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The Benefits and Challenges of Mobile Learning

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The Benefits and

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In 1969, when Neil Armstrong spoke the famous words, "One step for a man, one giant leap for mankind," the whole world was in awe of the technological capabilities the United States had used to enable a man to set foot on the moon. It is amazing to think that today's cell phones have more processing power than the Apollo computers had at that time. But it is hardly surprising that mobile technologies are finally being recognized for the many opportunities they can provide.

The Benefits

Educators are one group that has noticed these possibilities, and mobile learning (m-learning) has developed as a subcategory within electronic learning (e-learning). I defined *mobile learning* as "learning across multiple contexts, through social and content interactions, using personal electronic devices" in the *Handbook of Mobile Learning*, which was published earlier this year. The definition, in that one short sentence, explains what is so special about mobile learning: It is "learning across multiple contexts," which describes the portability and versatility that allows us to learn wherever, whenever, and for whichever subject. "Social and content interactions" are the many connections we can make with people and with the subject matter. Finally, "using personal electronic devices" refers to the numerous devices that are available to learn on.

Research has shown that with these unique qualities, m-learning can change what traditional teaching looks like. It can extend the boundaries of traditional pedagogies. In their 2011 report for ESCalate Education Subject Centre, John Traxler and Jocelyn Wishart observed five learning approaches: contingent, situated, authentic, context-aware, and personalized learning (see "Five Learning Approaches" for the details). These five approaches can shift learning to focus on the student and create new ways for educators to teach and students to learn.

The Challenges

M-learning offers many opportunities but also presents a number of perceived barriers that interfere with the use of mobile technologies in schools. Research shows that financial constraints, data privacy concerns, and the need to change teaching styles can all act as hurdles for educators attempting to incorporate technologies into learning and teaching. Lack of money is a common issue in schools and is not specifically tied to m-learning. But data privacy has become an increasing concern since it came to light that 60% of apps are sending children's information to app developers or third parties. There is also the issue that teachers have to change their everyday behaviors to incorporate technologies into tasks that they previously did without digital technology. This is a difficult change for many to make.

According to researchers Khe Foon Hew and Thomas Brush in their 2007 article in *Educational Technology Research and*

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Development, "Integrating Technology into K–12 Teaching and Learning: Current Knowledge Gaps and Recommendations for Future Research," many typical technology issues, such as access, beliefs, time, vision, and professional development, will also be a barrier to the use of mobile technology in education. Access is a barrier in that the school may not own the technologies, or they may not work properly. A teacher's beliefs about the usefulness of technology can cause the teacher to choose not to incorporate it. Lack of time is a hurdle because teachers need time to learn how to use the technology, and many feel that it requires even more time during lessons to deal with student misbehavior when technologies are in use. Lack of vision can also be a barrier if there is not a strong administrative vision supporting the use of technology, and professional development can have a negative effect if the training lacks a connection to actual classroom practice.

With every new initiative and idea, it is always advisable to consider the positives and negatives. In the case of m-learning, many of these changes are driven by the students' desire to use tools they are familiar with from their everyday lives. They do not want to power down as they enter the school. The use of mobile devices also offers many unique opportunities to transform learning and teaching into a more meaningful, authentic experience.

The challenges will always be there, but we can avoid many with appropriate planning. After all, the Apollo mission likely had much larger challenges, but it was worth figuring them out to reach the moon.

FIVE LEARNING APPROACHES

Learning Types	*Description*	*Example*
Contingent	Students respond to the changes in environment and experiences.	A student can be walking down the street and may see a word on a billboard that interests him, so he looks it up then and there on his mobile device. Learning was not planned, but it happened.
Situated	Students learn in an environment appropriate to their learning.	Students listen to a podcast about erosion as they examine rocks in a quarry.
Authentic	Tasks are directly related to the learning goals.	Students use the vibration meter app as they learn about earthquakes.
Context-Aware	Students interact with the environment using the tools on their mobile devices.	On a visit to a museum, a student scans a QR code to find out more about a warrior helmet she is looking at.
Personalized	Learning is customized to the preferences and needs of each student.	As the students in the class are watching a short video clip on their mobile devices, one student, who is hard of hearing, realized his sound was too low. He stopped his video, turned up the volume, and then continued to watch the video.