

Video Lecture Capture Technology Helps Students Study without Affecting Attendance in Large Microbiology Lecture Courses[†]

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INTRODUCTION

The use of video capture technology has gained popularity over the last decade as a common teaching tool in higher education for both brick-and-mortar students as well as distance learners (4). Many students find lecture capture a useful study tool (7), and recorded lectures allow traditional and nontraditional students alike to stay caught up with the lecture material in the face of various extracurricular commitments, such as work and family (1). Furthermore, students with disabilities and students from non-English speaking backgrounds (NESB) may also find this technology useful to their learning (3). However, the perception that recorded lectures negatively impact student attendance remains a stumbling block to using this technology for some academics. Indeed, the effect of lecture capture on attendance remains a controversial topic, with some studies reporting that the availability of recorded lectures has little to no effect on attendance (2), while others report that this technology decreases attendance (6). Here, to determine if these trends may be discipline-specific, we studied the use of video lecture capture and its effect on attendance in our large-enrollment general microbiology courses. We monitored daily attendance at lectures with and without video capture and surveyed students about their usage and opinions of this technology. Our data show that when video lecture captures were available, attendance did not decrease. In fact, the majority of students reported that having the videos available did not encourage them to skip class but that they used the videos as a study tool. When we surveyed NESB students and nontraditional students about their attitudes toward this technology, we learned that students found it helpful to their learning and to keeping up with the material.

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[†]Supplemental materials available at <http://asmscience.org/jmbe>

PROCEDURE

The data shown in this study were collected over 10 semesters from two different sections of a general microbiology course taught by two instructors. Enrollment varied from 64 to 139 students, totaling 1,014 students analyzed in this study. For six semesters, every lecture from both sections was recorded using the university-provided lecture capture software, Echo 360. Personal lecture capture software is also available and relatively cheap. The preceding four semesters served as controls without lecture capture. Recorded lectures were uploaded to a university server and posted on the learning management system for students to view at their leisure simply by clicking on a link to the lecture video. Daily class attendance was monitored throughout all 10 semesters using the iClicker system. Attendance during the first four semesters, when video lecture captures were unavailable to students, was compared with attendance in the subsequent six semesters, when video lecture captures were available. The authors did not control for the impact of recording attendance on the likelihood of students attending class because 1) attendance counted for only 10 points which were extra-credit on top of 600 possible points in the course, and 2) a previous study conducted at the same university showed that iClickers used in a general microbiology course did not impact attendance (5).

Student comments regarding their usage of video lecture capture, their attendance, and their self-perceptions about academic performance were solicited from NESB students and from nontraditional students. Here, nontraditional is defined as older than 25 years of age at the time of matriculation. Once the semester was over and the grades were submitted, a short questionnaire (Appendix 1) was emailed to students within these demographics, and their comments were collected. Students in all of the sections were also surveyed using iClicker questions during the last day of class each semester.

CONCLUSION

The results of this 10-semester study showed that employing video lecture capture in a large microbiology

course did not affect student attendance (Fig. 1), and most students, including nontraditional and NESB students (Table 1 and Appendix 2), perceived it as a useful tool for studying and for keeping up with course material. On average, 74% of students said they watched the lecture capture videos to revisit concepts they missed while attending class, 19%

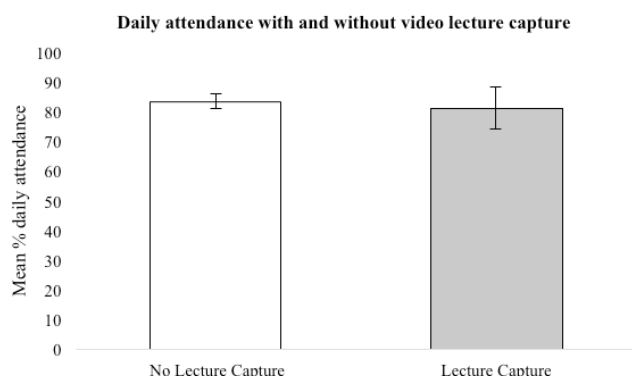


FIGURE 1. Comparison of daily class attendance during semesters when video lecture capture was available and was not available to the students. The mean percentage of daily attendance was calculated across four semesters of a general microbiology course before lecture capture videos were available to the students (83 ± SD) and across six semesters after video lecture capture became available (81 ± SD). Course enrollment ranged from 64 to 139 students (mean = 101 students); 1,014 total students. SD = standard deviation.

TABLE 1.

Student responses to clicker survey questions regarding their usage of lecture recordings.

I am using the recorded lectures to study.	Mean %*	SD
Yes, and they are useful	73	0.0994
Yes, but I don't find them very useful	2	0.0089
No, and I don't think I will	14	0.0649
No, and I have no interest	3	0.0182
No, but I intend to	8	0.0548

Having recorded lectures available to me has...	Mean %*	SD
encouraged me to miss class as I can catch up later.	8	0.0228
not affected my attendance as I don't use these.	19	0.0683
not affected my attendance as I use them to revisit concepts I missed while attending class.	74	0.0557

*The mean percentage of each multiple-choice answer selected by students was calculated across six semesters in a large general microbiology course. The number of students enrolled each semester ranged from 64 to 139 students with a mean of 101 students and 1,014 total students. SD = standard deviation.

of students said their attendance was not affected because they did not watch the lecture captures, and an even smaller proportion (8%) of students said that having the video lecture capture available encouraged them to miss class because they knew they could catch up later (Table 1). While it would have been interesting to see whether actual usage data aligned with student self-reported data, tracking capabilities at this institution were not available at the time of this study.

SUPPLEMENTAL MATERIALS

Appendix 1: Student questionnaires

Appendix 2: Table 2. Comments from nontraditional students and students from non-English speaking backgrounds (NESB)

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