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Providing Students With Mobile Access to an Assessment Platform: Lessons Learned

Almed Hamzah, Utrecht University, The Netherlands & Universitas Islam Indonesia, Indonesia*
https://orcid.org/0000-0003-4965-7057

Sergey Sosnovsky, Utrecht University, The Netherlands

ABSTRACT

The growing ubiquity, rich functionality, and relative affordability of mobile devices have been seen as opportune factors for implementing mobile learning solutions that can be used in a variety of contexts and domains. Plenty of successful mobile educational applications have been built. This paper describes an attempt to build on this success. The authors have investigated the use of mobile devices by students accessing assessment and self-assessment quizzes in the context of a university course. Two experiments were conducted with undergraduate students. The results of the first experiment were not successful, and initially, very few students used mobile devices. After several adjustments, during the second experiment, the usage of the system increased. However, the numbers were still much lower when compared to desktop access. This paper reports an investigation into the lack of mobile usage of the developed platform despite the educational affordances brought by mobile devices.

KEYWORDS

Assessment, Blended Learning, Evaluation, Mobile Learning, Responsive Design, Self-Assessments, Voting Tool

INTRODUCTION

The widespread use of mobile devices among students leads to a shift in learning practices. Compared to other computing devices, mobile phones have a range of advantages, including portability, a rich set of sensors and supported functions, connectivity, etc. (Pellerin, 2018). At the same time, the computational, presentation and interface capabilities of modern mobile devices have become so advanced that a typical user rarely has to sacrifice richness of interaction and functionality for utility and mobility (MacCallum et al., 2017). Moreover, for many tasks, mobile devices have become a more convenient platform. In the domain of education, there exist a few notable examples of extremely effective mobile learning applications. For instance, Duolingo is a language learning app that helps its users to gradually build up knowledge of vocabulary, grammar, listening, writing, and even speaking

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by practicing with many types of assessment exercises on a variety of topics (Loewen et al., 2019). Interestingly, Duolingo has a browser-based version that can be accessed on the desktop. Yet, most of its traffic comes from mobile devices. Duolingo users voluntarily engage with a plethora of educational content through their phones. What mobile devices successfully bring to the fore is the innate support of self-regulated learning. Being affordable, portable, and connected they are constantly available as potential learning tools for all categories of learners. Hence, it seems natural to use them as the platform of choice for developing solutions that support students when they are trying to learn on their own. Another type of mobile tool that has been widely and successfully adopted in education are quiz/polling tools such as Kahoot! (Wang & Tahir, 2020). Once again, affordability, portability, and ease of use of mobile devices are great assets for organizing on-the-spot assessment with such apps.

This paper aims to explore the factors of this success. An assessment platform – called Quizitor – has been developed. It can be used both in class (for on-the-spot assessment) and at home (for self-assessment). The platform was developed as a web application using the responsive design methodology. Hence, it was accessible through a browser on both mobile and desktop platforms and was purposefully designed to look and feel user-friendly on both platforms. The decision to focus on (self-)assessment as a learning activity had several motivations. Assessment and self-assessment are active and meaningful learning tasks that help to break the mundane routine of in-class lectures and at-home reading. They allow students opportunities to practice, monitor and reflect on their knowledge and, potentially, achieve deeper understanding of the course material. Assessment can become a key factor to improve students' learning (Rocha et al., 2020) and help them reach higher scores on exams (Riggs et al., 2020). In addition, the already mentioned success of other practice-based mobile platforms such as Duolingo is a good indicator that students are willing to engage with assessment material on their mobile devices.

Overall, in terms of student learning, mobile devices are known to provide several affordances that can be utilized for educational purposes. According to Parsons et al., (2016), there are at least six affordances that can support learning, i.e., portability, data gathering, communication, outdoor activities, contextual learning, and interaction with the interface. It has been shown that these factors can enhance learning in general (Palalas & Wark, 2020) and independent learning in particular (Alrasheedi et al., 2015). In mobile learning scenarios, students often need to regulate their learning, for instance, when applying resource management strategies (Hartley et al., 2020). They plan themselves when and where to engage with learning material and have the agency to select the material they find most relevant (Mwandosya et al., 2019). In addition, mobile learning scenarios are naturally compatible with various technologies for learning support, such as adaptive learning and collaborative learning (Lazarinis et al., 2017). For example, it seems more effective to send learning-related personalized messages to the device that students carry with them all the time. It increases the chance that a student receives the message at the right time. It is also easier and faster to seek help and communicate with mobile devices. Such support can lead to better academic performance (Hsiao et al., 2019).

Quizitor does not yet implement learning support technologies. The first idea was to investigate the patterns of students' activity with the platform, identify difficulties that they might experience and use it to inform the further development of support capabilities of Quizitor. The hypothesis was that students would be actively using the mobile version of the platform. An experiment was conducted in an undergraduate university course. The results have shown that only a few students used mobile devices to interact with Quizitor. After several measures that facilitated accessing the platform, another experiment showed that the number of mobile users increased, yet the overall usage remained low compared to the desktop version of the interface. This paper reports the results of this evaluation and attempts to analyze the factors that might have dissuaded students from using their mobile devices when interacting with Quizitor.

RELATED WORK

As mobile technologies gain popularity among students, many studies have investigated the effectiveness of integrating these technologies into the learning activities. A study by van Rensburg et