Chapter VIII

E-Learners at Risk: The Effect of the Online Learning Environment upon Mid-level Achievers

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Abstract

In a continuous improvement research project aimed at identifying the students who are best suited for Web-delivered programming courses, the authors gathered data from five online and five classroom sections of Visual Basic programming at Metropolitan State College of Denver and compared them. All sections of the course used the same syllabus and assignments, and were taught from a centralized, standardized process by the same instructor. Internet students in the midrange of achievement level were affected more by delivery method than those at either the high end or the low end of their achievement level, as measured by GPA. The research culminates a three-year study on delivering higher level CIS curriculum via Web courses. The authors conclude that more study is needed, but are convinced that the mid-level B or C student is most
affected by Web delivery, and design and delivery of programming courses via the Web need careful attention.

Introduction

Web-delivered courses are here to stay. Students like them, instructors like them, and administrators like them — all for different reasons. Nevertheless, earning legitimate college course credit via the Internet is now firmly established. The common problems present in higher level, critical thinking courses delivered via the Web are also well researched by now. There are problems and significant issues, as was noted in earlier research by ourselves and by others trying to measure the success of on-line learning (Haga & Marold, 2002; Marold & Haga, 2002; Mawhinney et al., 1998; McCloskey et al., 1998; Moreno, Larsen & Marold, 2000; Terry, 2001). The first courses to be put online in Information Systems departments were generally the lower level elective courses, and courses which were survey or retention-oriented courses. When faced with putting courses that involve problem solving and higher analytical reasoning on the Web, the initial success of the first Internet courses would not be repeated. All Web courses were not working. The attrition rate was higher for upper level, more analytical courses, and the failure rate was greater. The performance, as measured by projects completed, was not equal to classroom sections, even though final grades were often not significantly different.

Results of several research projects over the last three years were inconclusive. Yet it was evident that for some students the method of delivery of course curricula made a difference in their learning. Most certainly, in both delivery methods, there were those students at the high end who would succeed regardless of the delivery, and likewise, there was the group at the bottom level that would not succeed in either environment. However, the middle tier might be more vulnerable to delivery method, and for them the difference in mastering concepts might be related to whether they took their programming class online or in the classroom. In an attempt to separate out those students who would be most affected by mode of delivery, a pretest on the prerequisite knowledge for the Business Application Development with Visual Basic course was administered during the first three weeks of class to students in both the online sections and the classroom sections. The authors were motivated to validate through this
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