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From Distraction to Engagement: Wireless Devices in the Classroom

by Berlin Fang, Published 2009

- Wireless devices in the classroom threaten to distract student attention but also offer opportunities for student engagement.

- Faculty use different methods to reduce in-class distractions, up to mandating no use of wireless devices during class sessions.

- To increase student engagement using wireless devices, faculty employ creative options for making wireless devices part of instruction, from cell phones as clickers to laptops for on-the-fly web research.

The path of technology integration in education is lined with disruptions on one side and opportunities on the other. Technology teams work to bring useful technology into teaching, all with good intentions, only to encounter unwanted side effects such as distraction and disruption in the classroom. The challenges loom large in classrooms with wireless connections, especially when universities give students ubiquitous Internet access and sometimes even the devices for such access.

Mobile phones, for instance, are considered distracting because of problems with ringing during class, cheating, or multitasking,1 and the camera that comes with many phones can raise privacy issues as well. Similar complaints might also be made about laptops in the classroom. Laptops occasionally make sounds if students have forgotten to turn off the volume, and the laptop screens can become walls between students and professors. Students performing multiple tasks (instant messaging, Facebook updating, and so forth) are also blamed for distracting other students from concentrating on the lectures or classroom discussions.

Technology-enabled distraction is a problem that no educator can afford to ignore as ubiquitous computing and mobile learning environments become commonplace. From the literature and my own experience working with professors, I have found a whole spectrum of methods for dealing with such distractions, ranging from technical control to pedagogical innovation. In this article, I discuss these methods with a special emphasis on engaging students to minimize the negative effects of distraction by laptop computers or other wireless devices.

Problems with Restrictive Methods

Practices to ban use of mobile devices raise doubts in many constituencies. In a keynote speech at the mobile learning summit ConnectEd hosted by Abilene Christian University in February 2009, Jason Ediger, Director of iTunes U and Mobile Learning of Apple, said that educators have turned school classrooms into something like airplanes. Students accustomed to using technologies all the time enter classrooms and are forced to turn off their digital devices and sit tight. Another speaker at the conference echoed this message: Harvard professor Eric Mazur, who used student response devices to promote peer instruction in the classroom, commented that laptops and smart phones do not cause more distraction than windows through which students look at birds and flowers, “yet you don’t seal the windows just because of that.” Podcasts of the ConnectEd Summit are available online.

It does not seem likely that laptops, wireless connections, and various kinds of wireless access devices (such as smart phones, podcast players, PDAs, pocket PCs, tablet PCs) will disappear from universities. It is much likelier that their numbers will increase, with some universities even adopting campus-wide mobile learning programs.7 Mobile phones and laptops have increasingly become commodity products and easily available. Students are increasingly comfortable using wireless devices to organize their academic work, personal lives, and eventually their professional activities once they graduate into the workforce. We have actually reached the point of no return in usage of such technology.

Additionally, a confrontational or restrictive policy might create a “professor versus technology” perception that will not do professors much good, hurting student-teacher relations and in some cases faculty reputation. For instance, it might cause a faculty member to impress others as a laggard in technology adoption or as someone who resists positive change. Additionally, prohibitive approaches could send the message to students that they are not trusted to take responsibility for their learning. Last but not least, some professors are frequent users of classroom technologies, and it would be hard to cut their ties to technology in the classroom.

Distraction as Opportunity

Studies or reports about the effects of distraction often seek to correlate the use of technological devices to learning outcomes. For instance, one study found that the level of laptop use was negatively related to several measures of student learning, including self-reported understanding of course material and overall course performance.8 Similarly, a Chronicle of Higher Education report indicates that students taking laptops to classrooms might appear to be taking notes, but actually were doing activities unrelated to class work, such as sending e-mails or surfing the Internet.9

Some interesting questions remain to be answered: Whose fault is it if distracting activities are going on in the classroom? What caused the distractions other than the availability of technology? Will alternative distractions occur if the technological tools are removed? Without implying that students are always right, I would say that the issue gives educators a reason to reflect on their own teaching or, rather, the instructional process as a whole. Viewed this way, distractions caused by computers might be the result of a failure to involve students in the classroom rather than the reason they are not engaged.

The distractions blamed on mobile technology could present opportunities for change in the classroom. With many of the world's best professors sharing their video lectures through educational portals such as iTunesU, Academic Earth, and the recently launched YouTube EDU, students have access to the best lectures online in many subject areas. These might be the real "distractors" for professors if they do not reform their teaching. In an age of abundance, professors might find it useful to reflect on ways to engage students who do not lack access to learning opportunities but instead have an abundance of choices.

Contract with Students ("Rule")

Faculty members may allow laptops or other wireless devices in the classroom, but set proper boundaries to tell students what is acceptable and what is not. The School of Journalism and Communication at Iowa State University includes clauses in the syllabi to warn students against inappropriate use of technology in the classroom. For example:

If your cellular phone is heard by the class, you are responsible for completing one of two options: 1. Before the end of the class period you will sing a verse and chorus of any song of your choice or, 2. You will lead the next class period through a 10-minute discussion on a topic to be determined by the end of the class. (To the extent that there are multiple individuals in violation, duets will be accepted.)13

This rather light-hearted approach addresses a problem that could create tension between students and professors. Instead of mandating the way students learn, professors can actually contract with students to elicit their self-regulation, supporting the shift in the paradigm of teaching from teacher-centered instruction to student-centered learning. Contracting with students implies that faculty trust individual students to make the right choices. Having such learning contracts is an important part of individualized, self-directed learning that works well with college students who are adult learners in particular.14

Educate the Community ("Community")

Educators can use mass training to educate students about the social norms of technology use in the school community. Students do behave differently. Some use their computers or mobile devices productively in the classroom, taking responsibility for their own learning and showing consideration for others who might be affected by their behavior. Some rude technology-related behaviors can be prevented or minimized if students have learned about community norms through workshops, written guidance, or orientation sessions.

Michael Bugeja recommends orientations on "interpersonal intelligence" to educate students about classroom rules regarding technology use and misuse.15 Such training can happen in a physical classroom or online. It does not have to be an extensive lecture series on technology and culture. It can be a small module embedded in a course website or on the IT services website, or simply an instructional video to show desired behavior. Another good method is to provide orientation for incoming students and faculty on acceptable technology-use practices and web and Internet etiquette.16 Such training will not eliminate all issues of disruption, but at least they set proper expectations and reduce inappropriate uses of technology.

It also helps to put peer pressure to work by providing peers' opinions about in-class distraction or disruption by classmates' inappropriate use of devices. These views could be made known discreetly (without invading student privacy) through school newspapers, newsletters, survey reports, student blogs, or other formats that can educate students about social expectations of their behavior.

"Re-mix" Lectures ("Object")

Another method for engaging students is to deconstruct a traditional, 50-minute lecture by breaking it up, re-mixing it, and redistributing it in a variety of formats and settings. For instance, instructors can offer some quizzes online through a course management system. They can describe their course objectives and assignments online. They can present some generic lectures as digital videos, which are gaining traction among the educational technology community with the emergence of several types of educational outlets. These videos can expose students to content before or after class, thereby freeing class time for active learning activities.

Determining the anatomy of a lecture reveals a series of instructional tasks that can be distributed in a variety of ways. Robert Gagne described nine instructional events in an instructional sequence that includes presentation of information and processing of information.17 Professors can put the "presentation of information" or content better suited for individual study into these video lectures and devote class time to activities better suited for group time or active learning activities requiring constant feedback, such as questions and answers, discussions, general assignment feedback, group collaboration, and hands-on activities. Computers in the classroom then can become an extra resource instead of a barrier between professor and students, and there is no reason why this would hurt teaching or learning.

Involve Learners ("Subject")

Instructional technologist Dan Weiss once commented, "It's teachers who refuse to engage students well enough and who don't set proper boundaries as to what is and isn't acceptable behavior in their classroom."18 In traditional lecture-dominated teaching, students, who should be the subjects of learning, become the objects of teaching or the passive recipients of information. This kind of teaching is very vulnerable to distraction. When students feel compelled to sit through a 50-minute lecture, an occasional "distraction" might even provide a healthy balance — unless it is abused.

On March 4, 2009, 16 students from Georgia performed a "show-and-tell" to legislators on "Capitol Hill Tech Day" to prove the value of technology in the classroom. "It keeps me awake," said one student who uses whiteboards in her AP calculus class.19 Derek Bruff of Vanderbilt University devoted an entire book to using technology to create active learning environments.20 In his case, he used the clicker classroom response system. A similar approach could be used with other mobile access devices such as iPhones, iPods, or laptop computers.

Putting these devices in the hands of students can begin to increase active learning. When students are viewed as active participants in learning, distraction becomes much less an issue. With active learning, students develop their own cognitive or operative skills.21 Use of wireless laptops might even enhance “student-centered, hands-on, and exploratory learning” as well as “meaningful student-to-student and student-to-instructor interactions.”22