# Mobile Learning Anytime, Anywhere

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**P**ssst, do you want a free iPod? Sure, but what's the catch? You must use it to learn! Some educational institutions are taking the leap to mobile learning (m-learning) by giving out free iPods. For example, Abilene Christian University gave iPods or iPhones to freshman students and developed 15 Web applications specifically for the mobile devices. Free iPod Touches were handed out to newly hired math and science teachers at a technology training workshop at the University of Texas at San Antonio. Duke University's Digital Initiative program lends iPods to students and staff, or sells them at about a third of the market price.

The iPod is not the only ubiquitous m-learning device. Any technology that connects to wireless or mobile phone networks can accesses Web-based public or private services can be used. Other examples include smartphones, PDAs (personal digital assistants), handheld gaming devices, netbooks, and specialty technologies such as those used in science labs. At California State University, a satellite dish connects field archaeologists using mobile devices to the classroom. Instead of lab notebooks, geology students use netbooks equipped with global positioning and geographic information systems software on field trips.

M-learning should be familiar territory in many ways. Educators have already discovered the value of e-learning, which has extended education beyond the classroom. And institutions that offer distance education courseware have acquired the technological know-how of connectivity and digital content distribution. Most of us are comfortable using digital or Web-based resources to support learning, and many teachers and instructors are skilled at creating modules for custom learning. M-learning takes what we already know to the next level. "It works and reaches places other learning cannot," writes Jill Attewell, m-learning manager for the Learning and Skills Development Agency, London. "We know that m-learning can empower and engage. We know that the engagement and motivation can continue beyond the initial 'gadget honeymoon.'"

Some skeptics refer to m-learning as "e-learning lite" because they think it delivers only snippets of coursework. But its potential is growing. Rural students in Arkansas riding three hours to school in the Sheridan school district are given iPods or laptops to study science on schoolbuses that are equipped for wireless Internet access. A Web site devoted to m-learning, Learning in Hand, started by an elementary-school teacher in Arizona, includes lesson plans for handheld devices. Project Numina at University of North Carolina, Wilmington, develops science and mathematics education software for mobile devices. Learner-centered modules are being developed at the University of Michigan for K–12 students who use mobile technology. At Eastern Washington University, assessments, quizzes, and surveys are conducted using software for blended delivery; that is, a combination of offline, online, and mobile devices.

New m-learning resources continue to be developed. The Wireless Instructional Initiatives project at the University of Tennessee, Knoxville, investigates best practices for teaching and learning with new technologies. An m-library is being created at the University of Athabasca in Canada. The University of Pennsylvania's Wharton School of Business continues to improve SPIKE, its intranet, which ties the entire student experience together into a single, customizable interface. The Human Computer Interaction Lab at the University of Maryland also develops advanced user interfaces to study how people experience new technologies. And Seton Hill University in Pennsylvania is experimenting with how the tablet (a wireless computer that allows a user to take notes with a digital instrument or on a touch screen) can change classroom learning.

This and other anecdotal evidence shows that portable technology tools engage students and promote learning. However, empirical data to support these claims are thin. A large-scale study in the works, Project K-Nect, tracks high-school students in North Carolina who use smartphones to study math. The program's evaluation results show that using these devices as learning aides has had a measurable impact on student achievement (read the report at *www.tomorrow.org/research/ProjectKnect.html*). Interestingly, almost two-thirds of the students reported taking additional math courses as a result of smartphone use, and more than 50 percent are now considering a career in a math-related field as a result of participating in Project K-Nect. Such studies typically examine the effectiveness of only specific devices, applications, software, or activities; they are not yet broad enough to produce data that illustrate if and how sustained m-learning can enhance education.

Empirical evidence will come, as it did for e-learning. According to the Pew Internet and American Life Project's ongoing survey, by 2008, 77 percent of teens owned a game console, 74 percent owned an iPod or MP3 player, 71 percent owned a cell phone, and 60 percent had a desktop or laptop computer (see *http://pewresearch.org/pubs/1315/teens-use-of-cell-phones*). Students already know how to use the technology. It is up to teachers to add academic value to these tools.

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