mLearning: An Embodied Perspective

Andre R. Denham, University of Alabama, USA
John M. Quick, Arizona State University, USA
Robert K. Atkinson, Arizona State University, USA

ABSTRACT

Rapid advances in mobile hardware and software have fueled the emergence of mobile learning (mLearning) as an area of interest within educational research. In spite of abundant excitement and discussion surrounding mLearning, certain challenges remain unresolved. To date, it seems the field is most enamored with categorizing hardware capabilities and replicating conventional learning content on portable devices. However, it would be beneficial to consider how mLearning can augment learners’ education in unique ways. Prior definitions of mLearning fall short in articulating why mobility is beneficial for learning and how mobile learning is not simply a reformulation of existing eLearning methods. A new perspective is offered to establish mLearning as a unique type of learning. Evidence from the field of embodied cognition that points to the potential affordances of mLearning is provided and future directions are discussed.

Keywords: Educational Technology, eLearning, Embodied Cognition, mLearning, Mobile Learning

INTRODUCTION

Mobile learning is the latest in a long line of emerging trends within the field of instructional technology. This is due in no small part to the rapid advances being made in the hardware and software capabilities of mobile tools such as smartphones and tablets. In its 2010 Roadmap for Education Technology (Woolf, 2010), the Global Resources for Online Education Workshop Authors (GROEWA) encouraged the investigation of the pedagogical affordances of mobile tools, such as Internet access, video cameras, multimedia tools, GPS, accelerometer, gyroscope. The GROEWA authors forecast that by the year 2030, mobile technology will allow for one to seamlessly slip into the mindset of a learner, whether it is synchronous and/or asynchronous. In this scenario, learning would not be tied to a specific location, but instead to wherever the learner is at a given moment. They also predict that learning content will dynamically adapt to the learner’s location. Finally, in 2030 the authors predict that mobile tools will be robust enough to “support a variety of student activities: exploring (real physical environments linked to digital guides); investigating (real physical environments linked to digital guides); discussing (with peers, audio or text); recording data (sounds, images, videos,
text, locations); building, making, and modeling (using captured data and digital tools); sharing (captured data); testing (the products built, against others’ products, comments, or real physical environments); and adapting (products developed)” (Woolf, 2010, p. 47).

In order for these predictions to become a reality, mobile learning (mLearning) needs to be empirically examined and validated. Woolf et al. (2010) outlined future areas of research to serve as a guide during this process:

1. Define mobile learning.
2. Determine the method(s) for successfully presenting mobile learning to learners.
3. Identify the pedagogical challenges of implementing mobile learning.
4. Determine mobile device usability (form factor, size, weight, etc.).
5. Identify the teacher’s role in mobile learning.
6. Determine how to best manage mobile tools.

While this list is well crafted, we feel that it is missing an essential area of research: Determining how physical action, altered perception, and embodiment contribute to the formation of mLearning as a distinct form of learning.

Our plan for this paper is as follows. We will start by providing a general definition and overview of the underlying theories of eLearning. This includes a discussion of the prior definitions of and perspectives on mLearning. Within this section we will provide our definition of mLearning, and the theoretical underpinnings that are in support of this contrasting definition. This definition of mobile learning accounts for the pedagogical, psychological, physiological, and cognitive benefits that mobility brings to learning. This discussion will also highlight prior definitions of mobile learning and the overlooked importance of user mobility. From there we will propose mLearning as a unique type of learning supported by work done in the field of embodied cognition and provide directions for instructional designers who are interested in the developing mLearning applications. Finally we will conclude by forecasting the future of the field by highlighting the affordances that technology such as naturalistic interfaces, invisible computing, and augmented reality provide for the application of embodied mLearning.

WHAT IS MOBILE LEARNING?

Electronic learning (eLearning) has been researched and discussed extensively in the fields of education and training. The well-established concept of eLearning has been broadly defined to include all technologies that aid teaching and learning processes (Tavangarian, Leypold, Nolting, Roser, & Voigt, 2004). Common manifestations of eLearning found in formal education and training environments include text and multimedia webpages delivered through institutional learning management systems (i.e., online learning) and point-and-click desktop tutorials (i.e., computer-based training). Furthermore, a recent definition of eLearning has specifically framed mobile devices as content delivery tools for eLearning (Clark & Mayer, 2011). However, it is questionable whether mobile technologies should be thought of as merely content delivery systems and whether their potential uses should be constrained to the realm of existing eLearning practices.

In contrast to eLearning, mobile learning (mLearning) is an emerging and underdeveloped field of educational research. Interest in mLearning has been ignited by recent innovations in consumer technology, including abundant and affordable cellphones, smartphones with sophisticated software applications, and touchscreen tablets that approach the functionality of home computers. We define mLearning as leveraging the mobility of learners to embody and enhance learning. In mLearning, instructional tasks, procedures, concepts, and constructs are mapped directly to the interactions that learners have within the environment. Learners’ interactions may be mediated through the use of mobile technologies, such as smartphones, augmented reality, naturalistic interfaces, and immersive
Student Mentors in Physical and Virtual Learning Spaces
[www.igi-global.com/chapter/student-mentors-in-physical-and-virtual-learning-spaces/107778?camid=4v1a](www.igi-global.com/chapter/student-mentors-in-physical-and-virtual-learning-spaces/107778?camid=4v1a)

MobileSens: A Ubiquitous Psychological Laboratory based on Mobile Device
[www.igi-global.com/article/mobilesens-ubiquitous-psychological-laboratory-based/78281?camid=4v1a](www.igi-global.com/article/mobilesens-ubiquitous-psychological-laboratory-based/78281?camid=4v1a)