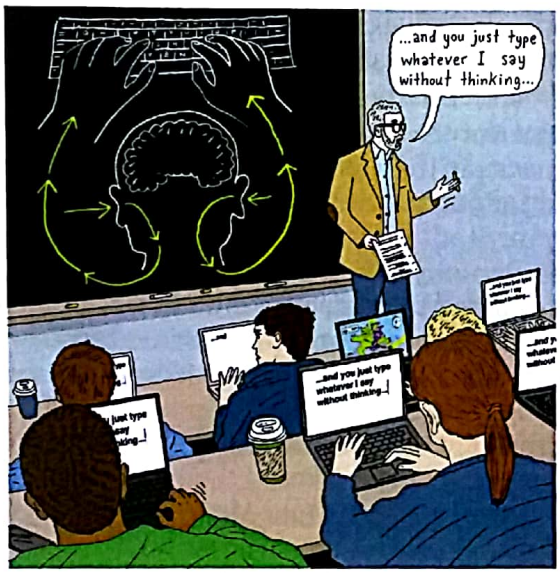
BUSINESS DAY

Laptops Are Great. But Not During a Lecture or a Meeting.

Economic View

By SUSAN DYNARSKI NOV. 22, 2017



Step into any college lecture hall and you are likely to find a sea of students typing away at open, glowing laptops as the professor speaks. But you won't see that when I'm teaching.

Though I make a few exceptions, I generally ban electronics, including laptops, in my classes and research seminars.

That may seem extreme. After all, with laptops, students can, in some ways, absorb more from lectures than they can with just paper and pen. They can download course readings, look up unfamiliar concepts on the fly and create an accurate, well-organized record of the lecture material. All of that is good.

But a growing body of evidence shows that over all, college students learn less when they use computers or tablets during lectures. They also tend to earn worse grades. The research is unequivocal: Laptops distract from learning, both for users and for those around them. It's not much of a leap to expect that electronics also undermine learning in high school classrooms or that they hurt productivity in meetings in all kinds of workplaces.

Measuring the effect of laptops on learning is tough. One problem is that students don't all use laptops the same way. It might be that dedicated students, who tend to earn high grades, use them more frequently in classes. It might be that the most distracted students turn to their laptops whenever they are bored. In any case, a simple comparison of performance may confuse the effect of laptops with the characteristics of the students who choose to use them. Researchers call this "selection bias."

Researchers can solve that problem by randomly assigning some students to use laptops. With that approach, the students who use laptops are comparable in all other ways to those who don't.

In a series of experiments at Princeton University and the University of California, Los Angeles, students were randomly assigned either laptops or pen and paper for note-taking at a lecture. Those who had used laptops had substantially worse understanding of the lecture, as measured by a standardized test, than those who did not.

The researchers hypothesized that, because students can type faster than they can write, the lecturer's words flowed right to the students' typing fingers without stopping in their brains for substantive processing. Students writing by hand had to process and condense the spoken material simply to enable their pens to keep up with the lecture. Indeed, the notes of the laptop users more closely resembled transcripts than lecture summaries. The handwritten versions were more succinct but included the salient issues discussed in the lecture.

Even so, it may seem heavy-handed to ban electronics in the classroom. Most college students are legal adults who can serve in the armed forces, vote and own property. Why shouldn't they decide themselves whether to use a laptop?

The strongest argument against allowing that choice is that one student's use of a laptop harms the learning of students around them. In a series of lab experiments, researchers at York University and McMaster University in Canada tested the effect of laptops on students who weren't using them. Some students were told to perform small tasks on their laptops unrelated to the lecture, like looking up movie times. As expected, these students retained less of the lecture material. But what is really interesting is that the learning of students seated near the laptop users was also negatively affected.

The economic term for such a spillover is a "negative externality," which occurs when one person's consumption harms the well-being of others. The classic negative externality is pollution: A factory burning coal or a car using gasoline can harm the air and environment for those around it. A laptop can sometimes be a form of visual pollution: Those nearby see its screen, and their attention is pulled toward its enticements, which often include not just note-taking but Facebook, Twitter, email and news.

These experiments go only so far. They may not capture positive effects of laptops in real classrooms over the course of a semester, when students use their typed notes for review and grades are at stake. But another study did just that.

At the United States Military Academy, a team of professors studied laptop use in an introductory economics class. The course was taught in small sections, which the researchers randomly assigned to one of three conditions: electronics allowed, electronics banned and tablets allowed but only if laid flat on desks, where professors could monitor their use. By the end of the semester, students in the classrooms with laptops or tablets had performed substantially worse than those in the sections where electronics were banned.

You might question whether the experience of military cadets learning economics is relevant to students in other settings — say, community college students learning Shakespeare. But we'd expect the negative effects of laptops to be, if anything, less at West Point, where all courses are taught in small sections, than it is at institutions with many large lectures. Further, cadets have very strong incentives to perform well and avoid distractions, since class rank has a major impact on their job status after graduation.

The best way to settle this question is probably to study laptop use in more colleges. But until then, I find the evidence sufficiently compelling that I've made my decision: I ban electronics in my own classes.

I do make one major exception. Students with learning disabilities may use electronics in order to participate in class. This does reveal that any student using electronics has a learning disability. That is a loss of privacy for those students, which also occurs when they are given more time to complete a test. Those negatives must be weighed against the learning losses of other students when laptops are used in class.

Students may object that a laptop ban prevents them from storing notes on their computers. But smartphones can snap pictures of handwritten pages and convert them to an electronic format. Even better, outside class, students can read their own handwritten notes and type them, if they like, a process that enhances learning.

The best evidence available now suggests that students should avoid laptops during lectures and just pick up their pens. It's not a leap to think that the same holds for middle and high school classrooms, as well as for workplace meetings.

Susan Dynarski is a professor of education, public policy and economics at the University of Michigan. Follow her on Twitter: @dynarski.

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