

## Chapter 5

# The Effect of Mobile Learning Approach on University Students' Academic Success for Database Management Systems Course

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### ABSTRACT

*This article investigates the effect of mobile learning support on students' academic success on a database management systems (DBMS) course. The research was carried out with 36 students attending a state university in Turkey. In this study, a mixed method was used, which includes both quantitative and qualitative data collection techniques. For the quantitative data, the study was conducted in accordance with the pre-test and post-test-based two group quasi-experimental model. For the qualitative data, the descriptive analysis technique was used. The independent sample t-test and paired simple t-test were employed in the analysis phase. According to the findings, mobile learning positively affected students' academic achievement on the DBMS course, in that the students supported by mobile learning were more successful than students supported only by face-to-face training method. Finally, it is seen that the students have emphasized themes of motivation, 1-1 access, and an interest in terms of the effect of m-learning approach on academic success.*

### 1. INTRODUCTION

Since the early 2000s, mobile devices such as smartphones and tablet pcs, which perhaps best represent today's rapid development of technology, have been adopted by the worldwide masses as these such mobile devices become more sophisticated, faster and cheaper (Keskin & Kılınc, 2015). In addition to the use of mobile devices in many areas, mobile technologies have fast become a focus of attention in

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education and training activities (Raua, Gaoa, & Wub, 2008). Thanks to the ease of accessibility and portability of mobile technologies, learning activities such as practice and practice in the field of education are carried out both within the classroom and outside the classroom environment (Saran, Seferoglu, & Cagiltay, 2009). In these mobile technology developments, education has become more learner-centred and individualised, as learners' access to information wherever they are has led to the emergence of the mobile training concept (Sharples, 2000). There are many definitions for the Mobile Learning (m-learning) approach in the field. M-learning is defined as the intersection of mobile informatics and e-learning in order to generate learning experiences anytime and everywhere (Harris, 2001); a learning process that takes place by content interaction or social interaction independent of time and place through the use of mobile devices (Ozan, 2013); any kind of learning attempt where the only or dominant technology is transportable mobile devices (Traxler, 2005); any kind of learning and teaching activity that takes place through mobile devices or mobile environments (Trifonova, 2003); and learning with the help of mobile technologies such as tablet PCs or Notebooks (Yuen & Wang, 2004).

M-learning has an increasingly significant role in the development of teaching methods of learning and learning process (Mtega, Bernard, Msungu, & Sanare, 2012), since students can easily and quickly access and use learning resources anytime and anywhere using mobile technology. There are numerous project-based studies using mobile technologies all around the world such as ESF Mobile Learning Project, M-Learning, Educase, BLOOM, MOBILearn, Healthy for Life, Foyer Lifeskills, Merrill Lynch GoLearn, The MoLE, MoLeNET and Increasing the Opportunities and Improving the Technology (FATİH); a national-scale educational technology rollout to all schools in Turkey. Enriching the learning process, moving the learning activity beyond the classroom, designing the learning process according to the learner's needs are common traits of these education-focussed projects (Bozkurt, 2015). As a result of an examination of the studies in the literature concerning m-learning and its positive academic effect on education, it is seen that m-learning positively contributes to student engagement (Huizenga, Admiraal, Akkerman, & Dam, 2009; Karsenti & Fievez, 2013), learning achievement (Al-Fahad, 2009; Hwang, Wu, & Ke, 2011; Sung & Mayer, 2013; Wu, Hwang, Su, & Huang, 2012; Zaldívar, Tripp, Aguilar, Tovar, & Anguiano, 2015), motivation (Çelik, 2012; Kinash, Brand, & Mathew, 2012; Milošević, Živković, Manasijević, & Nikolić, 2015; Oberer & Erkollar, 2013; Philip & Garcia, 2015; Schwabe & Göth, 2005), interest (Cakir, 2011; Tan & Liu, 2004), attitude (Halder, Halder, & Guha, 2015; Hwang & Chang, 2011; Ozdamli & Uzunboyly, 2015, Uzunboyly, Hürsen, Özütürk, & Demirok, 2015), and critical thinking skills (Cavus & Uzunboyly, 2009).

If we examine the studies concerning m-learning in Turkey, it is clear that the attitudes of students and teachers to m-learning (Çelik, 2013; Demir & Akpınar, 2016; Elçiçek & Bahçeci, 2015), and developing m-learning applications and its effect on academic success are the subjects most focused upon. It is stated that mobile learning increases academic success and makes it easier and more fun to learn in abstract and technical subjects (Köse, Koç, & Yücesoy, 2013). According to Sur (2011), it is obvious that mobile learning increases academic success and students have a positive attitude towards mobile learning. In a thesis study on m-learning, an m-learning tool devoted to the basics of a programming class was developed and the tool's support was found to positively affect the academic success of the students (Dehmenoğlu, 2015). It was also reported that a mobile-based language learning application (MALL), developed by Korkmaz (2010) for the purpose of foreign language teaching, increased the academic success of students. These studies examined the impact of m-learning on academic success in different departments and m-learning was found to positively support students' academic success. However, a mobile learning application developed for a Database Management Systems (DBMS) course

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