

## Chapter 37

# Mobile App to Support Teaching in Distance Mode at Fiji National University: Design and Evaluation

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### ABSTRACT

*In order to assist in delivering of courses in distance mode at Fiji National University a mobile learning app was designed and evaluated. The main objective of this app was to provide learning support to learners who are studying in distance mode. The app was designed for android based smart phones and usability study was conducted to evaluate the app. The evaluation was conducted using twenty students who examined the system for ease of use, usefulness and user satisfaction. The results highlighted minor usability problems hence recommendations were derived to improve the app.*

### INTRODUCTION

Fiji National University (FNU) was established in 2010 with the merger of six government owned tertiary institutions, it has a network of thirteen campuses located all over Fiji. The main objective of FNU is to make tertiary education readily available at an affordable cost. FNU is embarking on mission to provide courses in distance mode to students who are either working full time or are unable to attend classes due to distance barrier. In order to support students in distance mode to get easy access to course materials, interact with their peers, and communicate with their teachers a mobile app was designed and evaluated. The app will provide easy access to learning anywhere, anytime and making it convenient for

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students. Students will be more involved in their learning activities since they can access course materials from any location. It will allow easier continuity of learning since students can continue their activity whenever they want. Students will also be able utilize their time spent on travelling and other leisure activities focusing on the course they want to learn. The app will encourage collaborative learning, allowing students in different locations to get in touch with their peers to discuss and learn. Collaborative learning is a happening trend among university students who are studying through distance mode. It creates a sense of cooperation among the students (Hsu & Ching, 2013).

This study utilizes design science research to develop and evaluate mobile learning application. Design science research is a systematic study of developing solutions to practical problems that emerge from real life situations. The design principles discovered during this process can be used to assist and guide future design efforts (Peppers, Tuunanen, Rothenberger, & Chatterjee, 2007). Designing instructional materials for desktop is easy because it has larger screen space and processing power while smartphones are limited by relatively small screen size currently which is around 5- 12 inches. A usability study is an important way to ensure that the designed product is usable (Kumar & Mohite, 2018).

This paper is organized as follows; a) Background is provided on distance education, mobile learning technology and mobile usability. b) The methodology section describes how the research was designed and executed. c) A usability evaluation framework was established for assessing the app. Three elements were specified relevant to assessing the app; ease of use, usefulness and satisfaction d.) It provides details of usability experiment and results analysis leading to recommendations for improving the system. Finally, the paper concludes with providing important contributions of this research and providing directions for future research.

## **BACKGROUND**

Distance Learning is a broad term which includes studying at your convenience allowing learners to make choices about where, when, and how learning occurs (Koole, McQuilkin, & Ally, 2010). Students studying through distance education are geographically isolated from their teachers and are often separated from their peers as a source of support (Matthíasdóttir, 2006). Instructors use various methods to facilitate courses in distance mode such as printed study guides and learning management systems. Many researchers working in the field of distance education have been exploring on tools and techniques that could improve the delivery of courses in distance mode. Many technologies have been applied in the past to bridge the gap between distance education and classroom learning. As early as the mid-1970s, universities began to use email and asynchronous text-based conferencing to complement their courses, the early 1980s saw the first online courses and today, the literature is growing rich with studies of mobile learning (Harasim, 2000). Small, hand-held devices are now being used in language learning, medical training, music composition, and general education (Kukulska-Hulme, Sharples, Arnedillo-Sánchez, Milrad, & Vavoula, 2009; Traxler, 2009). These easy-to-carry tools allow more freedom to interact with others and to access a variety of multimedia.

Mobile Phones are easily accessible to students and have a lot to offer to distance education. In past few decades mobile devices and related technologies have seen tremendous growth and are now prominently being used in many fields such as entertainment (Leong, Ooi, Chong, & Lin, 2011) health (Ducut & Fontelo, 2008) and finance (Donner & Tellez, 2008). Mobile phones have also found their way into learning and education sector. Mobile learning is a rapidly growing phenomenon which is available

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