A comparative analysis of student motivation in online learning and mobile learni...

Loch et al. (2003) reported that universities in the Arab world are increasingly employing new technologies in education. Governments on the Arabian peninsula, including the Kuwaiti government, are attempting to establish infrastructures similar to that of the developed world, by investing extensive fiscal resources in enhancing the use of technology in education (Alkhezzi & Alqahtani, 2010). Based on the characteristics of educational technology as published in the literature, universities expect a rise in the number of students enrolling in technology-mediated courses; additionally, the number of faculty inclined to use technology in their classes is increasing (Alkhezzi, 2011).

The benefits of using intensive technology in education are that it is location independent and offers increased flexibility, student engagement, and student–professor interaction (Ahmed, 2016). Such benefits advocate the use of technology-mediated learning. Regarding mobile learning in particular, Georgieva, Smrikarov, and Georgiev (2005) classified mobile technologies based on how they are supported and accessed. The two fundamental classifications of mobile learning systems in this research study were the ability to access learning materials within an institution and outside of the university. These systems can also be divided based on the educational processes they support: learning and/or administrative. In another research study, Peters (2007) visualized mobile learning as a useful component of the flexible learning model, emphasizing the concepts of " just in time, just enough, and just for me" (p. 15). Mobile learning can be transformative, with mobile devices embedded into the background of every learner. Two types of electronic learning (eLearning) are currently attracting

increasing attention: mobile learning (mlearning) and online learning. Both types can support traditional learning and independent learning styles, and both are also independent of time, location, and manifest self-directed behavior (Korucu & Alkan, 2011; Mutlu, Yenigun, & Uslu, 2010; Wang, 2004). However, mobile learning is believed to be more advantageous compared with online learning. Mobile learning uses features available via mobile technologies, such as personal digital assistants, pocket personal computers (PCs), and mobile phones (Keegan, 2003; O'Malley et al. , 2003).

The concept of mobile learning has changed over the years. Whereas earlier definitions were focused on the device (Traxler, 2005), and recent definitions '' revolve around the mobility of the learner'' (Pachler et al. , 2010, p. 6). However, if these two perspectives are integrated, we could define mobile learning as " anytime and anywhere" learning, where the learner takes advantage of the benefits that mobile technologies provide (Fabian, Topping, & Barron, 2016; O'Malley et al. , 2003). The past 10 years have seen substantial changes in mobile technologies, and educational institutions have launched promising projects for integrating mobile devices in the classroom (Liu et al. , 2003). Fabian, Topping, and Barron (2016) suggested that mobile learning may offer benefits such as " encouraging anytime/anywhere learning, improving social interactions, and enabling a personalized learning experience to bridge a pedagogically designed learning context, allowing learning to be situated in a real-world context" (pp. 77–78). Online learning is similar to mobile learning in many aspects. However, online learning is a Web-based sort of learning; that is, it uses

interfaces and functions restricted to PCs. Thus, mobile learning is more accessible (Corbeil & Valdes-Corbeil, 2007). Motivation is a significant factor in learner success in general (Knowles, 1980), and it is often cited in the eLearning literature (Moore & Kearsley, 2005). In their meta-analysis of distance education, Bernard et al. (2004) acknowledged the need to further explore student motivational tendencies in distance education. This empirical literature centered on distance education is highly relevant to eLearning as well.

Although diverse constructs are necessary for explaining motivational processes (Bandura, 1977; Covington, 2000; Deci, 1975; Feather, 1982; Kuhl & Fuhrmann, 1998; Miller, Brickman, & Bolen, 1975; Rosenbaum, 1989; Rotter, 1966; Vroom, 1964; Zimmerman, 2002), a common classification of these constructs is the labeling of internal and external sources of motivation (Rovai et al. , 2007). In other words, motivation is not a singular phenomenon. Deci (1975) clarified the distinction between intrinsic and extrinsic sources of motivation: Intrinsic motivation refers to a task that is performed due to its inherent characteristics (such as the level of interest it generates), whereas extrinsic motivation indicates the detachable outcome of a given task.

However, the published literature indicates that research has been inconclusive regarding which type of motivation increases student performance (Rovai et al. , 2007). The rampant use of mobile devices in all aspects of life suggests that strong incentives exist for learners to persist in using their mobile devices in both formal and informal learning

environments. This led us to consider what aspects of using mobile devices might be motivating for learners. Given the potential pedagogical advantages of eLearning in general, a pressing need exists to develop an evidence-based understanding of best practices in this area. Students who are exposed to various modes of eLearning can have vastly different experiences. Despite increasing research interest in eLearning, little consistency has been found in the impact of mobile leaning versus online learning on student motivation.

Accordingly, the researchers examined the extents to which mobile and online learning affect student motivation. The goal was to identify the motivational characteristics of students exposed to mobile and online learning, and to identify the differences, if any, between mobile and online learning. The research questions that guided this study were the following: The importance of the current study lies in its premise that different modes of teaching can have various impacts on student characteristics. Thus, faculty can use these findings to examine their teaching practices for more effective pedagogical implications.

Furthermore, this study can significantly serve as an indicator of the development of future mobile devices for education. In addition, this research can aid in the development of learning materials and help with designing and learning strategies in the realm of mobile education. An experimental research design was used to compare student motivation in both mobile and online learning settings. Each class was designated an experimental group and was taught in three ways: traditional face-to-face

learning, online learning, and mobile learning. Each class was surveyed following the use of the online and mobile learning modes. Because motivation in traditional learning was not a variable in this research, students were not surveyed after taking the traditional class.

To combat fatigue, order, sequence, or practice effects, the researcher opted for a counterbalanced design. In a repeated measures design, counterbalancing is a method used to control for order effects by exposing each subject to all or randomly selected orders of treatment (Cozby, 2009). In experiments where subjects are exposed to all of the treatments (repeated measures design), fatigue and other extraneous factors can affect the subjects' behavior. To avoid this, the counterbalanced design is considered one of the best techniques that reduces the possible influence of the order of treatment or other factors affecting the results. In this study, the simplest type of counterbalanced design was used, where only two conditions were present: A (online learning) and B (mobile learning). The goal was to survey every subject after both conditions. Hence, the subjects were divided into two groups (two classes, one male and one female each) as in Table 1, where one group was treated with condition A, and the other with condition B. Then, following that, each group was treated with the opposite condition. This study investigated the difference in student motivation in online learning and mobile learning settings. First, two of the Computers in Education course subjects, Visual Literacy and Technology Ethics, were selected to be developed into computerized versions. Each subject was prepared in the two teaching conditions of (a) online learning

and (b) mobile learning. For a period of three weeks, Group 1 took the subject Virtual Literacy in the online learning mode, whereas Group 2 took the same subject in the mobile learning mode.

Then, all students in both groups were surveyed using the research instrument. In the following three weeks, Group 1 took the subject Technology Ethics in the mobile learning mode, whereas Group 2 took the same subject in the online learning mode. Then, again, all students in both groups were surveyed using the research instrument. A modified version of the Intrinsic Motivation Inventory scale (IMI) was used in this study. Ryan (1982) developed the original scale for assessing participant experiences regarding relevant activities. It consists of 37 items distributed on six sub-scales: interest/enjoyment, perceived competence, effort/importance, value/usefulness, felt pressure and tension, and perceived choice. Because only one sub-scale (interest/enjoyment) is considered, the self-report measure of intrinsic motivation, it usually has more items than do the other sub-scales. However, other sub-scales are important, because some of them are theorized to be positive/negative predictors of intrinsic motivation (Self-Determination Theory, n. d.). Validity and reliability. As shown in previous research, many previous studies have established the scale's validity and reliability (McAuley, Duncan, & Tammen, 1987). Additionally, research demonstrated that excluding some of the sub-scales or changing the order of the items has no effect on it, which is the reason why many researchers choose to use only the sub-scales that fulfill their needs instead of using the entire scale. In fact, researchers rarely use the entire scale (" SDT," n. d.).

For this study, a total of 30 items were distributed on five sub-scales: interest/enjoyment, perceived competence, effort/importance, value/usefulness, and felt pressure and tension. The sub-scale " perceived choice" was eliminated because the students were required to complete the experiment as part of their course. Student motivation is an ongoing problem for educators (Linnenbrink & Pintrich, 2003). Many research studies have concluded that the lack of motivation among university students is widespread (Crotty, 2013; Green-Demers & Pelletier, 2003; Legault, Green-Demers, & Pelletier, 2006; Wright, 2012).

Despite the fact that motivation is an essential factor for academic success (Sanacore, 2008), much attention has gone to increasing students' achievements but not much attention has been paid to their motivation (Crotty, 2013). Motivation is associated with college students' course completion and academic performance (Blank, 1997; Dev, 1997; Kushman, 2000; Wood, 1995). Turner (1994) referred to motivation as the engine for learning. Many studies have found that motivated students are more likely to actively and happily engage in learning activities, and to achieve better results (Kim & Frick, 2011; Ryan & Deci, 2000). Because motivation is the key factor in any learning environment (Schunk & Usher, 2012), and in the eLearning environment in particular (Arttino, 2008; Keller, 2008; Kim & Frick, 2011; Shroff et al. , 2007), increasing the level of motivation should be a goal for every teacher. Using technology in teaching is one of the factors that affects students' motivation (Granito & Chernobilsky, 2012; Prensky, 2001). Many researchers have argued that digital content and multimedia

technology offered in the eLearning environment can boost students'
motivation (Jukes, 2008; Wighting et al. , 2008). This study revealed that
students' motivation in the eLearning environment (both online and in the
mobile mode) was reasonably high. This confirmed the findings of Huett et
al. (2008), Shroff and Vogel (2009), and Wighting et al. (2008), who all found
that students have higher motivation levels in eLearning. This study is also in
line with El-Seoud et al. (2016), who found that recent studies showed that
eLearning students have more motivation than do traditional learners.

Although, the university where this research was conducted is culturally
traditional, with a didactic learning environment, eLearning was successful in
motivating students who perceived mobile devices to be preferable for
supporting learning interactivity. The results demonstrated that students
were eager and delighted to find mobile learning activities to be motivating,
and their voluntary engagement in the learning process using their mobile
devices increased. The research results demonstrated that content delivered
on mobile devices can be more motivating than online learning.

According to the results, the respondents found the activities to be
important, believed in its value, enjoyed doing it, and considered it to be fun
and interesting. Higher education institutions are urged to keep pace with
the fast-growing and developing mobile technology, and to begin to develop
mobile-friendly courses instead of using old technology. The focus should be
on reforming course objectives and materials to fit mobile devices. In this
way, institutions can take advantage of these devices' unique features, such
as their portability, accessibility, interactivity, and always-on features.