

How laptops can enhance learning in college classrooms

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Despite the distraction potential of laptops in college classrooms, new research shows that they can actually increase students' engagement, attentiveness, participation and learning.

To achieve this, however, the instructor must set the right stage, says University of Michigan professor Perry Samson.

Samson is a professor in the Department of Atmospheric, Oceanic and Space Sciences who has received honors for his educational technology work.

He has developed robust interactive student response system called LectureTools that utilizes students' laptops. A paper about how [students](#) report that LectureTools affected their learning is published in the May edition of the journal *Computers & Education*.

"If you allow laptops in the classroom without a plan for how you'll use them, you can potentially invite disaster. It's unlikely that students will be so entranced by class material that they won't wander off to their favorite social networking sites," Samson said. "The key is to deliberately engage students through their computers. LectureTools does just that."

LectureTools is an interactive student response system and teaching module. Instructors at more than 400 colleges and universities have set up accounts to use it.

Samson recently surveyed close to 200 students who, over the past three semesters, have taken his Extreme Weather lecture course that utilized LectureTools. Students reported that while they did sometimes stray from in-class tasks, laptops with LectureTools made them feel more attentive, engaged and able to learn, compared with classes that don't use the system.

"Our surveys showed that while [laptop](#) computers can be a [distraction](#), students of this generation feel that they are capable of productive multitasking," Samson said.

Through LectureTools, laptops serve as robust "clickers," providing drastically more interaction than the class polling that clicker-based student response systems offer.

LectureTools also allows students to take notes directly on lecture slides. Students can anonymously ask the instructor's aide a question through a chat window during class, and others can see these questions and answers. Students can also rate their own understanding of each slide, giving the professor valuable feedback.

"It is the first successful instance I've seen of dramatic use of information technology to augment the real-time classroom experience," said John King, vice provost for academic affairs and the William Warner Bishop Collegiate Professor of Information. "LectureTools significantly increases the interactivity between the student and the instructor without disrupting the flow of the class. The instructor gets a lot more detailed information about where the students are while maintaining normal operation in the class."

Close to half of students surveyed said that having a laptop in class increased the amount of time they spent on tasks unrelated to the lecture. But a full 78 percent agreed that laptops in class made them more

engaged. Approximately half said that having their laptops made them more attentive. Seventy percent said laptops had a positive effect on their learning.

LectureTools significantly increased class participation as well. The system allows students to chat with an instructor's aide, posing questions without raising a hand and having to speak up in front of their peers.

"You can ask the dumb question without fear," Samson said.

More than half of the students asked at least one question during the semester, which is a much higher percentage than Samson saw in classes without LectureTools, he said.

The paper is called "Deliberate Engagement of Laptops in Large Lecture Classes to Improve Attentiveness and Engagement."

Provided by University of Michigan

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