

## Chapter 16

# Web-Based Responsive Mobile Learning (M-Learning) Design

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### ABSTRACT

*The mobile initiative is changing education and social life worldwide. The question is how to offer the same user-friendly, aesthetically pleasing mobile learning courses on different mobile devices. Developing effective web sites courses and content isn't only about creating a course with solid material. Managers and course authors are concerned about adapting different courses to a variety of learning styles and individual needs and keeping users interested and engaged. A good place to start is to organize thoughts and figure out exactly what is wanted to be included in the web sites course. Responsive design gives the ability to create a single m-learning course that automatically adapts to any browser or device. This allows the target audience to benefit from the courses without having to worry about screen size and resolution. In this chapter, m-learning is discussed in a responsive design context that can be used across platforms and offers the design of courses according to m-learning instructional strategies.*

### INTRODUCTION

Designing environments for teaching and learning in education has gained popularity in the digital era. For developing responsive mobile learning (m-learning) materials, it is important to take into consideration that e-learning materials need to be redeveloped for responsive m-learning. Target users and design strategies are important to build for a successful m-learning initiative. Users respond diversely to m-learning because of the nature of mobility and the content. As Millennials (people who have grown up in the modern technological era) are in the m-learning environment, m-learning developers need to think these tech-savvy learners when developing m-learning (Khadim, 2018).

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Education environment has been changing since dynamic development of Information and Communication Technologies (ICT). Educational institutions want to integrate innovative technologies into education (Masic et al., 2011). Such technology integration is mainly aim to provide technologies which can make learning efficient with some traditional learning activities or alone (Durnali, Orakcı, & Aktan, 2019). In this context e-learning is an extensive procedure in education and the interest is increasing. E-learning is used in formal and lifelong education. The increase in the usage trend in e-learning has started with the decrease in the cost of technology, the increase in the processing power of the devices, the widespread network and communication setup, and the use of the Internet and the Web (Sharma and Mishra, 2007). With e-learning, it provides students access to both real-time and asynchronous learning activities and high-quality teachers (Edward et al. 2006). E-learning provides professional skills that are needed and new without traveling and without incurring some costs (Eslaminejad et al, 2010). To begin, it is important to clarify that what m-learning is? Unfortunately, today most of the people simply define m-learning as “learning with a mobile device”. Potentially people moving around with their mobile devices and access the courses and the training sessions independently of time and space. In this context, mobile learning is ubiquitous in a way of consuming content mostly socially in an informal way. This is why the majority of mobile applications are on-demand content and performance support for education (Gaved, & Peasgood, 2017).

It is not right to make a fixed definition of “mobile learning” since it can limit m-learning participators. Many definitions of m-learning are learner-focused or device-focused. A generally accepted definition is improbable. Therefore, a more flexible definitions of mobile learning described by Advanced Distributed Learning (ADL) mobile learning as:

*Leveraging ubiquitous mobile technology for the adoption or augmentation of knowledge, behaviors, or skills through education, training, or performance support while the mobility of the learner may be independent of time, location, and space.*

The definition is intentionally generalized for an extensive mobile learning and future capabilities of new technological devices (Brown, 2016).

In mobile learning, most of the courses are taught to be run on platforms like android or iOS. The subjects like SMS and WAP are nearly about to be outdated. Few types of research are about cross-platforms namely responsive but are not supportive of mobile learning enough. Thus the development of responsive m-learning has a great significance. Ambient Insight’s report shows that the worldwide market for mobile learning products and services was \$5.3 billion in 2012. This report shows that blended learning in mobile platforms requires a responsive and quality based design for end users. That is why learning materials should be designed for the ubiquitous and responsive environment not for a specific medium (Adkins, 2013).

The Internet has deeply rooted itself in our schools, and e-learning has become a common practice in the school systems. But the applications of the Internet of Things (IoT) in education are numerous, and the implications for this disruption are tremendous. The connection of devices (other than standard products such as computers and smartphones) to the Internet, is in the process of transforming numerous areas of our everyday lives. And while it might not seem like an obvious application of the IoT, education is on that list (Alandjani et al., 2018).

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