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The Advancement of Mobile Learning

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Emerging Issues

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Twenty years ago, accessing the internet required a physical phone line plugged into a desktop computer. Today, with technologies such as smartphones, tablets, laptops, and Chromebooks alongside wireless internet, our society can instantly connect, share, and learn from almost anywhere in the world. This is the essence of mobile learning. Students need not be seated in a classroom to experience a lecture. Assignments can be completed from home, work, or even a shady bench at a park or local Starbucks. Thus, the world is now our classroom which makes education more accessible and convenient to a wider audience of students.

> AS THE PROCESSING POWER OF SMARTPHONES, SMARTWATCHES, AND TABLETS CONTINUES TO INCREASE DRAMATICALLY, MOBILE LEARNING ENABLES LEARNERS TO ACCESS MATERIALS ANYWHERE, OFTEN ACROSS MULTIPLE DEVICES."
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> NMC Horizon Report 2017 Higher Education Edition p.40

Online Learning Management Systems (LMS) replace the traditional "room" where learning takes place. In addition, many applications such as Google Sites and Google Classroom offer additional opportunities for educators to upload content, assign homework, and connect with students without the requirement of being physically present. Mobile internet takes this flexibility a step further with the creation of smartphone apps that connect to a virtual classroom as well as internet access to download and view webpages.

Perhaps the most "mobile" concept of mobile learning is the seamless integration of these platforms across devices. For instance, universities using the LMS Canvas have both a website and a mobile app. This allows students to participate from their home computer, laptop, as well as a smartphone. A student can post a question on the discussion board from home and then review answers from their phone while taking a bus to work. Additional applications such as Google Docs, Box, and even email make it possible for a student to begin writing a paper, save it to a cloud and continue on a laptop or mobile device.

Overall, mobile learning not only transforms the world into a classroom, it also allows for seamless integration of multiple devices and platforms which allows students to access, submit, and participate in course work while on the go.

Mobile learning is an extension of the rapidly advancing field of online education. E-Learning provides a platform that has an immensely positive impact on society by allowing students to gain top-tier education from anywhere in the world. Ebersole (2012) states, "Through education we enrich our culture, create greater societal understanding and unity, become more knowledgeable citizens and add to our quality of life and a democracy doesn't work well without it". Thus, it is clear that the opportunity for higher education to be more accessible to all is a desirable concept.

Mobile learning takes e-Learning a step further as the electronic component is broadened to include multiple devices and platforms. But how will this effect the global economy? What are the repercussions for face-to-face courses at universities? Picciano (2012) writes, "Online and blended learning are changing the way instruction is provided in this country. More than six million students or approximately one-third of the higher education population enrolled in fully online college courses in 2010" (p.9-10). While a direct comparison cannot be made from this data regarding the number of students who would have enrolled in a traditional face-to-face course versus new students who would not have otherwise enrolled if not for the convenience afforded from e-learning, we can conclude that the number of students in physical classrooms has or is likely to decline.

To put this in perspective we look at a similar model, Amazon. With the ability to order goods from any device, in direct comparison to mobile learning, how were brick and mortar retailers effected? SIS International Market Research has looked into this exact scenario. While many brick and mortar stores were concerned that e-commerce would lead to their extinction, they have actually found that embracing this disruption has led to positive outcomes. Shoppers are more in tune with brands, and stores have embraced the mobile computing abilities to offer incentives that drive consumers into the stores.

> RETAILERS ARE LEARNING HOW TO ADAPT AND HARNESS DEVELOPMENTS IN MOBILE TECHNOLOGY TO PULL MORE CUSTOMERS INTO TRADITIONAL STORES.
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> -SIS International Market Research

Thus, while mobile learning may have some impact on the number of students enrolled in face-to-face courses, universities can leverage this technology to support in person learning as well as increase their enrollment by offering fully mobile degree programs. The New Horizon Report offers advice on doing just that by offering a link to a discussion regarding using smartphones to transform education in the classroom. In addition, they cite Purdue University's efforts to integrate mobile devices in the classroom by posting comments or questions anonymously during a course period.

We have already touched on some of the current uses of mobile learning. LMS such as Canvas and Blackboard offer both websites and applications for smartphones or tablets where students can access their course content from any device. Additional applications such as Google Docs, Box, and Evernote offer professional collaboration abilities where students can share, edit, and upload papers, notes, and course work from multiple platforms as well.

Pandey (2016) additionally describes the ability to access content without an internet connection. One example of this type of application is Pocket. It is a free app that allows you to download and store articles and videos to view later without an internet connection.

Impact on 21ˢᵗ Century Learning

Now that we know what Mobile Learning is, how it may impact society and the global economy and have looked at some examples of mobile learning available today, let's shift our focus to its educational value and impact on 21ˢᵗ century learning.

Schaaf and Mohan (2017) describe the modern (digital) learner as having the following nine attributes:

- Prefer receiving information quickly from multiple hyperlinked digital sources
- Prefer parallel processing and multitasking
- Prefer processing pictures, sound, color, and video before text
- Prefer to network and collaborate simultaneously with others
- Read digitally in an F-shape pattern
- Prefer just-in-time learning
- Look for both instant and deferred gratification
- Transfluent
- Prefer learning that is simultaneously relevant, active, useful, and fun

We can instantly connect many of these attributes to mobile learning. For instance, as mobile learning is an extension of e-Learning we have the ability to offer mobile educational games, lecture videos, and other forms of media embedded into mobile courses. Consider a YouTube lecture video that both appeals to the modern learner in use of graphics, sound, and color, as well as the ability to begin watching on a desktop

computer at home and seamlessly transferring to continue viewing on a smartphone. Social networks, LMS, collaborative apps such as Google Docs, and discussion boards allow students to network and collaborate on the go. Websites and presentations allow students to receive information quickly and navigate multiple links from any device. Mobile gaming apps and virtual reality allow learners to transform their smartphones into a fun and educational experience. Most of all mobile learning epitomizes the idea of multitasking as learning can happen anywhere and anytime.

Further, Holzinger, Nischelwitzer, and Meisenberger (2005) write, "Mobile technology can enhance the shift from pure instructor centered classroom teaching to constructivist learner centered educational settings away from the classroom" (p.2). This appeals directly to the 21st century learner as we move to an Education 3.0 mindset to a more personalized learning experience. Michael Horn (2014) concludes that we are moving, "beyond mass education to mass-customized education through blended learning". Mobile learning exploits this idea and allows for the creation of more individually paced courses, as well as an educational platform in which students take charge of their learning as they are able to study from anywhere at any time.

MOBILE LEARNING OFFERS A PERSPECTIVE THAT DIFFERS DRAMATICALLY FROM PERSONALISED CONVERNTIONAL E-LEARNING IN THAT IT SUPPORTS LEARNING THAT RECOGNISES THE CONTEXT AND HISTORY OF EACH INDIVIDUAL LEARNER AND DELIVERS LEARNING TO THE LEARNER WHEN AND WHERE THEY WANT IT.

-TRAXLER (2007) P.7

The New Horizon Report considers not only how mobile devices have "become the gateways to personalized working and learning environments that facilitate the exploration of new subjects at each user's pace" but also how they promote understanding of other 21st century skills. Many employers now host interviews over Skype, require colleagues collaborate via Google, and most jobs need a basic literacy of technological skills. Mobile learning promotes the development of these skills by, "practice[ing] communication, collaboration, and creating content". Further, in regards to Purdue University's use of mobile devices in the classroom, they state that mobile use "increased engagement, [allows educators to] refine instruction based on student feedback, and helped introverted students find their voice" (p.40).

Further, Traxler (2007) makes an excellent case for mobile learning by looking at both the educational quality as well as the mobility. He argues that while many make the case for the convenience of mobile learning, the educational value cannot be ignored. He states it allows for personalized learning, situated learning ("mobile learning is uniquely suited to support context-specific and immediate learning" (p.7)), authentic learning involving real-world problems, as well as convenience in that, "learning takes place in a wider social and economic context, and that students must be recognized to be under a range or pressures,

most obviously those of time, resources, and conflicting/competing roles" where mobile classrooms allow "time and space for learning" (p.8).

Overall, mobile learning will further empower students to become active learners. It appeals to the digital student and takes e-Learning to the next level. In addition, mobile learning is not restricted to online education, its incorporation in the classroom leads to multiple benefits to both learning and teaching including active participation and real-time data collection. Students are able to collaborate and participate in courses from any location on any device and the course content can be seamlessly continued between multiple platforms. While mobile learning may be a double-edged sword in that it allows universities to reach a larger number of students which may cause lower enrolment in face-to-face courses, if educators embrace this change and find creative and impactful ways to incorporate digital learning across devices, they will greatly enhance the learning process for the 21st century student. ■

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