. For example, Sojka, Deeter-Schmelz and Gupta (2002) reported that faculty believe students rate easy, entertaining instructors more highly though students did not believe that evaluations pressure faculty to grade more leniently, influence faculty members' careers, or lead to changes in courses or teaching styles. Bosshardt and Watts (2001) compared students and instructors self-ratings of teaching effectiveness. Instructors believed that speaking ability and enthusiasm are important aspects of teaching effectiveness. Although students also valued these traits, they believed that instructors' preparation for class was most important.

The November 1997 issue of *American Psychologist* was devoted to the topic of the validity of student evaluations. In summarizing the articles that were featured in that issue, Birnbaum (1998) states that there are many possible interpretations of student ratings. "Because different instructors teach different content, use different standards, wear different

clothes, give different exams and tell different jokes to different groups of students who are not randomly assigned to classes, it is not possible to confirm or refute opposing theories of student evaluations.“ Furthermore, Birnbaum synthesized the contributions of Marsh & Roche (1997) and McKeachie (1997) to *American Psychologist*. “Some consider student evaluations to be so complicated that anyone who might dare to use them for practical purposes must be familiar with nonlinear, nonadditive, multidimensional modeling of confounded judgment data.”

Although faculty as a whole may be limited in their ability to revise or eliminate altogether poor quality standardized course evaluations that are administered at the college or university level, student feedback can be valuable for improving instruction. Faculty members are challenged to seek student feedback on instruction that is meaningful and can be used to improve instruction and course delivery.

Purpose of the Study and Research Questions

The advent and relative ease of Internet course management systems like Blackboard and its counterpart WebCT have prompted an increasing number of instructors and their students to venture into the realm of online education. Instructors and students enter the electronic arena with expectations about the nature of the educational experience. For example, instructors might anticipate that their students will engage themselves in a variety of learning activities and electronic discussions that will stimulate their thinking and learning. Students, on the other hand, may simply expect that an online course will be more convenient than a traditional campus-based class. If instructor and student expectations are not aligned, their experiences are likely to be unfavorable, and the likelihood that either group will engage in further online learning experiences may be compromised. The primary purpose of this study was to use the IHEP standards as a basis for comparing student and instructor expectations about a web-based course at three points in time – before instruction begins, half way through the course, and at the conclusion. A secondary purpose of the study was to examine response rates between mailed questionnaires and Internet delivered questionnaire. The following three research questions underlie this study:

1. Is there a difference in response rate between mailed questionnaires and Internet delivered questionnaires?
2. How do student and teacher perceptions of Internet instruction compare before, during, and at the completion of a 16-week course?
3. How do student final ratings of an Internet course compare with the IHEP benchmarks?

Methods

Participants and course description. The participants in the study were 37 graduate students enrolled in two sections of a required introductory course in research methods in the College of Education of a large metropolitan university. The students represented a wide range of academic disciplines including teacher education, counseling, educational administration, instructional technology, and athletic training. The course instructor has taught research methods courses in the College for nine years and has received recognition for excellence in teaching including the College’s Outstanding Teaching Award. The semester during which the study took place marked the second time the instructor taught the course online. Although the College offers dozens of courses that are considered web-enhanced, this was the first course in

the College taught entirely online. At no time during the semester did the instructor and students meet face-to-face.

The instructor controlled enrollment in the course, and each section was limited to a maximum of 20 students. Prospective students were directed to contact the instructor. During a 15 to 20 minute phone conversation with each prospective student, the instructor discussed the overall structure of the course and other issues pertinent to the course. For example, the instructor explained that successful Internet learners tend to be self-directed learners, that the primary learning modalities for Internet learning are reading and writing, and that Internet learning requires more time on the part of students and teachers compared to traditional classroom-based courses. Students were also instructed that convenient daily Internet access was more important for their success and enjoyment of the course than was the need to have advanced computer literacy skills. All of the prospective students chose to enroll in the class with both sections of the course quickly reaching the limit of 20 students. By the first day of the semester, three students had dropped the course. One student learned he was no longer required to take the course and another student decided against taking any courses that semester because of the demands of new motherhood. The third student dropped the course during the first week of the semester, but did not contact the instructor to provide a reason. Of the 37 remaining students, 36 successfully completed the course on time. One student requested a grade of incomplete due to personal illness and successfully completed the course several weeks after the semester ended.

The course content and instructional strategies were developed entirely by the instructor and offered through WebCT, a widely-used electronic course management system. A textbook was selected for the course that the instructor deemed to be *student friendly* (i.e. a level of complexity and detail that would be suitable for the more self-directed, independent learning that characterizes Internet-based learning). For each chapter of the textbook, the instructor created a learning module. The learning modules consisted of six components: (a) chapter summary, (b) pre-reading activities, (c) learning objectives, (d) vocabulary and concepts terms, (e) instructor notes, and (f) reflection questions. The learning modules served to support and supplement the weekly reading assignments and engaged students in a variety of application exercises. The learning module activities were not graded for content, but did serve as the basis for the weekly asynchronous discussion. There were four graded components of the course. The first component was a class participation grade, which was based on the weekly discussion. The second graded component was a modified research proposal. A third component was a research article critique. The final assignment was a series of four scenarios - open-ended case studies for which students were required to apply research concepts to write short essay responses to several questions.

Data collection instrument. A 22-item instrument was developed based on three student-centered domains of the IHEP Benchmarks: Teaching and Learning Process, Course Structure, and Student Support. Minor changes were made to the wording of the IHEP Benchmarks. For example, the benchmark "Easily accessible technical assistance is available to all students throughout the duration of the course/program" was re-worded as "Easily accessible technical assistance *will be available...*" or "Easily accessible technical assistance *is available...*" or "Easily accessible assistance *was available...*" - depending on whether students were completing the questionnaire prior to, during, or at the completion of the semester. A seven-point "strongly disagree" to "strongly agree" response scale was used. This was the same response scale used in the IHEP report, and it was used in order to compare student responses to those reported for the six institutions involved in the IHEP study. The 22 items are displayed in the tables that are included in subsequent sections of this paper.

Data collection procedures. To maximize confidentiality, the first and third authors managed all aspects of the data collection and analysis process. One section was randomly assigned to receive the mailed questionnaire. The other section received the questionnaire online through an independent website unrelated to WebCT. Mailed and electronic questionnaires were administered two weeks before the semester began, half-way through the semester, and at the conclusion of the semester. The instructor completed the questionnaire at the same time and was not provided with any feedback about student responses until after the course had concluded and grades had been submitted. Incentives were used to encourage students to return the questionnaires in a timely manner. Six \$10 gift certificates to a local bookstore were used as the incentives - one for each of the three questionnaire administrations in both sections of the course. The names of those students who returned the questionnaires by a specific date were entered into a drawing for the gift certificates.

Data analysis. Item level descriptive statistics (i.e. means and standard deviations) were calculated for each question. Student and teacher responses were compared at three points of time during the semester, and end-of-the-semester ratings were compared with the IHEP normative data. Effect sizes were calculated to quantify the differences between the comparisons. Student comments and written feedback were used to elaborate upon the statistical data.

Results

The results of the study are presented in several sections. In the first section, a comparison of response rates for the mailed and Internet-delivered questionnaires is presented. In the next section, the students' and instructor perceptions of three components of the course are compared: the teaching and learning process, course structure, and student support. Finally, students' ratings are compared to the IHEP normative ratings.

Response Rates for Mailed vs. Internet-Delivered Questionnaires

The 19 students in one section of the class received mailed questionnaires, and the 18 students in the other section were instructed to complete the questionnaire online. Response rates are reported in Table 1.

Table 1 Goes Here

A Chi-square Test of Independence was conducted to determine if there was a statistical difference between the methods of administration over the course of the semester. With $df=2$ and $X^2 = .631$, there was no statistically significant difference between the expected and observed frequencies, meaning that response rate was not related to the administration method during the semester. Combining responses across methods of administration resulted in a response rate of 56 percent prior to the start of the semester, 68 percent mid-semester, and 65 percent at the end of the semester. The lower response rate prior to the start of the semester could be partly explained by the fact that several students reported that they were on vacation and were not able to complete the questionnaires prior to the start of the semester. The response rates of 68 and 65 percent for the second and third administration were somewhat lower than that recommended in the survey research literature (Berdie, 1990). As will be presented in subsequent sections, students' overall perceptions of the course were very

positive. If all of the students who did not respond had rated the course in a negative manner, the data reported in this study would be somewhat positively biased. In a follow-up interview with the instructor, however, there did not seem to be strong evidence to support possible response bias. The instructor reported that she could identify three students whom she felt were struggling academically and/or technologically during the semester and might have rated the course in a more negative manner. Otherwise, the instructor reported that she had received positive feedback - personally through phone calls and private e-mails and through the weekly discussion board. Nonetheless, response rates for evaluations of Internet courses are an important issue, and it will be considered further in the discussion section of this paper.

Student and Teacher Perceptions of Internet Instruction

Student and teacher responses were compared on three components of the IHEP standards: Teaching and Learning Process, Course Structure, and Support Provided for Students. Means, standard deviations, and effect sizes are reported in the subsequent sections.

The Teaching and Learning Process. Based on the IHEP standards, ten questions about the teaching and learning process were posed to the instructor and the students. The instructor's responses, the students' responses summed across both sections, and the IHEP Benchmark are reported in Table 2A.

Table 2A Goes Here

Two patterns can be discerned from Table 2A. First, as the semester progressed the students' and the instructor's ratings converged to some degree. Prior to the beginning of the semester, there was considerable difference between the instructor's expectations about the teaching and learning process and the students' expectations. For eight of the nine IHEP benchmarks, the instructor's ratings varied by more than one point from those of the students. By mid-semester, there was less discrepancy between the instructor and student ratings, with only three of the ten ratings varying by more than one point. Similarly, by the end of the semester the students and the instructor varied by more than one point on only two benchmarks. At the conclusion of the study, the instructor was asked to reflect upon her initial ratings, which were both considerably lower than her ratings during the semester and varied from those of the students. The instructor explained that her teaching schedule was such that the summer semester ended on a Friday and the new fall semester began the following Monday. It was during this summer semester that the instructor first taught the online course. During the last week of the summer semester the instructor felt that she was challenged to conclude one semester while at the same time faced with making final preparations for the two online fall semester sections. Although the instructor reported that the summer semester was a positive learning experience for her and the students, she did not feel that she had adequate time to make curricular improvements for fall semester and was feeling somewhat unprepared. Consequently, her initial ratings of several of the IHEP benchmarks were low. Once the semester got underway and she began to receive positive feedback from the students, many of her ratings increased considerably. A second pattern that is evident in Table 2A is that overall, students gave high ratings to the Teaching and Learning benchmarks. Of the 30 separate ratings that students' provided during the semester, all of the ratings were greater than 4.0 (midpoint on the 7-point scale), and 25 of the ratings had a mean score of 5.0 or higher.

Effect sizes were calculated to consider whether students' perceptions changed noticeably during the semester and whether their ratings differed from the IHEP benchmarks. The effect sizes are reported in Table 2B. In Table 2B an effect size of .20 is considered small, .50 a medium effect, and .80 a large effect.

Table 2B Goes Here

The effect sizes reported in the first column compare students' expectations in the weeks prior to the start of the semester to their actual experiences half-way through the semester. Only three of the ten effect sizes in the first column have a value greater than .20 (but less than .30), indicating that overall students' expectations about the teaching and learning process did not change much during the first half of the semester. The effect size for the second survey item: "My interaction with other students is facilitated through a variety of ways" was -.22. This negative value, albeit small, indicates that at the outset of the semester, students had higher expectations about the different communication tools they would use to interact with their classmates than was actualized by mid-semester. In a follow-up interview, the course instructor reported that the only instructional method used to promote student-to-student interaction was a weekly asynchronous discussion thread. The instructor explained that a synchronous "chat room" was a communication tool that *could have* been used (i.e. an option in the WebCT environment), but that she purposely *did not* incorporate it into the class. "I know the literature describes the value of synchronous communications," reported the instructor, "but to some extent it also seems to defeat the purpose of online education. If I tell my students that they have to be online at a certain day and time, I may as well tell them to show up in class on campus. The whole reason they like online education is because they don't have to be online at a certain time." Interestingly, an effect size of .22 was reported for the survey question 10: "Course materials promoted collaboration among students". Even with a single communication method (i.e., asynchronous discussion thread), by mid-semester students perceived that collaboration was greater than what they had initially expected.

The effect sizes in the second column compare students' experiences at the semester mid-point with their ratings of the teaching and learning process at the end of the semester. Four of the effect sizes were greater than .20 but no greater than .33 indicated a small positive change in perceptions during this segment of the semester. Of greater interest, however, is the pattern of effect sizes in the third column, which reflect the change in students' expectations prior to the start of the semester with their end-of-semester experiences. Nine of the ten effects sizes were greater than .20, with half of the effect sizes having a value of .30 or greater. By the completion of the semester students' overall ratings of the teaching and learning process as defined by the IHEP benchmarks had increased when compared to their initial expectations of the course.

In the final column of Table 2B, students' end-of-semester ratings were compared to the IHEP benchmark standards. Of the nine positive effect sizes, six of the effect sizes were greater than .20. Of these, five had a value greater than .30. Although these effect sizes are considered small to moderately small, the overall pattern does seem to indicate that nine of the ten features of the course that promoted the teaching and learning process met or exceeded the IHEP standards. The only negative effect size was for the second survey item, which addressed the variety of methods that are used to facilitate student interaction. As was reported previously in this section, the instructor purposely chose to limit the number of ways that students could

interact with each other. Similarly, although students' ratings of this feature were lower than the IHEP benchmark, students' ratings of collaboration exceeded the IHEP standard.

Course Structure. Based on the IHEP standards, seven questions about the structure of the online course were posed to the instructor and the students. The instructor's responses, the students' responses summed across both sections, and the IHEP Benchmark are reported in Table 3A.

Table 3A Goes Here

Similar to the pattern revealed in the previous section on Teaching and Learning, as the semester progressed the students' and the instructor's ratings converged. Prior to the beginning of the semester, there was considerable difference between the instructor's expectations about the course structure and the students' expectations. For three of the seven IHEP benchmarks, the instructor's ratings varied by more than one point from those of the students. By mid-semester, there was less discrepancy between the instructor and student ratings, with only two of the seven ratings varying by more than one point. Similarly, by the end of the semester the students and the instructor varied by more than one point on only two benchmarks.

A second pattern that was evident in Table 3A is that students gave consistently high ratings to the Course Structure benchmarks. Of the 21 separate ratings that students' provided during the semester, the means were greater than 6.0 or higher (on the 7-point scale). The one exception (5.7) concerned the question "Specific expectations were set for me with respect to a minimum amount of time per week for study and homework assignments." While the lowest rating on these seven questions, a rating this remarkably high prior to the start of an online course and is indicative of the successful communication by the instructor of course structure and requirements. Student ratings on this question increased over the next two surveys as the expectations for workload were realized.

Effect sizes were calculated to consider whether students' perceptions changed noticeably during the semester and whether their ratings differed from the IHEP benchmarks. The effect sizes are reported in Table 3B. In Table 3B an effect size of .20 is considered small, .50 a medium effect, and .80 a large effect.

Table 3B Goes Here

The effect sizes reported in the first column compare students' expectations of the course structure in the weeks prior to the start of the semester to their actual experiences half-way through the semester. None of the effect sizes in the first column have a value greater than .20 and only one item in the second column comparing students' experiences at the semester mid-point with their ratings at the end of the semester had an effect size of .26 indicating that overall students' expectations about the course structure did not change much during the first half of the semester.

The pattern of effect sizes in the third column, which reflect the change in students' expectations prior to the start of the semester with their end-of-semester experiences, is positive

similar to the questions regarding the Teaching and Learning Process. Five of the seven effect sizes were .20 or greater, with one reaching a .30 value. By the completion of the semester students' overall ratings of the course structure as defined by the IHEP benchmarks had increased modestly but consistently when compared to their initial expectations of the course

In the final column of Table 3B, students' end-of-semester ratings were compared to the IHEP benchmark standards. Of the seven positive effect sizes, all were greater than .20 and of these, five had a value greater than .30. Although these effect sizes are considered small to moderately small, the overall pattern does seem to indicate that all of the features of the course that promoted course structure met or exceeded the IHEP standards. Of particular interest is question 13, which asked students to assess the timeliness with which assignments were submitted. The effect size of .53 for this question was the largest in this group of questions. When asked to reflect upon why her students might have rated this aspect of the course considerably higher than students in the IHEP study, the instructor explained that in an e-mail to her students early in the semester she explicitly described the process for submitting assignments electronically, downloading assignments for grading, the grading process itself, and procedures for returning assignments electronically. Furthermore, she stated that she regularly updated students during the time period when she was grading assignments in case there were any delays. For example, during a particular week when she was grading assignments, the instructor experienced a family emergency, which delayed the grading process by several days. She also stated that she received considerable feedback from students stating that they appreciated the information about the grading process.

Student Support. Questions about student support represent technical and administrative issues that are most often addressed by either the instructor or other administrative personnel. Training, hardware and software issues, and access information (login issues) are examples of topics covered in this area. Five questions about student support, based on the IHEP benchmarks, represent the third component of standards being assessed. The responses for the instructor, both sections of students, and the IHEP benchmarks are reported in Table 4A.

Table 4A Goes Here

Student ratings were high throughout the course with little increase or decrease for all questions except 19: "I am provided with hands-on training and information to aid me in securing materials through online databases." This indicates that, in general, students in the course had positive experiences with the support mechanisms in place and that the support was consistent. Student and instructor ratings converged as the course progressed. By the third survey the only benchmark in which these responses differed by a full point or more regarded information provided to the student: "Written information is supplied to me about the course". The instructor response is understandable because no printed instructional materials, except for the textbook, were used during the course. Considering that, the student rating is surprisingly high. One explanation is that *written information*, which could have been interpreted as "printed information", was perceived by students to also include information presented online.

Effect sizes were again calculated to identify changes in students' perceptions over time and differences between their third rating and the IHEP benchmarks. The effect sizes are reported in Table 4B. In the table an effect size of .20 is considered small, .50 a medium effect, and .80 a large effect.

Table 4B Goes Here

The only effect size larger than .20 between student surveys occurred between the first and third survey when the effect size was .26 for item 22: "a structured system is in place to address my concerns." As the course progressed students appeared to become aware of support mechanisms that would assist them. When comparing the student ratings to the IHEP benchmarks there were effect sizes of .20 or more between the students' third ratings and the benchmarks on two of the five questions with item number 22, having an effect size of .43 and item 18 having an effect size of .35: "I am able to obtain assistance to help me use electronically accessed data successfully." Both of these items together indicate that students in the course had their support needs addressed more to their satisfaction than their counterparts in the IHEP benchmark study.

Discussion

The first research question concerned response rates for surveys delivered online versus response rates for surveys delivered using postal services. We found no statistical difference between the response rates for online surveys and mailed surveys at each of the checkpoints in the semester. This is consistent with findings from other comparison studies (Shannon et al, 2002), and similarly we determined that the online format was less expensive to create, distribute and administer. Online survey responses were transferred directly into data analysis software whereas the paper surveys required that the data be entered manually. This finding of no significant difference in response rate result combined with cost savings in survey administration may become an important design consideration for future studies involving a greater number of respondents.

In a face-to-face classroom, the response rates to course evaluation surveys are probably 100% of those students physically present. Class attendance tends to be high near the end of the semester or on the last night when course evaluations are often distributed, (i.e., exams pending, etc.). In this study, the mailed end-of-course survey generated a response rate of 58%, whereas the online survey generated a response rate of 72%. The overall end of course response rate of 65% was not as high as the standards discussed in the survey research literature. Representative responses from course evaluations are important in helping instructors to better understand the course from the perspective of their students and to make adjustments as necessary. Representative responses are also important because many higher education institutions base decisions concerning faculty retention, promotion, tenure, and merit increases to some extent on teaching evaluations. The IHEP Report (Institute for Higher Education Policy, 2000) notes that many online instructors recognize that the reward system does not take into account the extra time a faculty member needs to teach well in distance education courses. The report also notes that many of the faculty currently teaching distance education courses were considered by their peers to be the best teachers and were doing so voluntarily. As universities and colleges increase their online course offerings, and non-volunteer (and possibly non-tenured) faculty are asked to prepare and deliver courses online, the issue of course evaluations will become increasingly important. Future research is required in the area of standardized course evaluations suitable for online delivery and strategies to ensure that a representative response rate from students can be obtained.

The second research question compared student and teacher perceptions of Internet instruction before, during, and at the completion of the course. Both students and instructors enter an online teaching environment with certain expectations about the nature of the educational experience. These expectations are often determined by previous experiences in teaching and learning and range from the naïve/uninformed learner to the highly self-regulated lifelong learner. Online asynchronous education gives the learner a great deal of control over their learning experience and assumes a learner that is well organized, self-motivated, and skilled in time management (University of Illinois Online, 2001).

Overall, we found very little discrepancy between student and instructor expectations about the course, with differences in expectations decreasing as the semester progressed. The instructor made a deliberate effort to set clear expectations for the students about the course through pre-course phone contacts and carefully structured questions to determine learner readiness to take the course in an online format. Thus, initial student expectations for this course were based on the information provided by the instructor concerning workload, technical requirements and the need to be a self-directed learner.

Four students responded to the open-ended question on the pre-course survey and all indicated that they were looking forward to the online course. One student reported:

"This is my first online graduate course. I hope that it will be a positive experience and that I will be able to take other graduate courses online. This is much more convenient for students who are working full-time and raising a family."

Six students responded to the open-ended question on the mid-course survey with four students offering very positive comments. One was cautiously positive:

"I have gained so much knowledge and practical information from this course, but it requires almost daily connection with the class via the computer."

One student reported being overwhelmed:

"...about the time involved in this class, we were told about 16 hours/week, logging on about 15-20 minutes per day. This is not accurate. I spend at least 3 hours/night every night..."

Nine students responded to the open-ended question on the mid-course survey with five students offering very positive comments specifically about the instructor. Student comments concerning the course itself included the following:

"This type of course offering is especially suited for a busy person who has the self-motivation and tech skills to be successful. It would be difficult for the person who does not keep on top of his/her assignments."

"Because of the distance I live from campus the online class was a practical option for me so I wouldn't have to travel to class 2 times/week."

"I had a very busy schedule this fall. This course made it much easier for me. I really like how you can make your own schedule at completing assignments and checking the course materials."

“I wasn't sure that the course justified so much time online, but I came to understand that the nature of the course itself required so much reading off and online. This was a well-organized and well taught class.”

There is recent evidence that the retention rate for online courses is now equivalent to that of regular classroom courses. A presentation by the Associate Vice President for Academic Affairs at the University of Illinois Online (Oakley, 2002) indicates that enrollment has doubled since the 2000-01 academic year and that retention of online students is at 95% - the same as on campus courses. Retention in the two sections of the online course in this study was similarly high (100%). It may be coincidental that instructor and student expectations were, for the most part, aligned, but it is certainly a topic for future research.

The third research question asked how student final ratings of this Internet course compare with the IHEP benchmarks. The student ratings were generally higher than the IHEP standards. This may have been explained by several factors. First, the quality of instruction may simply have been better than in other distance learning courses. In this case, students would have had better experiences that resulted in the higher ratings. Another possibility is that because this was a graduate level course in the field of education the students were more aware of the learning process and understood the requirements to succeed in a distance-learning environment. Presumably these students would be more self-directed and motivated than students in other fields of study and would have enjoyed a better overall experience as a result. Third, the history of the course and of the survey may have played a role. As students progress through a course they become more familiar with the course structure and expectations put upon them. The decrease in uncertainty as well as the knowledge of the previous two surveys may increase the comfort level with the course and the surveys themselves resulting in the highest student ratings by the third survey.

Future research opportunities exist for variations of the study. This research looked at only three groups of learner-centered benchmarks within the IHEP study. This was done primarily because of the survey length. We deemed it impractical to ask additional questions without risking a lower response rate from the students. Additional work in the remaining benchmark categories of Institutional Support, Course Development, Faculty Support, and Evaluation and Assessment may yield other findings that could provide valuable information regarding the effectiveness of distance learning courses. Secondly, the surveys used in the study were administered without the results being presented to the instructor until the completion of the course. This was done so that the course delivery would not be biased by the responses. However this information could easily enable an instructor to make adjustments to properly address shortcomings perceived by the students.

The IHEP standards represent an opportunity for instructors in distance learning environments to measure the quality of both their instruction and their support mechanisms and to compare them to a set of industry benchmarks. This evaluation can help identify positive and negative aspects of course design and implementation during and after a course and allow the opportunity to modify the course and create a more productive environment for the distance learning student.

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Table 1. Comparison of response rates for mailed and Internet survey

	Mailed Survey n=19		Internet Survey n=18	
	f	%	f	%
Prior to start of semester	12	63	9	50
Mid-semester	12	63	13	72
End of Semester	11	58	13	72

$$\chi^2 = .631, \text{ df}=1, p > .05$$

Table 2A. Teaching and Learning Process: Student and Instructor Ratings and IHEP Benchmarks

	Time #1 Semester Beginning		Time #2 Mid-semester		Time #3 End-of-Semester		IHEP Benchmark	
Survey Items 1-10 Expectations About Teaching and Learning Process	Instructor	Student n=21 Mean SD	Instructor	Student n=25 Mean SD	Instructor	Student n=24 Mean SD	Mean	SD
1. My interaction with the instructor is facilitated through a variety of ways.	4	5.3 1.42	5	5.1 1.32	5	5.9 1.50	5.7	1.46
2. My interaction with other students is facilitated through a variety of ways.	5	5.0 1.32	4	4.4 1.38	4	4.7 1.94	5.4	1.68
3. Feedback about my assignments and questions is provided in a timely manner.	4	6.3 0.66	6	6.1 1.38	6	6.7 0.63	5.6	1.27
4. Feedback is provided to me in a manner that is constructive and non-threatening.	Missing	6.1 0.85	6	6.3 1.37	6	6.7 0.63	5.9	1.22
5. The course is separated into self-contained modules that can be used to assess my mastery before moving forward.	3	5.3 1.13	7	6.0 1.43	7	6.3 0.93	5.4	1.81
6. The modules are of varying lengths determined by the complexity of the learning outcomes	4	5.5 1.10	7	5.7 1.57	7	6.3 0.78	5.1	1.78
7. Each module requires me to engage in analysis, synthesis, and evaluation as part of the course assignments.	4	5.9 0.88	7	6.0 1.34	6	6.5 0.95	5.7	1.42
8. Email addresses and a course message board is provided to encourage students to work with each other and the instructor.	2	6.1 1.05	7	6.4 1.23	7	6.6 0.78	5.9	1.57
9. The course is designed to require students to work in groups utilizing problem-solving activities in order to develop topic understanding.	3	4.4 1.60	3	4.6 1.63	4	5.1 1.62	4.9	1.94
10. Course materials promoted collaboration among students.	3	4.7 1.59	3	5.4 1.38	4	5.4 1.70	5.0	1.78

Table 2B. Teaching and Learning Process: Effect sizes between student ratings at three points of time during the semester and with IHEP Benchmarks

Survey Items 1-10 Expectations About Teaching and Learning Process	Student Time 1 x Time 2	Student Time 2 x Time 3	Student Time 1 x Time 3	Student & IHEP
1. My interaction with the instructor is facilitated through a variety of ways.	- 0.07	0.27	0.20	0.07
2. My interaction with other students is facilitated through a variety of ways.	- 0.22	0.09	- 0.09	-0.19
3. Feedback about my assignments and questions is provided in a timely manner.	- 0.09	0.27	0.30	0.48
4. Feedback is provided to me in a manner that is constructive and non-threatening.	0.09	0.18	0.37	0.38
5. The course is separated into self-contained modules that can be used to assess my mastery before moving forward.	0.26	0.12	0.44	0.30
6. The modules are of varying lengths determined by the complexity of the learning outcomes	0.07	0.23	0.39	0.40
7. Each module requires me to engage in analysis, synthesis, and evaluation as part of the course assignments.	0.04	0.33	0.31	0.31
8. Email addresses and a course message board are provided to encourage students to work with each other and the instructor.	0.13	0.09	0.26	0.27
9. The course is designed to require students to work in groups utilizing problem-solving activities in order to develop topic understanding.	0.06	0.15	0.21	0.06
10. Course materials promoted collaboration among students.	0.22	0.00	0.21	0.11

Note: The shaded cells indicated effect sizes greater than plus/minus .20

Table 3A. Course Structure: Student and Instructor Ratings and IHEP Benchmarks

	Time #1 Semester Beginning		Time #2 Mid-semester		Time #3 End-of-Semester		IHEP Benchmark
Survey Items 11-17 Expectations About the Course Structure	Instructor	Student Mean SD	Instructor	Student Mean SD	Instructor	Student Mean SD	Mean SD
11. I am provided with supplemental course information that outlines course objectives, concepts, and ideas	2	6.1 0.64	4	6.0 1.49	4	6.5 0.85	6.1 1.13
12. Specific expectations are set for me with respect to a minimum amount of time per week for study and homework assignments	6	5.7 0.98	5	6.0 1.51	5	6.3 0.92	4.9 1.62
13. The instructor grades and returns all assignments within a certain amount of time.	6	6.1 0.91	7	6.3 1.37	6	6.5 0.79	4.7 1.90
14. Sufficient online resources are available to me.	7	6.3 0.72	7	6.2 1.32	6	6.5 0.85	5.8 1.55
15. I have been instructed in the proper methods of effective research, including assessment of resource validity.	3	6.3 0.55	7	6.2 1.31	7	6.3 1.03	5.1 1.83
16. Before starting the course, I was advised about the course to determine if I have the self motivation and commitment to learn at a distance.	4	6.1 1.12	7	6.3 1.31	7	6.6 0.66	5.2 1.90
17. Learning outcomes for the course are summarized in a clearly written, straightforward manner.	6	6.2 0.70	7	6.2 1.38	6	6.5 0.79	5.4 1.58

Table 3B. Course Structure: Effect sizes between student ratings at three points of time during the semester and with IHEP Benchmarks

Survey Items 11-17 Course Structure	Student Time 1 x Time 2	Student Time 2 x Time 3	Student Time 1 x Time 3	Student & IHEP Benchmark
11. I am provided with supplemental course information that outlines course objectives, concepts, and ideas	- 0.04	0.26	0.20	0.20
12. Specific expectations are set for me with respect to a minimum amount of time per week for study and homework assignments	0.12	0.12	0.30	0.47
13. The instructor grades and returns all assignments within a certain amount of time.	0.04	0.09	0.23	0.53
14. Sufficient online resources are available to me.	- 0.05	0.13	0.13	0.27
15. I have been instructed in the proper methods of effective research, including assessment of resource validity.	- 0.05	0.04	0.00	0.37
16. Before starting the course, I was advised about the course to determine if I have the self motivation and commitment to learn at a distance.	0.08	0.14	0.26	0.44
17. Learning outcomes for the course are summarized in a clearly written, straightforward manner.	0.00	0.13	0.20	0.40

Note: Shaded cells indicate effect sizes great than plus/minus .20.

Table 4A. Student Support: Student and Instructor Ratings and IHEP Benchmarks

	Time #1 Semester Start		Time #2 Mid-semester		Time #3 End-of-Semester		IHEP Benchmark
	Teacher	Student Mean SD	Teacher	Student Mean SD	Teacher	Student Mean SD	Mean SD
Survey Items 18-22 Expectations About the Support Provided for Students							
18. I am able to obtain assistance to help me use electronically accessed data successfully.	2	6.1 0.76	7	6.0 1.37	7	6.2 0.94	5.2 1.65
19. I have been provided with hands-on training and information to aid me in securing materials through online databases.	2	5.3 1.12	5	5.6 1.55	5	5.6 1.53	5.1 1.83
20. Written information is supplied to me about the course	4	5.5 1.39	5	5.8 1.83	5	6.0 1.41	6.2 1.22
21. Easily accessible technical assistance is available to me throughout the duration of the course	1	5.6 1.10	6	5.8 1.27	6	5.9 1.12	5.4 1.74
22. A structured system is in place to address my concerns	3	6.1 0.79	7	6.1 1.47	7	6.5 0.68	5.3 1.66

Table 4B. Student Support: Effect sizes between student ratings at three points of time during the semester and with IHEP Benchmarks

Survey Items 18-22 Support Provided for Students	Student Time 1 x Time 2	Student Time 2 x Time 3	Student Time 1 x Time 3	Student & IHEP Benchmark
18. I am able to obtain assistance to help me use electronically accessed data successfully.	- 0.05	0.08	0.06	0.35
19. I have been provided with hands-on training and information to aid me in securing materials through online databases.	0.11	0.00	0.11	0.15
20. Written information is supplied to me about the course.	0.09	0.06	0.18	-0.07
21. Easily accessible technical assistance is available to me throughout the duration of the course.	0.08	0.04	0.13	0.17
22. A structured system is in place to address my concerns.	0.00	0.17	0.26	0.43

Note: Shaded cells indicate comparisons in which the effect sizes are greater than plus/minus .20.