Web Course Enthusiasm: Hidden Costs

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Abstract

Web based courses have become very popular with administrators, some faculty, and, in Texas, with the legislature. This enthusiasm has led to administrators encouraging instructors to "put your course on the web." However, just because we can do it, should we do it? At one university there have been costs to students, instructors, and to the university which were not expected. Graduate and undergraduate students do not have the same level of self-evaluation, motivation, or study skills. The software intrigues some instructors and repels others. What is the potential for academic dishonesty on the web? Web based courses have different potential than web supported courses.

Introduction

Web Course enthusiasm is taking many college and universities by storm. The ability of the web to provide asynchronous learning at locations around the world is touted by administrators and faculty alike. Legislators on education committees speak of web based and web enhanced courses and their potential to both provide mass education and reduce costs. Students report that without the web they would not have been able to keep their jobs and attend school. These benefits are real and overt. There are some costs that are overt also. The educational institution must have the hardware, software, and technical staff to get onto the web. The university must have a faculty willing and able to provide courses for the web. The student must have access to a computer, software, and connection to contact the education server. There are some costs that are not overt and they are real also. This paper will point out some of the covert costs of web based undergraduate courses, attempts by one university to mitigate these costs, and suggest some areas for further research.

The data presented in this paper was collected at a university with an enrollment of 700 students in web based courses. This enrollment represents slightly less than one in every ten students attending the university. One hundred seven undergraduate students in Industrial and Engineering Technology courses were surveyed. Seventeen students were found to be taking or had taken web based courses. Ten faculty members, four of whom were teaching on the web, were surveyed.

Costs to the student

Some students should not take web based courses. Students have different learning styles, different work loads, and access to different levels of web connectivity and reliability.

Web based learning has some similarities to correspondence course learning. Some personalities or styles of learning are not good candidates for success in web courses. At Texas A&M University-Commerce a self administered, self evaluated, web based test is offered to students in the FAQ section of the distance education web page to assist students in making a decision about taking a web course. Two of the four faculty offering web courses had a link in their on-line syllabi pointing to this test.

Some typical questions on this test are:
    1. Having face-to-face contact with my instructor and fellow students is:
        (a) not particularly important to me.
        (b) somewhat important to me.
        (c) very important to me.
    2. Classroom discussion is:
         (a) rarely helpful to me.
         (b) sometimes helpful to me.
        (c) almost always helpful to me.

When the student completes the test and submits it, the answers are weighted and summed. The score is reported to the student along with ranges suggesting taking or not taking a web based course.

 None of the 107 students surveyed reported being aware of this test, taking this test, or that it influenced them in any way. The most frequent response of students with on-line course experience to the survey question inquiring the reason for taking an on-line course was, "I can study at my own convenience." (13 students) followed by "I can study at home or other location." (4 students). These answers suggest that the asynchronous and portable attributes of web courses were most attractive.

When asked what the best thing was about the web based course, all students said, " I was better able to control my schedule." Not all of the seventeen students were happy with their on-line course experience. Only eleven students reported that they would take an on-line course again. Seven students answered positively that they would recommend a web-based course to friends. Nine said that the course required "more time than I expected" or "much more time than I expected." None of the students said that the course took less time than they expected. Only five students responded that their grade was "what I expected to get", 'slightly better than I expected to get", "better than I expected to get", or "much better than I expected to get."

The time cost to students was greater than they expected to pay. Furthermore, they took a hit in their GPA that was not expected. These costs came as a result of the student's "informed" decision.

There is an area of visible cost to the student too. Student services fees are assessed on all courses, on-site or on-line. At the present time they are a maximum of $150. Next year they are expected to rise to $190. What do the on-line students receive for this expense?

Another interesting cost arises from the location of the student's home. About 20% of the on-line students live within 5 miles of the university. Many of the students taking the web based courses live on campus in the dorms. Someone is paying for these students to move to and live in the town, even on the campus, where the university is located. Yet these resident students are choosing to take the course in front of their computer rather than in front of an instructor.

One of the touted attractions of web based courses is that you can take courses at remote locations and save the cost of commuting or moving. These on campus students have spent the relocation cost but are not taking advantage of purchase.

Cost to the Instructor

The first cost to the instructor is the cost of learning to use the technology for teaching. The lessons must present the material in a way for the student to learn and retain it. This requirement is not any different than for a face-to-face class. However, the material must also answer any possible question any student could ask. In a regular class room the student can raise their hands and ask for further information that is not possible in the asynchronous situation. The instructor must learn how to prepare a lesson to meet this requirement.

More time is required to prepare the lesson than to prepare on-site classes. Furthermore, the software must be mastered. The software used in the on-line classes at Texas A&M University-Commerce has 12 menu tabs for different activities. The four instructors reported needing an average of three and a quarter hours to prepare a lesson for their first on-line course. Preparation time decreased for subsequent courses. Six of the 10 instructors interviewed reported the number one reason for not teaching on-line was an aversion to learning to use the software.

The cost of test security is very high for on-line courses. The software provides for security measures. Some of these measures are the use of monitors, random selection of questions from a test pool, random ordering of test questions, control of test time, and control of test availability. Each of these measures imposes a cost on the instructor.

If the instructor requires monitors at the student's test location, that monitor must be certified. The instructor must be assured that the monitor is reliable and ethical. This may be difficult or impossible due to the remote location of the student. The instructor must decide whether or not to trust the security of the test to a monitor.

The use of a test pool requires the instructor to come up with many questions. This task requires more time than developing a few questions. One of the instructors interview reported developing 75 to 100 questions for each test. Many instructors face a dilemma when forced to make up a large number of questions. For example, if the body of material provides 25 "good" questions what kind of questions are the other 75? Good questions are ones that will test the student's

knowledge of the subject and their ability to draw correct conclusions based upon that knowledge. The other questions may be over trivial matters or minutia.

In the class room, all students would get the 25 good questions and the playing field is level. The instructor must guard against students in a remote location sitting together with multiple computers and taking the test together. Using random selection of questions from a pool guarantees that no two students have exactly the same test. A possible cost to the student from this procedure is the chance of getting many 'dud' questions and receiving a poor grade when the substantive material was mastered.

Randomization of test question order imposes no cost on the instructor other than checking a box in the software. This measure provides some security if coupled with restricted test time. It adds to security if it is used in conjunction with the test pool. This choice does not impose a burden upon the student who has mastered the material, however it may cost the student who is only prepared to answer questions in the same order in which the material was presented.

Another way to improve test security is to use power tests. A power test is one where the ratio of time required to answer to test questions is less than 1:1. Only the student who has mastered the material and has the ability to respond rapidly can get a perfect score. No time is allowed to think through the material. The advantage for test security is that no time is allowed for consultation with others. The cost to the instructor is one of personal value and self-image as a teacher. The student who is well prepared but deliberate in answering will pay the price of not completing the test.

The security of the test can be improved if access to it is restricted to a short test window. This is not the same thing as giving a power test. This strategy relates to the amount of time the test is posted and available for taking. If a test is posted for a long period of time, say 24 hours, a syndicate of students could agree to take the test sequentially. One student could take the test early in the period. That student could "print screen' the test and pass it along to the others who could study it and take the test later in the period.   This method is very effective against a simple test scheme and is even somewhat effective against a test pool and random order test method.

The defense against this method of dishonesty is to post the test for only a short period. This destroys the asynchronous attribute of the web based course. The teacher must decide whether or not to eliminate this advantage of the web course in order to protect the integrity of the test and evaluation process. The student pays the price of loss of control over their schedule.

For the teacher who enjoys the face-to-face contact with students and the experience of learning from them in the lecture room or lab, the web based course extracts a large cost. The web does foster two way communication by the use of e-mail, discussion boards, and chat rooms. The communication is, however, heavily oriented to the task and not to knowing the individuals. Not all instructors consider this a bad thing. One of the on-line course teachers considered it an advantage to have more time for research and to be less interrupted by student visits. He could schedule his e-mail responses at a convenient time in his day.

The teacher gets blamed not only for poor teaching but for failures in the technology. An example of how circumstances of technology out of the teachers control can effect the teacher-learner relationship follows. The teacher was requiring any answers relating to money have a dollar sign ($) and a decimal. During the course of the semester the provider of the on-line server changed their software. A side effect of this change was that any answer with a dollar sign was scored as correct by the grading program. After giving a test, the instructor was amazed to find that all the students had perfect scores. After the instructor scored the test by hand very few students had a perfect score. This change in test scores caused a flurry of complaining e-mails from the student whose grades had been lowered.

Slow or dropped connections cause the students to become annoyed. This annoyance is manifest at the end of the semester by complaints in the student evaluations about the quality of the teacher. One of the on-line teachers interviewed stated, "If you are not already tenured, you are a fool to teach on-line courses." This may be a strong statement, but it appears to have some truth.

Another instructor related a story about a student's e-mailed question. The student e-mailed a question to the instructor about the material assigned. After not getting a reply for 20 minutes, the student sent another e-mail inquiring, "Why don't you answer my question!" The first e-mail was time stamped at 2:10 AM and the next was time stamped at 2:33 AM. The student confused the asynchronous nature of the web based course with the diurnal nature of the human being who was the teacher. When people don't get their candy bar from the vending machine, they sometimes kick the machine. When students have a bad web course experience, for whatever reason, they sometimes kick the faceless teacher.

Cost to the University

Are feelings of Alma Mater engendered by the web based course experience? Will students remember the good old days back at Gateway E-3100 and send an endowment to the university? Is the university trading the here and now benefits of the web course for the support alumni give to their schools? The author does not have the answer to these questions but he thinks they are interesting questions.

A cost to the university is a loss in the perception of quality, by some people, due to on-line courses. This may not be true for graduate on-line courses. Or it may be that students who have proven they can get an undergraduate degree are granted an indulgence, by employers or the public, for on-line graduate work. This may not be the case for undergraduate students. To offer an analogy, correspondence courses, no matter how rigorously taught, are not perceived as being as good as on-site courses.

The university gives up control when on-line courses are offered. This reduction in control weakens the checks in place to halt academic dishonesty. The second reason given by the six instructors who are avoiding giving on-line courses was worries about cheating. One of the on-line instructors interviewed related the following example. A test was given by this teacher without using a test pool, randomization, power test method, or restriction of test availability. In grading the tests, the instructor noticed that two students, both of whom had done poorly on easier tests, had gotten very good scores on this test.

An examination of test times revealed that the average test time for the 22 students in the class was 91 minutes with a standard deviation of 37.66 minutes. Both of the students in question completed the test in 7 minutes. Using standard z statistics, it appeared that this could happen by chance less than 2 times in 100. Since both of these students were also taking classes on campus, the instructor took the opportunity to confront one of them with this data and requested an explanation. The student blurted out that three members of the class took the test together.

The instructor prepared to take this data to the Dean of Students but spoke with his College Dean first. The Dean of the College said. "…but you did not actually see them cheat." The teacher was then admonished by the Dean to use question pools, randomize the order of questions, restrict the test time, and post the tests for brief periods. The instructor did not go forward to the Dean of Students. For the rest of the semester he used all of the test security strategies.

Summary and Conclusion

Web courses have some powerful benefits. They have some costs that have not been recognized or addressed. The students deserve to get their money's worth. Course content should be up to standard, testing should be fair, and the non-monetary costs should be made manifest to assist the student in making an informed decision about choosing a learning method. Students should be evaluated for the appropriateness of their placement in on-line courses and those unsuitable should be warned off.

The extra work done by instructors to create on-line courses should be recognized and rewarded. The instructors should not be forced to create on-line courses and their desire to teach on-site courses should be respected. Instructor's evaluations should recognize the hazards they face from failures of the technology and how that effects the student's perception of their teaching.

The methods of testing and evaluation on the web are far from satisfactory. The public, faculty, administrators, and students have reservations about test security.

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