

# Mobile Seamless Learning from the Perspective of Self-Regulated Learning

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## INTRODUCTION

In today's information age, a key challenge for educational researchers and practitioners is how to harness state-of-art technologies to design effective learning environments that boost students' knowledge and abilities for the purpose of lifelong learning (Woolf, 2010). It is increasingly realized that personal, portable, and wirelessly networked technologies are becoming prevalent in the lives of learners. This leads us into a new phase in the evolution of technology-enhanced learning (TEL), forging mobile learning spaces, and the continuity of the learning experiences across different scenarios or contexts (Looi et al., 2010; Frohberg, Göth, & Schwabe, 2009). According to Wong and Looi's review work (2011), the notion of seamless learning by Kuh (1996) was initially intended to integrate the learning activities and experiences occurring in various settings that were ever viewed to be essentially separated such as formal and informal learning, in class and out of class, in school and outside of school, curricular and extra-curricular. The rapid development and widespread applications of mobile technologies have extended it to the notion of mobile seamless learning (MSL), defined as a learning model where personal mobile device as a mediator easily, quickly, and seamlessly switch learning and cognitive activities from one scenario or context to another (Chan et al., 2006).

In the past decade, research in mobile seamless learning (MSL) is proceeding along two lines. One as a mainstream in this field is focused on issues regarding effectiveness and design of mobile seamless learning systems (Wu et al, 2012). The other

line is on characterizing seamless learning, and revealing challenges facing MSL from a variety of theoretical perspectives (Sharples, Taylor, & Vavoula, 2005, 2007; Wong & Looi, 2011; Sha, Looi, Chen, & Zhang, 2012; Sha, Looi, Chen, Seow, & Wong, 2012; Terras & Ramsay, 2012). For example, Sharples, et al's (2005, 2007) efforts have initiated an uncompleted course towards theorization of seamless learning. Wong and Looi's (2011) comprehensive review of the literature recognizes ten dimensions that characterize the notion of MSL, which can be further grouped into three higher-level categories reflecting its key elements: *technology focus*, *pedagogy focus*, and *learner focus*. Placing emphasis on learners rather than technology or pedagogy, Terras and Ramsay's study (2012) identified significant challenges facing effective mobile learning from the psychological perspective. The aforementioned studies indicate that more theoretical and empirical studies are stilled needed to further enrich and deepen our knowledge about the nature of mobile from various perspectives, and to apply that knowledge to help educational researchers and practitioners to design more effective mobile-assisted seamless learning. This chapter is intended to demonstrate how mobile seamless learning can be studied and understood in the paradigm of a contemporary theory of learning – self-regulated learning aimed to shed light on future research in characterizing MSL.

Dr. Chan (Chan et al., 2006) at National Central University in Taiwan, Dr. Sharples (Sharples, Taylor, & Vavoula, 2005, 2007) at the Open University in the UK, Dr. Norris at the University of North Texas and Dr. Soloway at the University

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of Michigan (Norris, C., & Soloway, E. (2008) are among the earliest examining this topic. Drs. Sharples, Norris, Soloway, and Dr. Looi and Dr. Wong at the Nanyan Technological University in Singapore (Looi et al., 2010), are among the leading experts in the area.

## **UBIQUITY - DEFINING FEATURE OF MOBILE SEAMLESS LEARNING**

The belief that wireless and mobile technologies are conducive to supporting lifelong learning stems from the recognition of the most significant characteristic of wireless and mobile technologies – ubiquity, which makes it possible that learners can learn the right thing at the right time at the right place (Peng, Su, Chou, & Tsai, 2009). In their words, ubiquity “refers not to the idea of ‘anytime, anywhere’ but to ‘widespread’, ‘just-in-time’, and ‘when-needed’ computing power for learners” (p. 175). One of the fundamental challenges for the 21<sup>st</sup> century learners is not only what they learn, but also how and when they learn in the ways that make meaningful learning happen. However, this idea results in a series of follow-up questions in the field of mobile learning. For example, who take the eventual responsibility of determining what, when, where, and how to learn: instructional designers, teachers, or students themselves or all of them in different contexts? What and how do educators need to do to equip students with the necessary knowledge and skills that enable them to not only make such a judgment, but also appropriately control their learning based on their judgments?

A relevant issue is that even though a student is capable of rightfully determining what, when, where, and how to learn, he or she should be willing to (i.e., be motivated to) not only behaviorally, but cognitively engage in learning whenever/wherever she or she realizes it is needed (i.e., regardless of in formal or informal settings). This suggests that transforming a teacher-centered curriculum to a

student-centered mobile curriculum involves more than technology or pedagogical considerations, and learner characteristics such as motivation and abilities in monitoring and controlling one’s learning in different settings need also to be considered.

Student-centered learning logically supposes that students are the agents (masters) of their own learning in some manner. Mobile learning environments essentially provide a means by which students can exercise agency to control their own behavior and cognition. In this sense, therefore, what kinds of learning theories do researchers rely upon when investigating if and how learners as agents can learn in diverse yet flexible ways when they are embedded in or have access to a mobile learning system? In other words, what kind of learning theories is needed for conceptualizing mobile learning? What theoretical perspectives are needed to design, analyze and evaluate mobile learning? This chapter will shed some light on those issues.

## **GAPS IN THE CURRENT THEORIZATION OF MOBILE SEAMLESS LEARNING**

Existing studies on mobile seamless learning seem not to draw strongly upon theories to undergird their learning design or do so in under-theorized ways. A relevant question asked by Vogel, Kennedy, and Kwok (2009) is: do using mobile technologies really lead to learning? In other words, does putting students into a mobile learning environment necessarily guarantee effective learning? They likened it to the old adage that leading a horse to water does not mean it will then drink from the water. They found that providing technological supports and mobile devices does not necessarily ensure effective learning. If so, what would be the considerable external and internal factors underlying the appropriation of personal, portable, wireless technologies for impactful and effective teaching and learning? Essentially, this

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