WHITE PAPER

Mobile Learning Case Studies
Introduction

In many ways, mobile devices (such as tablets and phones) are different from larger digital devices (such as laptops and PCs). This much is obvious. What is not so obvious is the variety of new learning opportunities that can be made from these differences. Before looking at some of the newest innovations in Mobile Learning (M-Learning), we will take a moment to review some of the obvious.

Mobile phones are smaller than laptops. They fit in your pocket. You can take them with you wherever you go. Unlike laptops, Mobile phones are also constantly connected. With a laptop, your access to the Internet depends on being within about a hundred feet of a Hotspot. But with a mobile phone, you only need to fall within the long reach of a cell tower—which, if you live in a developed nation, you almost always will.

Besides being extremely portable and perpetually connected, mobile devices are also “hyper-aware”—in the sense that they have multiple sensors that constantly take in information about their surroundings. In particular, mobile phones come equipped with a camera, microphone, touchscreen, gyroscope, and geolocation device. And if you want even more sensory information, you can add “appcessories” that give your phone additional powers—such as the ability to track one’s heart rate or blood alcohol level.

The whole of these differences adds up to more than the sum of its parts. The extreme portability of mobile devices would not have as much revolutionary potential for education if they did not also constantly collect contextual information and connect us the Internet. Conversely, the perpetual connectivity of mobile devices would be less significant if they were always confined, like PCs, to a single room.
While E-Learning programs are well established in many educational contexts, Mobile Learning is still in its infancy. In this white paper, we will provide a case-based survey of existing mobile technology. By looking at mainstream as well and more experimental developments in M-Learning, we will get a sense of both the current state of the technology as well as its potential to revolutionize education.

Blackboard Student

The most natural point of transition from E-Learning to M-Learning in higher education is via the mobile applications of LMSs that universities use to run their hybrid and online courses. Most educational institutions use one of three major management systems: Blackboard (which owns 42% of the market), Moodle (23%), or Desire2Learn (11%). And for each LMS there is now a corresponding mobile application or website: for Blackboard, there is the Blackboard Student app; for Moodle, Moodle Mobile; and for Desire2Learn, the mobile website Desire2learn 2Go.

Of these mobile programs, Blackboard Student is representative. Without the application, students who visited Blackboard on their mobile devices would have to open a browser, find the website, log in, and then navigate a site designed for the size of a computer screen. All of this is cumbersome. To make mobile navigation easier, Blackboard Student reformats the content of Blackboard to fit the specifications of a mobile phone; it also makes mobile navigation of Blackboard intuitive.

Upon opening the app, students are greeted with a vertical list of three navigational options: Grades, Courses, and Stream. By swiping left or right on the appropriate icon, they advance to the corresponding module. In the “Grades” module, grades are updated in real time. In “Courses,” students can download content, upload assignments, or add to discussion threads. The “Stream” takes into account all of the students’ coursework and, according to a certain algorithm, prioritizes their academic commitments. As reviewers have noted, the Blackboard Student interface is slick and many of its navigational features are intuitive. Moreover, they are being constantly improved by frequent updates that respond to solicited student feedback.
Nevertheless, Blackboard is a conservative M-Learning platform. What it does, essentially, is to reformat the content of a course to make it fit onto a mobile device. What it does not do is revamp content to take full advantage of mobile technology. For an example of the more radical kind of change—implemented, inevitably, on a much smaller scale than Blackboard Student—we will look at the learning game Dow Day.

**Dow Day**

Dow Day is a “situated documentary” named after the Dow riots that occurred at the University of Wisconsin in 1967. The riots occurred after police used tear gas to disperse students protesting the Dow Chemical Company, which was manufacturing the deadly chemical Napalm for use in the Vietnam War.

To play Dow Day, students take their mobile phones on a live field trip to the University of Wisconsin. When students arrive on campus and open the Dow Day application, a virtual editor charges them with the task of “interviewing” a number of virtual characters who are “located” at various historic sites associated with the event. To help them complete this mission, the mobile application provides a Google Map that locates each of the relevant sites. Then, as students begin to explore the campus, their mobile devices track their movements. When they arrive at one of the designated locations, a new virtual character pops up on their screen. And what information (and documentation) they gather from interviewing the character varies according to which questions they ask. In the course of the game, players interview protesters, police, onlookers, and representatives from the Dow Chemical Company, among others. After learning about the riot from so many perspectives, students reconvene and try to reconstruct their own balanced view of the historic event.

Not only does Dow Day provide a cast of virtual characters for students to interview as they explore the University of Wisconsin—the game also enriches their view of the campus itself. Using “Augmented Reality” (AR) technology, Dow Day combines live footage provided by the phone’s camera and recorded footage from the historic event to make appear, on the screen of the mobile device, an “augmented reality” that combines both perspectives. The AR technology enhances, for example, the students’ view of Bascom Hill. After the riots in 1967, students marched up this large lawn to protest the police brutality. When Dow players view Bascom Hill through their mobile devices from the proper angle, now, what appears on their screen is not simply the live footage of the contemporary lawn but also superimposed footage from the historic march.
While Dow Day showcases the potential of M-Learning much more than Blackboard Student, it obviously does so on a much smaller scale. While Dow Day affords one radical M-Learning experience for a single topic in one course, Blackboard Student provides a basic M-Learning experience for the user’s entire course load. In the future of M-Learning in Higher Education, we can only hope that the inventiveness of the kind we find in Dow Day is implemented on the same scale as Blackboard Student.

Lung Visualization

While that day is a long way off, there are some promising signs in that direction. For example, VIA University College in Denmark did a study on how to implement AR mobile technology—of the kind used in Dow Day—in order to benefit the maximum number of students. Essentially, they wanted to determine how to get the most “pedagogical bang” for their “mobile buck.” What they concluded is that nursing educators—in particular, professors of anatomy and physiology—stood the most to gain from AR mobile technology. So they developed an app to help them.

The difficulty of teaching these subjects is that students obviously can’t look inside of living people to view the inner working of their bodies. For various reasons, the inability to look at living organ is especially a handicap. Professors of anatomy, then, must rely largely rely on plastic models and pictures. In the sense that students learn anatomy and physiology without interacting with live patients, instruction is necessarily “hands off” rather than “hands on.” In the absence of X-Ray vision, nursing students cannot look at a patient’s live organ while interacting with her.

While mobile devices do not come equipped with X-Ray vision—nor is there yet an Appcessory with that sensor—AR technology can simulate the experience of looking literally inside a person. Working in concert with nursing educators, developers at VIA developed a mobile application which superimposes three-dimensional representations of live organs—in particular, lungs—onto live footage of actual persons. Thus, when students viewed each other through the lens of their mobile devices (and the IPAD was the mobile device of choice for this experiment), they seemed to look into each other’s bodies—they seemed to see each other’s living, breathing lungs.
Think how nursing education would be revolutionized if, by using a relatively cheap and widely available mobile device such as an iPad, nurses could “look inside” their patients and view not only their lungs but their kidneys and hearts and circulatory systems as well. Unfortunately, though, the day when that will be possible remains far away. As part of the same research project that developed the mobile application, the researchers at VIA detailed the kind of massive coordination among interested parties—most notably, the donors who would fund the research and the educators who would use it—that would be required to implement AR mobile technology on a large scale. Since there is not enough coordination yet, the app remains in an early experimental stage of development. Looking at each other through their iPads, nursing students at VIA still see only simulations of each other’s lungs.

**M-Learning on the Spectrum**
While it may be quite some time before mobile technology revolutionizes higher learning at large, it is already revolutionizing special education. […]

**M-Learning in Professional Development**

While adult learners may not be as proficient with mobile technology as traditional college students, they arguably stand to benefit even more than the younger generations from the transition from E-Learning to M-Learning. While typical child (or “pre-adult”) learners go to school full-time and depend on their parents, most adult learners have full-time jobs and dependents. Because of these additional commitments, the only time adults may have to “go to school” is in the gaps that exist within and between these other commitments: the midafternoon snack break, the fifteen minutes of downtime before a meeting, the end of the workday walk to the car, the stolen half hour of solitude after the kids wake up or before they go to sleep. M-Learning applications make education available to adults during what may be the only study time they have.
Besides being on a different schedule, adult learners also have different educational objectives from pre-adult learners. Typically, their objectives are more pragmatic. While pre-adult learners may go to school to open their minds and expand their worldview (or just because their parents make them), adult learners go to school primarily to advance their careers (or perhaps because their bosses make them).

Because of their full schedules and pragmatic orientation, adult learners are more likely to pursue special certifications rather than standard degrees. Unlike a Master’s Degree, for example, which takes two or more years to complete (going to school full-time) and comprises a relatively broad corpus of knowledge, certification programs take less time and typically have a narrower and more pragmatic focus.

Even though certification programs have been shown to improve job satisfaction and performance, it can be difficult to get adult students to complete them. While the particular barriers to completion are to some extent relative to the individual certification programs, the majority of these fall under the heading of “inconvenience.” Adults don’t complete certification programs because it is inconvenient for them to do so. One way M-Learning can help adult learners reach their pragmatic educational goals, then—and at the same time add value to their professional organizations—is by making certification programs more convenient.
By developing a Self-Reported Learning Module, Web Courseworks made certification more convenient for nurse anesthetists. Beginning in August of 2016 all Certified Registered Nurse Anesthetists (CRNA) will be entering a new re-certification process (similar to the MOC process) and it is critical for AANA’s members to be able to use a self-reporting type tool to report CE credit earned outside of the LMS itself to AANA’s AMS, then to its National Board. Credits earned within the LMS are also reported to the AMS and National Board, allowing the LMS to serve as the lifelong learning portfolio for CRNAs.

The Self-Reported Learning Module was developed to address this problem. When attendees of unaffiliated conferences report their CE credits to this module, the information is auto-transferred to the AANA’s board and immediately applied towards certification. The problem is solved. And lest the software introduce any new inconveniences into the process, Web Courseworks made the module “mobile responsive”—which means it will adjust to fit your screen no matter what size device you are using: phone, tablet, or laptop. By targeting and eliminating highly specific barriers to certification, mobile applications can make the path to certification that much clearer.
AANA Self Reported Learning

- Mobile
- Responsive
- Convenience
- Eliminates Barriers
- Certification
- Simplified
- Learning on the Go

Submit new learning

- Class B Credit - Select Category

Activity Category*
- Class B - Presentations

Credits Earned

Must be multiple of 3 and limited to 24 (multiple days of presentations should be handled correctly)
Corporate Games

Besides universities and certification boards, the other major providers of adult education are corporations. Like certification boards, the educational objectives of corporations are typically narrower than those you find in universities. For example, the owner of a chain of restaurants might simply want his wait staff to learn how to pair entrees with wines. Or the head of an accounting firm might want to train his employees on a new kind of accounting software. Or—in the case we will end on—a healthcare company wanted its employees to review the company’s core purposes and some of the background knowledge needed to achieve this purpose. For help in meeting its educational objectives, the healthcare company hired the Weejee Learning Company to design an instructional mobile game.

Weejee is on the whimsical end of the spectrum of software development companies. On its website (weejeelearning.com), Weejee touts itself as “the arch enemy of boredom and the cousin of dullness.” Weejee’s “quest is to…slay them wherever they rear their ugly heads.” But behind this whimsical quest is a plausible pedagogical principle, which the website eventually describes in less mythical terms. The main idea is that we learn better when we are fully engaged in the learning activity—and we are more likely to be engaged when the learning activity is fun.

Based on its own core principle of fun, Weejee designed the game “Core Purposes.” To generate excitement for the game, Weejee introduced it with a series of three different trailers. To play the game, players use their touchscreens to activate a virtual spinner—which, after going around like the Wheel of Fortune, eventually lands on a question about the company’s “core purposes.” If the player answers the question correctly, their team’s avatar moves a space around the board. And even if they get the wrong answer, they are still offered an educationally relevant “fun fact.” Naturally, the winning team was the one that circled the board first. Nevertheless, each team that completed the game was entered into a drawing to win a free iPad.