

Recent Trends in Mobile Learning

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Abstract—*Mobile learning or m-learning is e-learning where personal devices with portable technologies are put to use. This further implies that the learning is on the go, that is, users can learn anywhere at anytime. This paper gives an overview of m-learning by answering questions (a) What is it? (b) Why is it becoming popular and widespread? (c) How is m-learning different from e-learning? The use of mobile phones is ever increasing and so is the spread of internet connectivity. These two have profound impact on m-learning leading to various mobile learning trends. The main objective of this paper is to highlight the latest trends and innovative approaches in the field of m-learning and industries putting these approaches to use.*

Keywords: *Mobile learning, e-learning, portable technologies.*

1. INTRODUCTION

Mobile learning also called M-learning is defined as “learning across multiple contexts through social and content interactions, using personal electronic devices”^[1]. The use of smart phones or personal portable devices is booming, no more it is restricted to certain sections of society. The internet connectivity with great speed is reaching every nooks and corner. These two factors have immense impact on m-learning leading to various m-learning trends and innovations. This paper highlights those major trends and also the industries that have already implemented them.

2. MOBILE-LEARNING

M-learning is a type of distance education. Gone are the days when education or learning was restricted to classrooms or homes. M-learning makes on-the-go learning possible. Interactions of users or learners with their portable devices such as smartphones and the presence of net connectivity form the basis of mobile learning. M-learning is not formal but rather informal learning. Learners usually rely on it to keep abreast of latest trends, sharpen their skills, to share information and expand the horizons of their knowledge. Creating learning materials for these learners that could be accessed easily on portable devices is a crucial part of m-learning.

Why is M-learning getting popular and widespread? It is so because it is convenient and feasible. The learning process is on the go, the heavy physical books are replaced with tiny

smartphones with ample amount of space, sharing is quick among peers, feedback and query solving is instant and the learning has become a highly active process with the personalized study content. M-learning has brought a revolution in traditional learning process and is even a step ahead of e-learning.

Learning management system or LMS is a type of web based software that has made m-learning possible. “Learning management system is a software application for the administration, documentation, tracking, reporting and delivery of electronic educational technology (also called e-learning) courses or training programs.”^[2]. The advancements in LMS can help in progress tracking, making assessments, providing reports and many other activities relevant to virtual learning. LMS not only make learning easy for users but also makes it convenient for administrators and content maker to manage and provide updated material for learning.

M-learning is different from e-learning; rather it is a form of e-learning. E-learning provided the ability to students or learners to learn from home on their computers. But m-learning has made virtual learning possible almost anywhere and not just the classrooms or homes.

3. RECENT TRENDS IN M-LEARNING

The global access to internet connectivity as well as availability of personal portable devices has led to variety of trends in the field of m-learning. Few of the following discussed trends are upcoming and others already put to use and their advantages are being explored.

3.1 Gamified Learning

Gamification is better known as Games, Simulations and Augmented Learning Environment. “It is a concept of game mechanics and game design techniques to engage and motivate people to achieve their goals.”^[3] It is based on needs and desires of learner impulses which revolve around the concept of achievement and status. Gamification has proved to be an important way to engage people^[4]. The fun aspect of games appeals to learners of all age groups and reduces the resistance to learning. It effectively covers various domains of learning which includes skills, knowledge, attitude, beliefs and

many more. Also it boosts the competitive spirit and teamwork among the learners.

A research company, Gartner had even predicted that by 2015, a gamified service for consumer goods, marketing and customer retention will become as important as Facebook, eBay, or Amazon and more than 70% of Global 2000 organization will have at least one gamified application^[5]. This has indeed proven to be true.

Techniques used in gamification are based on people's natural desires of competition and achievements. The effective way to engage people is by rewarding them with awards or gifts when they accomplish needed tasks or through their desire of topping the leader boards.

Gamification could become a powerful tool if it takes the advantage of Big Data. By capturing and analyzing the big data on behaviors, businesses can create a more engaging experience that motivates employees and users^[6]. By understanding 'why' people behave in addition to 'how' people are behaving could make gamification the most effective means in the field of m-learning.

Gamification has brought a revolution in m-learning and has evolved in recent years. It has been put into use by many industries. For example Nike uses gamification in their Nike+ application to encourage and reward users who maintain an active lifestyle^[7], Deloitte gamified its leadership academy to increase the engagement of its employees^[8], My Starbucks Rewards uses gamification to incentivize and reward customer loyalty^[9].

3.2 Wearable Technology

"Wearable Technology is clothing and accessories that incorporate computer and advanced electronic technologies. The designs often incorporate practical functions and features"^[10]. Wearable devices provide continuous feedback and can be used to render task specific content like live streaming of video, for example, Google glasses were used to live stream a surgery. The gesture recognition feature in wearable devices enables assessment of physical performance in tasks and can guide in further improvement. Motion sensor technologies like accelerometer, pressure sensor, gyroscopes etc present in wearable devices immediately alerts the user if he/she is performing a task in an incorrect manner^[11].

Many industries and organizations have already put this technology in use. For example University of California has issued Google glasses to its medical students to carry out their clinical training. Students use these glasses to access real time information during medical procedures^[12].

3.3 Personalization

Personalization here implies the adaptive e-learning design and self-learning technology. Personalization and adaptiveness are two crucial features that are used to produce next level e-learning systems that are different from the static e-learning

modules previously used. Most of the present e-learning systems were based on Learning Management System (LMS). LMS usually offers all its users same set of services and content which means that all users take the same LMS based course, irrespective of their interests and knowledge with no support of personalization.

Adaptive e-learning systems or AES has made it possible to give a personalized approach to e-learning. This implies that users get access to fresh content and lacking re-use of contents.

Systems are now designed to be self-learning that becomes adaptive to the need and the level of the user. LMS combined with external data helps to increase personalization more efficiently.

Experience API also called Tin Can has effectively utilized this technology. "The tin can API is a brand new specification for learning technology that makes it possible to collect data about the wide range of experience a person has online or offline"^[13].

Tappestry is an example of tin can. It is an LMS that collects required usage information such as photos, people, categories accessed by learners. This can be further developed into community with members exchanging information on common topics and accessing valuable content^[14].

3.4 Asynchronous Learning

"Asynchronous learning refers to location independent learning. The idea behind asynchronous learning is that students or learners study the material at different times and locations. It contradicts the synchronous learning where learning takes place at the same time by activities such as attending lectures."^[15]

Asynchronous learning has made latest information available as well as accessible at all times and not limited to particular time frame or an area which is a key factor to ensure that information is available on the go and accessed by all^[16]. Using automated messages and texts, learners can be alerted when updated material is available.

This approach is put into practice by T-mobiles. They used this approach to tackle an issue where customer representatives complained that updates took a long time to be accessed^[17].

3.5 Social Learning

"A social networking service (SNS) is a platform to build social networks or social relations among people who share similar personal and career interests, activities, backgrounds or real-life connections."^[18]

Learning groups and communities of likeminded people can be made on these sites to facilitate the exchange of information and so as to tackle learning tasks. The social learning approach takes the advantage of implied knowledge

within an organization and hence proves to be the best approach impacting performance of users.^[19]

Skill soft uses the social learning approach. Skill soft is an American educational company that produces learning management system software and content.^[20] It uses this approach to create superior online learning forum through mixed access to expert learning and a digital library consisting of more than 30,000 publications and videos.^[21]

4. CONCLUSION

The technological advancements as well as the immense control and flexibility the portable devices are providing have brought in a revolution in the current e-learning models. Learning is now becoming personalized and adaptive to the learner's needs, interests and level. M-learning is not only about delivering learning material through a different medium, it has also brought in variation in the material which has become adjustable to the size of the devices.

Currently social learning and gamified learning approaches are being most applied in the industries. They have proved to be extremely practical approaches in sharing information and engaging people. Further advancements would make them achieve higher learning goals.

Mobile learning has made it possible to deliver global learning experience without compromising with the education content. Learning is now becoming ubiquitous all because of m-learning.

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