Laptops in the Lecture Hall: Useful Tool or Distraction?

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Results

Introduction & Method

Every instructor wrestles with the pros and cons of student laptop use in the classroom. On the one hand, laptops can be used for legitimate class activities such as note taking or following lecture materials. Some instructors have even reported qualified success in integrating laptops into large-classroom lessons (Barak, Lipson, & Lerman, 2006). On the other hand, laptops provide ample distractions and—despite student insistence otherwise—there is copious evidence that multitasking reduces cognitive performance (Bowman, Levine, Waite, & Gendron, 2009; Hembrooke & Gay, 2003). Whether the potential benefits outweigh the almost certain costs is a judgment instructors must make for themselves when deciding to permit computers in the classroom. Opinions on this issue abound, student and faculty surveys provide some information (e.g., Fried, 2008), but hard data are scarce about actual student computer activity during lectures. Instructors simply cannot see what students are doing when the laptops are open. Or can they?

We teach a large introductory psychology course in a 500-seat campus theater. This venue includes a projection booth in the rear of the hall above the seats, a vantage that allows an observer to look down from behind the audience. (See Figure 1.) To assess our students’ laptop activity during lectures, we conducted a naturalistic observation from this booth during a course lecture. The content of students’ computer screens was coded as either related or unrelated to the lecture material. Further, observations were taken at two different points in the lecture: one at which the lecture material did not elaborate much beyond the outline provided before the lecture (low-density content), and another at which the lecture material expanded well beyond what was provided in the outline (high-density content). Finally, we recorded where a student was seated relative to the stage: the first six rows or farther back. Altogether, 107 students were observed out of a class of roughly 400. On a separate day, we also documented the computer activities of four individual students for a period of ten minutes each. In no case were students aware that their computer use was being observed.

Did attentiveness depend on seat location?

YES. Computer use was significantly more related to the lecture when students sat closer to the speaker (78% vs. 38%). What is more, this pattern was influenced by the density of the lecture material. With low-density material, 62% vs. 28% were viewing class-related screens in front and back seats, respectively. These values rose to 93% and 48% for high-density lecture material. (See Figure 2.)

Did density of lecture material influence attentiveness?

YES. Collapsing across seat location, laptop use was significantly more related to the lecture with high-density lecture material (59% vs. 36%). Stated differently, when lecture material did not substantially expand upon an outline available before class, lecture-related computer use declined.

Ten-minute observations of individual students...

Figure 3 shows the extreme variability of laptop use among different students.

Conclusion

Laptops maybe a tool for some, but they are a distraction for most.

The more information available prior to a lecture, the more likely laptops will be distractions.

As with non-technological scenarios, proximity to the speaker is positively related to attentiveness.

References


