Towards a Conceptual Framework Highlighting Mobile Learning Challenges

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ABSTRACT

Over the last decade, there has been much interest in mobile technologies in teaching and learning as emerging and innovative tools. Despite this focus, mobile learning (m-Learning) implementation is facing many challenges. This study presents a tentative conceptual framework that consolidates existing research related to mobile learning implementation barriers. The study adopted a systematic review of the literature on challenges to mobile learning. A total of 125 papers published between 2007 and 2017 were extracted from established peer reviewed journals. A qualitative content analysis was used to define 24 barriers that have been grouped into four conceptual categories: Technological, Learner, Pedagogical and Facilitating Conditions. The proposed framework acts as guide for educators, systems developers, policy makers, researchers and stakeholders interested in implementing mobile learning programs.

KEYWORDS

Barriers, Challenges, Framework, Learner, m-Learning, Mobile Devices, Pedagogical, Technical

1. INTRODUCTION

Owing to the rapid advance and popularity of wireless communication and mobile technologies, mobile and ubiquitous learning, there is increased use of these technologies in education and training. This is confirmed in recent research studies (Baran, 2014; Chang, Lai, & Hwang, 2018; Chu, Hwang, Tsai & Tseng, 2010; Suárez et al. 2018) at different levels of the education system. The 2018 global edition of the GSMA’s Mobile Economy report reveals that the number of global mobile subscribers surpassed five billion by the mid-year of 2017 and will increase to 5.7 billion by the end of the decade (GSMA, 2018). Subscriber growth over this period is driven primarily by large Asia markets such as India, which alone is forecast to add 310 million new unique subscribers by 2020. As the use of mobile technology and subscription increase there is potential for increasing use of mobile learning in education and training.

Mobile devices can connect people socially in new and unexpected ways and deliver information and content to users on the go, via apps and cloud technologies (Hirsch and Ng, 2011). Pimmer et al. (2016) conducted a review of empirical studies on mobile and ubiquitous learning in higher education. Results indicated that there is increasing use of mobile technology outside the classroom.

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The ubiquity of mobile devices along with their popularity among students makes them suitable for use in educational contexts as is evident in many studies and sources (El-Hussein & Cronje, 2010; Negas & Ramos, 2011; Jeng, et al., 2010; Yu, Ally & Tsinakos, 2018).

The rapid increase in the quantity of mobile devices has enabled institutions to begin exploring their use (Chee et al., 2017; Wang et al., 2009). Mobile learning (m-Learning) which emerged with the evolution of mobile devices, has extended the reach of e-learning and distance education systems by allowing educators and students to teach and learn anywhere, anytime and on the move (Negas & Ramos, 2011; Wang et al., 2009). Mobile learning is defined differently in the literature, but there is no consensus due to the argument regarding whether to focus on the mobility of learners or the effectiveness and usefulness of the devices. Initial definitions were more device-driven (focusing in immediacy, convenience, access and mobility) while the latter ones are more personal and social-driven, exploring affordances that relate to new technological features of mobile devices such as location awareness, motion detection and augmented reality (Baran, 2014).

Research indicates that m-learning offers considerable benefits to build and support creative, collaborative, and communicative learning environments (Alhazmi, Rahman, & Zafar, 2014). The implementation of efficient m-learning projects, however, within education is still a challenge due to the complex environment that incorporates management, pedagogical, technological, and socio-cultural issues (Alhajri, 2016). Khaddage et al., (2015) classified challenges to mobile learning into four categories: Pedagogical challenges, technological challenges, policy challenges and research challenges. Technical barriers are the most significant aspect in the implementation and integration of m-learning in education. Asimwe and Grönlund (2017) listed some of these difficulties which include “installation, availability of latest technology, fast Internet connection, and uninterrupted supply of electricity, maintenance, administration, security and absence of technical support.”

Educators and course designers need also a dynamic, theoretical set of criteria or a framework to support the ecology of mobile learning. Sharples (2013) highlighted the need to improve the usability of mobile learning technology, design of new forms of informal learning supported by personal mobile devices, and evaluation of learning that occurs outdoors and across locations. Dahlstrom and Bichsel (2014) urge researchers to look at pedagogical insights that will help instructors to better embrace mobile technologies. Park et al. (2014) stressed on using various assessment methods of learners using mobile devices and Cochrane (2010) identified the following gaps in research on mobile learning:

- No clear pedagogical theory for designing effective mobile learning;
- Limited evaluation for mobile learning activities;
- Lack of longitudinal studies on mobile learning to determine the impact on learning;
- Providing support for students and teachers in mobile learning.

Educational institutions need to define a clear policy regarding the implementation of mobile learning programs in order to go for wide-scale implementation. Lack of support and institutional policies were cited as institutional obstacles (Ismail, Aziza & Azman, 2013). Other challenges related to ethical and practical implications were addressed by Cushing (2011). They include: resistance to change amongst lecturers; concerns about new social practices affecting lecturers’ personal time; increasing amount of information to be stored on the device; privacy issues; data security; and cyber-bullying.

In this context, the aim of this study is to propose a conceptual framework that identifies challenges listed in the literature regarding m-learning design and implementation. The research question for this study is: “What has existing research identified as the major challenges for mobile-learning?” The methodology adopted in this study is an in-depth review of the literature via a categorization of identified barriers. The proposed framework based on the research may help to analyze as well as govern the dynamics of the factors and challenges that have been identified in the literature.
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