The Psychological Challenges of Mobile Learning

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OVERVIEW

This chapter provides a state of the art overview of the Psychological challenges of mobile learning. Within this chapter the term Psychological challenges refers to the tasks, difficulties and obstacles that mobile learners encounter during the mobile learning process. Psychological challenges can be differentiated from other more practical challenges such as difficulties concerning access or use of technology per se, as Psychological challenges reflect the Cognitive and Psycho-social profile of the learner. With respect to a learner's Cognitive profile, our information processing abilities are limited, especially working memory and attentional resources, and this places constrains on the amount of information we can process and therefore learn at any one time. Memory is also highly context dependent and the changing contexts, across both space and time, that are associated with mobile learning places these limited resources under additional strain. The psycho-social profile of the learner must also be considered as individual differences in motivation, self-regulation, attitudes, experiences and preferences for learning and technology use contribute to learner behaviour and the success of the learning process.

For the purposes of this chapter, mobile learning is defined in its widest sense and refers to use of handheld devices such as mobile phones and tablets to access learning resources such as on-line distance learning materials that have been formally provided by an educational institution, or more informal informational resources that can be accessed via internet search engine (e,g. Google) on the internet such as blogs, Wikis (e.g. Wikipedia) and Social Networking platforms (e.g. facebook and YouTube).

Rapid technological advancements are substantially influencing the learning landscape offering learners, providers and developers a range of new platforms for learning such as Web 2.0. The new learning opportunities afforded by mobile devices bring challenges, and the pace of technological change is currently outstripping a detailed pedagogical framework for its use. Mobile learning offers a range of practical challenges such as the availability of mobile devices, robust wireless networks and the appropriately designed learning materials that are tailored for use on mobile devices such as the recently introduced ipad Turnitin application.

More importantly, mobile learning also poses a significant number of psychological challenges. The potential 24/7 nature of mobile learning blurs traditional boundaries of time and space, both physically and psychologically, and presents a number of psychological challenges that are a product of the user's socio-cognitive profile: human mental processes are limited and rely upon environmental cues to support them. Learning occurs over time: mobile learners must plan, organise and keep track of learning material accessed at different times. Therefore, it is important to differentiate between subjective (psychologi-

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cal) and objective (physical) time, as time can be perceived differently depending on context, task and the individual's socio-emotional state. With mobility, contexts change and this also presents a psychological challenge, especially to memory as context dependent retrieval cues may not be available to support memory (Terras & Ramsay, 2012, 2014).

From a Psychological perspective, mobile learning can be defined as the use of wirelessly connected devices to augment learning and teaching within and between different psychological, social, physical and temporal contexts. From this perspective, the most influential characteristic of mobile learning is the mobility of the *learner* across *different contexts* of learning and the demands this makes of limited mental resources that are heavily influenced by context.

Just as educators have to understand how we learn in traditional contexts, we now have to understand how we learn using mobile devices and Psychology is well placed to offer detailed insight into the necessary skills, preferences and behaviours necessary for successful mobile learning to occur. Consideration of these challenges is a new and exciting developing area of research that blends and applies not only traditional psychological theory and research concerning human behaviour and the use of technology, but also offers new insights by considering multi-disciplinary perspectives from areas such as sociology and computer science to develop and comprehensive and holistic explanation of the mobile learner across a range of learning contexts.

CURRENT SCIENTIFIC KNOWLEDGE IN MOBILE LEARNING

The area of mobile learning has a relatively short history but a rapidly developing evidence base. Understanding the nature, process and influences on mobile learning has benefited greatly from Pioneering scholars such as Professor Mike Sharples (Sharples, 2000; Sharples, Taylor & Vavoula, 2007) at The Institute for Educational Technology, The Open University UK; Professor Agnes Kukulska-Hulme (Kukulska-Hulme, 2007) at the Institute of Educational Technology at the Open University, UK, and Dr John Traxler (Traxler, 2007, 2009) of The Learning Lab at the University of Wolverhampton. Recently attention has focused on individual differences in learners and the specific psychological challenges that the changing spatio-temporal aspects of mobile learning contexts entail have been examined, with Dr Melody M Terras at the University of the West of the Scotland and Dr Judith Ramsay at Leeds Beckett University in the UK (Terras and Ramsay, 2012, 2014a, 2014b) and Professor Agnes Kukulska-Hulme (Kukulska-Hulme, 2013) among the leading experts in the area.

Leading Researchers and Approaches to Mobile learning

Professor Agnes Kukulska-Hulme at the **I**nstitute of Educational Technology at the Open University, UK, emphasises that mobile learning takes place via devices that may not have been intended to support learning in the first instance which reflects the natural and informal way in which mobile learning has developed (Kukulska-Hulme, 2007). Kukulska-Hulme and Jones (2011) have, consequently, gone on to argue for the integration of an understanding of learner practices, learning contexts, and technologies in pedagogical approaches. Kukulska-Hulme (2012) also considers the question of learning being defined by the time and place within which it occurs and, given this, argues for the necessity of frameworks to organise the new ways of learning. Most recently, Kukulska-Hulme (2013) has also addressed the importance of identifying the different types of mobile learner. That learning is at least influenced by, if not defined by time and space, and that learners differ presents psychological challenges as discussed later in this chapter.

Dr John Traxler of The Learning Lab at the University of Wolverhampton, UK, has defined