Does Posting PowerPoint Presentations on WebCT Affect Class Performance or Attendance?

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Grade earned and class attendance records were examined to determine if posting PowerPoint notes on a web-based course management system was related to enhanced performance or increased absences. There were no differences in either grades or absences between classes that had notes posted and those that did not. However, results indicated grades were positively related to attendance. This outcome should allay the concerns and relieve the pressure that some faculty might feel about whether or not they should post their PowerPoint presentations.
Key Wors: College students, grades, attendance, PowerPoint

Some faculty have been reluctant to make notes or PowerPoint presentations available on web-based course management systems such as WebCT, for fear that students will not pay attention or attend class regularly. Hammonds (2003) found a general decline in attendance over a three-year period for courses in which an internet-based teaching module was made available. Other faculty have embraced the use of and are encouraged to use these systems (Brent, 1999; Grabe & Christopherson, 2005). Huelsman (2006) describes ways to use PowerPoint effectively and recommends making the slides available to students via the internet before class. His anecdotal findings suggest that students do pay attention, are better prepared, and do not skip class.

There has been much discussion about what type of information, the degree of detail, and what "extras" to include (or exclude) in both traditional lecture notes and PowerPoint presentations. Annis (2001) found that when students received a partial outline of traditional lecture notes they performed higher on multiple choice and essay exams than when they received full notes. Furthermore, students preferred partial notes to full notes. Kiewra (1985) and Huelsman (2006) also recommended providing partial (or skeletal) notes prior to class to maximize achievement (regardless of mode of presentation). However, Stark-Wroblewski, Kreiner, Clause, Edelbaum, & Ziser (2006) found no differences in exam scores when students used fill-in-the-blank or intact PowerPoint handouts. Bartsch and Cobern (2003) found that extraneous material (e.g., unrelated graphics) included in PowerPoint presentations could be detrimental to enjoyment and performance. Other sources make specific recommendations about the size of the font, layout, color scheme, etc. of PowerPoint slides (Delwiche & Ananthanarayanan, 2004; Saylor, 2005). Therefore, type of information and characteristics of the material posted might mediate both attendance and class performance. For example, if students have access to full notes posted before class, both attendance and performance might decline.

Though several studies have shown that college-aged students (Bartsch & Cobern, 2003; Cassady, 1998; Perry & Perry, 1998) and older adults (Austin-Wells, Zimmerman, & McDougall, 2003) prefer computer-aided presentations (such as PowerPoint) over other modes of presentations (overhead transparencies and flipcharts) and students believed they learned more from PowerPoint presentations (Bartsch & Cobern, 2003), the relationship

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between use of materials posted online and academic performance is not clear. Heffner and Cohen (2005) found that frequency of student access to WebCT materials was positively related to performance on exams and class assignments. However, Goolkasian, Van Wallendael, and Gaultney (2003) found mostly nonsignificant low positive correlations between multiple measures of exam performance and time spent with Web materials and Henly (2003) did not find differences in assessment scores among those who frequently accessed Web-based course materials and those who did not.

Though students appear to enjoy and feel they benefit from on-line materials, it is not clear whether this activity enhances grades or negatively impacts attendance. Weatherly, Grabe, and Arthur (2002-2003) found that when introductory psychology students had access to lecture outlines online, they performed more poorly on exams than students who did not have access to online materials. Though they did not systematically measure attendance, they reported that attendance appeared to be lower in the class that had online access to lecture material. In contrast, Grabe, Christopherson, and Douglas (2004-2005) and Grabe (2005) found those who did make use of notes posted online scored higher on some (but not all) exams compared to those who did not make use of the notes. However, these authors did not measure attendance and relied on students' self-report.

The purpose of this expost-facto study was to compare students' final grades and attendance records as a function of whether or not PowerPoint presentations were made available on WebCT.

Method

Participants

One-hundred and forty-eight students (109 women, 39 men) enrolled in Cognitive Psychology or Research Methods across two semesters (Spring 2005 and Spring 2006) were included in the analysis. Both courses are 200- or sophomore-level courses. However, the majority of students were juniors and seniors (graduate student (n = 1) seniors (n = 50), juniors (n = 59), sophomores (n = 31) and freshman (n = 7). Students were not aware that comparisons were being made. Assignment to PowerPoint condition (available or not) was a function of the instructor's decision.

Procedure

Final grades of seventy-eight students for whom PowerPoint slides were not made available on WebCT were recorded and compared to final grades of seventy students for whom PowerPoint slides were made available on WebCT. Courses for which PowerPoint was not made available included Cognitive Psychology and Research Methods and were offered during Spring Semester 2005. Courses for which PowerPoint was made available also included Cognitive Psychology and Research Methods and were offered during Spring Semester 2006. These courses were selected because PowerPoint presentations were regularly used by and were under the control of this author.

PowerPoint presentations were made available at least one day before the class period, remained available until the end of the semester, and students were made aware at the beginning of the semester that the presentations would be posted. The PowerPoint slides displayed partial outlines of material and corresponded to topics covered in the assigned book chapters. Each PowerPoint presentation began with a general outline of chapter topics, followed by more detailed presentation of material. For example, if the chapter covered "short-term memory", the first slide of the corresponding PowerPoint presentation would present a general outline of material related to the topic of short-term memory. Subsequent slides cued discussion of specific matters related to short-term memory, such as "capacity of short-term memory". The PowerPoint presentation made available on

WebCT was the same presentation displayed in class. The same presentations were made across semesters; no substantial changes to content or topics were made. Final letter grades were converted to grade point average (GPA).

Attendance records (number of absences) of forty-three students enrolled in Research Methods during Spring Semester 2005 (PowerPoint not posted) were compared to attendance records of forty-one students enrolled during Spring Semester 2006 (PowerPoint posted). Attendance is regularly kept for the Research Methods classes, but not for the Cognitive Psychology classes due to the enrollment size.

Results

A *t*-test of independent measures was used to compare GPA scores of those who did ($M = 2.48$, $SD = 1.15$) or did not ($M = 2.31$, $SD = 1.17$) have access to PowerPoint on WebCT, revealing no significant differences between the groups, $t(146) = 0.91, p > .05$. A second *t*-test of independent measures compared number of absences of those who did ($M = 3.07$, $SD = 2.42$) or did not ($M = 3.77$, $SD = 4.27$) have access to PowerPoint, revealing no significant differences between the groups, $t(82) = -0.92, p > .05$. In addition, a Pearson correlation was performed to assess the relationship between number of absences and GPA, revealing a significant negative relationship, $r(82) = -0.54, p < .01$.

Conclusions

Results indicated no differences in either grade earned for the course or attendance as a function of making PowerPoint presentations available to students on WebCT. However, grade earned and attendance was related. There is no systematic measurement of how frequently students accessed WebCT or if they did so more frequently when they missed class. Though Grabe, Christopherson, and Douglas (2004-2005) and Grabe (2005) found some evidence that students who printed and used notes posted online performed better, they did not find performance differences in students who reported using the notes as an alternative to class attendance to those who did not. Furthermore, they found that those who were absent did not use online notes. Nevertheless, results suggest that posting partial outlines does not enhance grades, but also does not hurt grades nor promote absenteeism. Consistent with many other studies (e.g., Clump, Bauer, & Whiteleather, 2003) it appears that regular attendance to class is necessary regardless of whether or not materials are made available outside of class. Heffner and Cohen (2005) did find a positive relationship between access to Web-based material and grades, however, unlike in this study, the material posted on WebCT was considered supplemental (e.g., information designed to assist with assignments) and was not covered during class time. It is possible that the type of material posted might influence both grades and attendance. It is also possible that motivated and interested students are more likely to access supplemental materials, study more, and earn higher grades. Frequency of using online materials should be addressed. In addition, future research can investigate how students use notes.

In sum, though this study includes a specific sample and is not a randomized experimental design, current findings imply that instructors have a choice of posting PowerPoint slides without fear of impacting student grades or attendance. Instructors can use personal discretion as to whether or not they want to make materials available on-line and should not feel pressured by colleagues or students to do so.

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