The Role of Self-Regulation and Structuration in Mobile Learning

Olga Viberg, The Royal Institute of Technology (KTH), Stockholm, Sweden
Annika Andersson, Örebro University School of Business, Örebro, Sweden

ABSTRACT
The roles of self-regulation and structuration in mobile learning are poorly understood. This study therefore examines these aspects in relation to the design and use of mobile technology in an online language learning setting. The online self-regulated learning (SRL) instrument was adopted to measure students’ perceived level of self-regulation. Structuration Theory was applied as the theoretical lens for understanding students’ technology-mediated learning practices. The results show that several factors defining learners’ level of self-regulation were correlated with their mode of structuration. The analysis indicates that students’ SRL characteristics are correlated with their structures regarding their technologies-in-practice and their practical assumptions about effectiveness in learning. An implication for practice is that students’ SRL dimensions need to be taken into account when designing educational software for mobile technology. For research, this study has demonstrated the explanatory power of ST and how students’ structures are related to their SRL characteristics.

KEYWORDS
Distance Education, Educational Software Design, Higher Education, Human Agency, Mobile Learning, Mobile-Assisted Language Learning, Self-Regulation, Structuration

INTRODUCTION
Since use of mobile technologies has become commonplace, it is tempting for teachers in their formal teaching practices to try to replicate the way that mobile devices are used in informal learning environments. Drawing on existing practices can be seen as pragmatic since little or no training is needed. However, bringing in practices from informal use of technology might inadvertently change the way students work. It is therefore important to be knowledgeable about those informal practices to be able to design effective and efficient courses and educational technology.

Previous research shows that a student-centred mobile curriculum addresses not only technical or pedagogical concerns, but also a need to consider learner characteristics such as motivation and skills in monitoring and regulating learning in divergent environments (Sha, Looi, Chen, & Zhang, 2012). Effectiveness in employing mobile technology in learning practices generally depends on human, design, and institutional factors (Vogel, Kennedy, & Kwok, 2009). In a response to calls for research that can help clarify the roles of learner characteristics in mobile learning (mLearning) (Sha et al., 2012), this research examines how students’ structuration and their perceived self-regulation relate to their learning practices in a higher educational online language learning setting.

The focus of mLearning has shifted in recent years towards the learner, as opposed to technology (Sharples, Taylor, & Vavoula, 2007), where the control of the learning process is seen to rest upon the level of learners’ self-regulation (Liaw, Hatala, & Huang, 2010). Self-regulated learning (SRL)
is seen as “the process whereby students activate and sustain cognitions that are systematically oriented towards an attainment of their goals” (Schunk & Zimmerman, 1994, p. 309). Definitions of SRL include three key features: (1) the learners’ use of strategies, (2) their responsiveness to self-oriented feedback about learning effectiveness, and (3) their interconnected motivational processes (Zimmerman, 1990). According to Gu (2010), “strategic, self-regulated learning lies at the heart of second/foreign language acquisition” (p. 1). One learner group that might benefit from mLearning is distance language learners, who, through the use of mobile devices, can be provided with flexible practice in speaking and listening (Kukulksa-Hulme, 2013).

Human agency is central to self-regulated behaviour. Agency is understood in terms of individuals’ ability to do things (Giddens, 1984). It refers to “doing” (Giddens, 1984, p. 10) and is defined as “the capacity to make a difference” (Giddens, 1984, p. 14). Structuration theory (ST) (Giddens, 1979, 1984; Halperin & Backhouse, 2007; Orlikowski, 2000), is used in this study to analyse learners’ perceptions of their technology-mediated learning practices.

The study’s focus is on students’ technology-mediated learning practices where learning through mobiles is seen to be complementary to the existing e-learning practice. Learning practices are defined as any structured or unstructured learning activities undertaken by individuals for their learning.

**RESEARCH QUESTION**

This study investigates the relation between language learners’ perceived self-regulated learning, their structuration, and their use of mobile technology in their learning practices. To this end we adopted the convergent parallel mixed method approach (Creswell, 2014) and used the case of an online language learning course for our data collection. The research question is:

*How do students’ structuration and their perceived self-regulation relate to their learning practices when mobile technology is used in online distance education?*

To be able to answer this research question we also needed to investigate how learners, of different genders and ages, use the mobile technology for learning in distance education. This is important because learners’ gender and age have earlier been found to be related to their attitudes towards the use and/or their actual use of mobile technology for learning purposes in other educational contexts (see e.g., Reychav & McHaney, 2017; Viberg & Grönlund, 2013).

**BACKGROUND**

**SRL and Online Distance Education**

Students’ ability to autonomously and actively engage in the learning process is a prominent factor that predicts successful online learning (Allen & Seaman, 2013; Broadbent & Poon, 2015; Dabbagh & Kitsantas, 2009). Even though SRL is a well-established field of study and research has indicated positive relationships between the SRL strategies’ use and academic outcomes in traditional learning contexts, there is a knowledge gap regarding its application to online distance education (Broadbent & Poon, 2015), especially to the second language subject domain. Online distance education is considered highly learner-centred where learner autonomy and SRL are seen as the most influential success factors (Zhao, Chen, & Panda, 2014). Lee, Choi & Kim (2013) show that students are more likely to use learning strategies, including metacognitive self-regulation, and achieve better results when they have more autonomy. Their research suggests that interactive web design and learning activities could improve the SRL skills of online students. You and Kang (2014) found that “[d]ue to the self-regulated nature of online learning, self-regulation is highly demanded in online learning even more than in traditional classroom learning” (pp. 125-126). SRL research in online learning settings
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