Delivering Web-Based Education

Kathryn A. Marold
Metropolitan State College of Denver, USA

INTRODUCTION

A decade of hindsight allows us to examine the phenomenon of Web-based course delivery and evaluate its successes and failures. When Web-delivered courses mushroomed from campuses in the 1990s, they were embraced by students, faculty, and administrators alike. The prospect of "electronic tutelage" (Marold, 2002), which allowed students through Web interface to take college courses for credit any time, any place (ATAP), was immediately popular with students. The interruptions of job and schedule changes, relocation, childbirth, failed transportation to campus, and so forth no longer necessitated an interruption in progress toward a degree. Likewise, faculty saw online teaching as an opportunity to disseminate knowledge and assess student progress according to their personal preferences, and to communicate personally with their students, albeit virtually. Administrators saw the revenue without physical classroom allocations as an immediate cash cow. In the beginning, there was satisfaction all around. Although this state of affairs was not necessarily universal, generally it could be concluded that Web-based education was a very good thing.

The Evolution Of Web-Based Course Delivery

Web-based education is a variation of distance learning: the content (college courses from an accredited North American institution, for purposes of this chapter) is delivered via the World Wide Web. The Web course content covers a quarter or semester of curriculum that the student must complete and prove a level of mastery within a given timeline. For the most part, Web-based courses use existing college curriculum and timelines. Web-based education is currently the most popular form of distance education. As educators are inclined to do, it was not long before they wanted to stand back and evaluate what they had created and determine the success of Web-delivered courses as a form of distance education. With McLuhanesque procedures, a glance in the "rear view mirror" was in order (McLuhan, 1964.) The results of many measures of success show that for *some* of the students, *some* of the time, in *some* situations, Web-based education is quite successful. Likewise, for many persons in many situations and in many phases of their formal education, Web-delivered education is *not* the answer.

BACKGROUND

The advent of the World Wide Web in the early 1990s promised a more effective, user-friendly form of Internet distance education. The graphical hypertext and, indeed, the hypermedia nature of the Web could enhance course delivery. Almost immediately, Web courses began to flourish. A new mode of delivery was firmly established.

Web-Based Education's Successes and Failures

Numerous publications have exposed problems associated with the Web-based form of distance education. The population taking the courses was sometimes the problem (Haga, 2001). The attrition and failure rate of Web-delivered courses was higher than the classroom arena (Terry, 2001). The content of the course could be problematic (Haga, 2002). The credibility of course credit achieved online was sometimes suspect (Moreno, 2000). The level of courses offered online was sometimes suspect (Marold, 2003). Research findings suggest the following conclusions concerning Web-based education (see Table 1).

There are almost as many reports of success with Web-based education as there are reports of failures. Students who are successful with Web courses tend to take more of them, sometimes as many as 90 hours of the 120 hours required for a bachelor's degree. There are now entire degrees offered online. The earliest research on Web-based education reported no statistical difference in final grades between Web-based groups and classroom groups (Mawhinney, 1998; Schulman, 1999).

The conclusion that Web-delivered education, like all distance education, is only appropriate for some students cannot be denied. It is obvious that Web courses are not going to go away. It is also undeniable that regardless of how enrollments in Web-based courses are screened, there will be students who enroll in Web courses that should not be in them. It has been shown time and again that some Web students enroll for all of the wrong reasons (Haga, Marold, & Helms, 2001). It is equally obvious that Web courses fill an enormous need for many students and are, therefore, very successful in many instances.

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Table 1. Successes and failures of Web-based education

Positive	Negative
Survey level courses are the most successful.	The attrition and failure rates for upper level, analytical Web-based courses often reach 50%.
Courses at the 1-2 level of Bloom's taxonomy (Bloom, 1956) of learning immersion are more successful than those at the 3-5 level.	Students at the B and C level (the vast majority of students in any institution) are the most at risk for not completing and not passing Web-delivered courses.
Students with GPA of 3.5 or better are the most successful at completing and excelling in Web-delivered courses.	
Graduate level Web-delivered courses are more successful.	Web-delivered courses are a disaster for the passive learner without time management and independent study skills.
Courses delivered via a 3rd party distributor or a portal (such as *WebCt* or *Blackboard*) are more successful than self-hosted Web courses	Both students and faculty alike indicate time spent on an Internet delivered course is more than it would be on its classroom equivalent.
Internet students generally do better than their classroom counterparts on exams. Internet students generally do worse on projects than their counterparts on assigned projects.	
Analytical and problem solving courses are least successful.	
Web-delivered courses are a godsend for the highly motivated, independent learner.	
Final grades on Web-based education courses generally do not differ significantly from those earned in the classroom. Web-based courses are here to stay. They are an accepted, credible method of course delivery	

While the students who are at risk for failure in Web-based courses that are analytical and require problem solving are those students who are generally classified as mid-level achievers, taking prerequisite courses online seems to alleviate the risk slightly (Pence, 2003). The student group at the greatest risk is the mid-level achieving group, which in a normal distribution is the largest number of students in the class (Marold & Haga, 2004). Pence suggests some alleviating factors, such as taking the prerequisite course online from the same institution. This suggests that as students become more accustomed to the requirements and idiosyncrasies of online learning, the risk decreases. Experience makes a difference. In addition, the majority of students taking online courses indicate that they would take another online course, even though they perceive them to be more work than an equivalent classroom course. Despite attrition and failure rates that sometimes reach 50%, Web-based education is clearly a student favorite.

Tables 2 and 3 show some of the research results of a decade of Web-based education.

In the above research of two separate Web-based required computer information systems junior level courses in the same department of a large urban state school, student tests were higher in the Internet version, but their project scores (application of learning) were lower.

In Table 2, there were three different courses at freshman, sophomore, and junior levels, offered online as well as in the classroom, from the same department of a large urban institution. All three courses were survey-type courses with a heavy skills component. This research was done earlier than the study shown in Table 2. The test scores were also higher for the Internet sections, and the projects lower.

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