Mobile Applications in Higher Education: Implications for Teaching and Learning

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ABSTRACT

Distance education or learning has been around for a long time and with the advent of mobile devices like the smart phone, it is inevitable that mobility impacts the distance education arena. Mobile learning in this article is defined as the “mobile” state of the learner. In theory, this amplifies the flexibility of distance and online learning, reducing the significance of geographic location while increasing that of contextuality. The affordances of mobility empower students to participate as part of context-aware ubiquitous learning. There are a diversity of contexts, methods, and technologies used. There is a need to have a stronger connection between mobile technology integration and a learning-theoretical framework to guide research, practice, and policy. It is important to integrate mobile and emerging technologies with education through an appropriate evidence-based learning design framework.

KEYWORDS

Education, M-Learning, Social Constructivism, Ubiquitous Learning

1. INTRODUCTION

In the early 21st century, advances in communication and networking together with the miniaturization technologies has opened the mobility space resulting in the availability of smaller, lighter devices that can be easily carried around coupled with the new applications that was developed (Agarwal et al., 2015). Internet technologies had also developed and spun off many new internet applications making not only text and static figures available on the Web but multimedia, dynamic, interactive applications. The advances in hardware technologies and application programming systems has converged on the smart phone so much so that today, the smart phone is used not only for voice communication but is also a mobile computer that can go online and perform many “smart” tasks. With the convergence of various technologies on the smart phone, new features and applications such as Wi-Fi, e-mail, productivity software, image and video recorders/players, audio recorders/players, social networking, skyping, group meeting and many utility apps have been added. Now, people are not limited by fixed locations with the advent of mobile technologies, thus the way people work and learn is revolutionized. Furthermore, advances in manufacturing technologies has reduced the price of smart phones so much that today, there are more smart phones than computers. Smart phones are now widely available and practically every student own at least one. Today we are living in a mobile world. According to a 2016 Pew research study on American adults, 77% own a smart phone, 95%

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own a cell phone, 80% own a desk or laptop computer, 50% own a tablet computer and 20% own an e-reader (Pew Research Center, 2017).

The intersection of distance learning with mobility gives rise to mobile learning (mlearning). Mobile learning in this paper is defined as the “mobile” state of the learner. This is line with the views of (Sharple, et al., 2010), (Kukulsk-Hulme, 2010) and (Wong, 2012) that define mobile learning in relation to the “mobility” state of learners in which they can access their personalized learning environment as they physically move. Mobile learning extends learners’ capacity to communicate and access information. Mobile learning is one of the key trends of educational applications of innovative technologies in distance learning (Wu et al., 2012). Mobile distance education brings with it some limitations and concerns even though it provides a valuable and flexible option for both faculty and students. This article will approach mobile learning from the applied or pedagogical perspective identifying and analysing issues in the m-learning eco-system then discuss their ramifications and implications.

The rest of the paper is organized as follows: the second section elucidates the current state of mobile learning based on the Gartner Hype Cycle; the third section presents a literature review of mobile learning pedagogy; the fourth section discuss the mobile learning eco-system; the fifth section analyse these issues and discuss the implications; and the last section is the conclusion with some recommendations for future research.

2. CURRENT STATE OF MOBILE LEARNING

The Gartner Hype Cycle (or Curve) was developed by Gartner Inc. to illustrate the life cycle of modern technologies. Gartner Hype Cycles graphically represent the maturity and adoption of technologies and applications, and they can be relevant to solve genuine business problems and to exploit new opportunities. The Gartner Hype Cycle provides a view of how a technology or application can evolve over time and can provide insight to manage its deployment within the context of business goals. The hype cycle has 2 axes, a vertical axis that represent Expectations and a horizontal axis that represent Time. There are different tasks/activities/events along the technology’s life cycle in each phase as illustrated in Figure 1 (adapted from https://www.cleverism.com/everything-need-know-gartner-hype-cycle/ Date retrieved: February 22, 2017). The use of mobile technology in teaching and learning is currently in the “Slope of Enlightenment” phase of the Gartner Hype Cycle. This is a semi-matured stage.

Gartner Inc. explained the phase events as follows.

Each Hype Cycle drills down into the five key phases of a technology’s life cycle:

1. **Technology Trigger**: A potential technology breakthrough kick things off. Early proof-of-concept stories and media interest trigger significant publicity. Often no usable products exist, and commercial viability is unproven;
2. **Peak of Inflated Expectations**: Early publicity produces many success stories — often accompanied by scores of failures. Some companies act; many do not;
3. **Trough of Disillusionment**: Interest wanes as experiments and implementations fail to deliver. Producers of the technology shake out or fail. Investments continue only if the surviving providers improve their products to the satisfaction of early adopters;
4. **Slope of Enlightenment**: More instances of how the technology can benefit the enterprise start to crystallize and become more widely understood. Second- and third-generation products appear from technology providers. More enterprises fund pilots; conservative companies remain cautious;
5. **Plateau of Productivity**: Mainstream adoption starts to take off. Criteria for assessing provider viability are more clearly defined. The technology’s broad market applicability and relevance are clearly paying off. 


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