Wamda:
A Smart Mobile Learning System for UAE Teachers

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EXECUTIVE SUMMARY

Teachers' professional development programs need to be reconsidered to meet their expectations in the new digital era. Thus, there is need to consider the importance of offering mobile, informal, and social learning in the workplace through smart utilization of the emerging mobile technologies. This chapter introduces the features of an innovative mobile and social learning platform, which aims at improving teachers' performance in the UAE and the Arab world by promoting knowledge and skill through better integration of ICT in the teaching and learning process and better adoption of learner-centric learning. A smart mobile learning platform called "Wamda" is providing micro-courses that are relevant to the curriculum, experiential, and immersive. It is designed to utilize the power of mobile learning technologies, artificial intelligence techniques, and social networking approach. Through this chapter, the critical pedagogical and technical aspects of creating a smart mobile learning environment were elaborated and checked against a list of attributes of smart systems.

INTRODUCTION

Enhancing the professional development of teachers is generally considered as a key route to substantially raise the achievement of students and ultimately contribute to a nation's human capital development (Alhassani, 2012; Bretzmann, 2016; Broad & Evans, 2006; Darling-Hammond, 2013;Reyanders, 2015). The United Arab Emirates (UAE), like other countries, faces the challenge of ensuring that its teachers are well-trained and capable and that teaching practices are adjusted to the needs of 21st century learners (Alhassani, 2012; Buchner, Chedda and Kindreich, 2016). Teachers need to be able to apply a range of teaching practices for various learning situations. They need to incorporate different kinds of knowledge and skills to be used in various combinations flexibly and fluently.

In the case of the UAE, there is still a gap between the actual and desired professional standards of teachers despite the implementation of a variety of professional development practices to upgrade teacher performance (Buchner, Chedda and Kindreich, 2016; Tabari, 2014). Advancements in technologies, including information and communication technology (ICT) provide useful resources and new approaches in workplace learning that can be tapped to upskill teacher capability.

Mobile learning, combined with other emerging technologies like learning analytics and artificial intelligence (AI), can be used to offer innovative training methods for more personalized and customized professional development of teachers. Such technology-based approaches, referred to as *smart learning*, enable the teachers to simultaneously learn and work, thereby reaching their full potential in the workplace. Smart learning approaches advocate a learning environment that puts the learner at the forefront; provides learning experiences based on learners' traits, preferences and progress; increases the degree of knowledge access, engagement, feedback, and guidance; uses sufficiently rich-media; and offers seamless access to pertinent, real-life and on-the-go information to the learners.

In particular, effective use of (AI) and smart-technologies can definitely help continuous enhancement of the learning environment (Singh & Hassan, 2017). This is compatible with the definition of smart learning environment provided by Gros (2016), who states that:

Smart learning is founded on two different types of technology: smart devices and intelligent technologies. Smart devices refer to artefacts that exhibit some properties of ubiquitous computing, including (although not necessarily) artificial intelligence; for instance, the Internet of things, wearable technology in the form of an accessory such as glasses, a backpack, or even clothing. (p. 3)

However, how to develop an impactful technology-based smart learning environment, such as using mobile devices for learning, is an area that is still under study and in which more research is needed in order to reform education (Ally & Prieto-Blázquez, 2014). For example, in designing smart learning applications, it is important to explore the needs and gaps in the learner's cultures, values, and local contexts.

It can be argued that in today's professional development setting, including in the world of teacher development, certain features of learning are especially prevalent. Informal and social learning, for example, have become important drivers for professional development and workplace learning, offering new types of professional development opportunities. Informal learning activities are mostly ad hoc, implicit, spontaneous, and invisible to others. Taking advantage of these features would call for a broadening of approaches used in teacher professional development(TPD). Adopting a wider approach to teacher professional development would inherently expand the potential for personal learning and enhancement of educational performance. One way to achieve this broadening of professional development options is through the use of smart learning-based training methods in TPD. Technology provides a way to supply in-person training in order to enhance personalization, diversity and depth of instruction. For example, smart mobile devices have great potential for use in TPD.

The key enablers for the spread of mobile devices as learning platforms are the increased use of smartphones and tablets, development of wireless technologies, increased mobile-specific applications, availability of a variety of cloud-computing providers, massive online instructional materials, abundance of open source materials, and further integration of social networking into the learning process (Al-Harrasi, Al-Khanjari & Sarrab, 2015). Taken together, these attributes allow mobile learning to provide more personalized instruction and bring meaningful learning as well as new possibilities to upskill the