

Daily Quizzes and Effects on Student Learning of Statistics

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ABSTRACT

Quizzes, tests, projects, and assignments are common means for assessing student performance. To add to the richness of the classroom experience, instructors can offer all or part of the materials via the Internet. When some of the material or part of the course is offered online and face-to-face attendance is still required, it is called a hybrid environment. While it is true that there are studies that have found that students in online environments do perform as well or better than their face-to-face counterparts, the literature is equally rich with findings that online experiences is not for all type of students.

This study is extension of the many studies about student learning outcomes and online usage. Unlike prior studies, this research examines the usage having instructional materials (in the form of cases that were similar to the quizzes) online and its effects on student learning and teaching evaluations when incentives were offered and when incentives were not given. The experiment was conducted in several sections of statistics classes covering a span of about two years. The classes were conducted in hybrid mode and for consistency, were taught by the same teacher covering the same materials. The only items posted online were the teaching materials and cases that were similar to the daily quizzes. The only difference was in the way the groups were in treated. One group was offered incentives (bonus points or credit) to do the practice quizzes. The other group was not. In the control group, quizzes were conducted in class. The student learning outcomes were assessed using the tests and the satisfaction level of the student was measured using the teaching evaluation survey that was conducted at the end of the semester.

This hybrid experiment yielded some very interesting and useful feedback that may have important implications for teachers. First, the quizzes posted online are viewed as useful to learning by students. According to the student surveys, the teacher ratings were higher when the

quizzes were posted online. Put simply, students like the hybrid environment because it provided easy access to the quizzes and that resulted in a higher level of satisfaction reported.

Second, the availability of incentives to do the quizzes was found to have a major effect on the student performance on the tests given. The difference was statistically significant indicating that when incentives were offered, students were more willing to do the quizzes and that ultimately resulted in better test scores. Put simply, easy access to instructional resources (quizzes in this study) does not necessarily translate into usage by students. Students lack the self discipline and desire to use those resources. To have priority in the learning process, some type of a reward system or penalty is mission critical to student success when hybrid environments are used.

KEY WORDS

E-Learning, Hybrid Learning, Quizzes, Assessment, Student Learning Outcomes, and Teaching Effectiveness