# Use of Mobile Learning Apps in Workplace Learning

Mohamed Ally, Mohammed Samaka, Loay Ismail, and John Impagliazzo

*Abstract* - **Organizations are starting to use mobile learning to train workers and to provide professional development of workers so that they can function on the job. The training can be delivered using mobile apps which provides the flexibility and security for the training. The apps can be preloaded on the mobile device or workers can download the apps on their mobile devices. This paper reports on a research study that used a pre-loaded apps to training workers on communication skills. The workers like the flexibility the mobile app provided for learning and they performed well on a performance test.**

*Index Terms* - **Workplace learning, mobile learning, mobile technology, apps, mobile learning apps**

## I. Introduction

Organizations are starting to see the benefits of using mobile learning for flexible delivery of training in the workplace. At the same time many countries are investing in mobile learning development and research to educate their citizens to prepare them to function in the 21st century workforce and to improve performance on the job. For example, Qatar is investing in research and development in mobile learning to train its citizens for the ever changing and global workforce. This paper presents an innovative research project in Qatar that is using mobile learning apps to train workers in the oil and gas industry to develop their communication skills to function on the job.

There are many advantages of using mobile learning in the workplace. Workers can access just in time training to apply right away [1] and they can access information relevant to the location there are working [2]. Workers can access current information for just in time application since information is stored in electronic database. In some countries citizens are moving directly to mobile technology rather than using desktop and notebook computer. Hence, delivering education and training using mobile technology will reach many citizens in countries, especially in developing countries.

## II. Literature Review

Mobile learning apps are applications developed for learning using mobile technologies. The apps can be pre-loaded on the mobile technology or downloaded from a network. Development of mobile learning apps must follow good instructional design principles to achieve one or more specific learning outcomes. There are many definitions of mobile learning. One definition of mobile learning is the use of electronic learning materials with built-in learning strategies for delivery on mobile computing devices to allow access from anywhere and at anytime [3]. Another definition of mobile learning is any sort of learning that happens when the learner is not at a fixed, predetermined location, or learning that happens when the learner takes advantage of the learning opportunities offered by mobile technologies [4]. A recent definition of mobile learning that was suggested by an international standards committee is learning using information and communication technologies in mobile contexts [5]. This definition emphasize that learners are mobile and they us technologies to learn while they are mobile. This is true for the workplace where workers are mobile and they can use mobile apps for just in time learning.

There is increasing use of mobile learning in the workplace [1] [6]; however, the mobile learning delivery must be flexible to allow workers to complete the training from any location and at anytime. In some workplace, learners may not have access to networks all of the time because they could be in different locations. As a result, it may be more convenient for mobile learning apps to be downloaded on the workers mobile devices. According to [6], there are many advantages of using mobile apps. The use of apps is efficient since they can be retrieved in a short time. The apps are secure since there is no external connection and there are built-in security measures in the apps. Organizations that are concerned about internet security prefer workers to use pre-loaded apps. The procedure to access the apps is simple which is important for the employees who are not familiar with mobile technology. An additional benefit is that the apps are independent of each other so that the lessons in the apps can be completed at different times. Also, learners can use the communication capability of the mobile technology using local networks in close proximity in the organization to communicate with each other.

Most apps developed to support learning rather than to provide the learning experience and activities for learners to achieve learning outcomes [7] [8]. This study went beyond providing support to students. The learning materials with feedback were included in the apps. In addition to completing the apps to achieve learning outcomes learners can use the mobile technology for inquiry learning [9] to get further information after using the app.

There are many benefits of implementing mobile learning in the workplace. With the use of wireless technology, mobile devices do not have to be physically connected to networks to access information. In some cases, learners can download the

learning materials as applications (apps) to learn without having to connect to a network. Mobile devices are small enough to be portable which allow workers to take the device to any location to access information or learning materials. An important advantage of using mobile learning apps in the workplace is just in time training where workers can access apps and apply what they learn right away to promote high level learning. They can also learn in their own contexts which make the learning more meaningful. For example, if a worker want to review the procedure to operate a piece of equipment, the worker can access an app for training on the use of the machine. Another example is if a worker is out in the field and has to complete a dangerous task, the worker can access a safety training app on a mobile to complete the task.

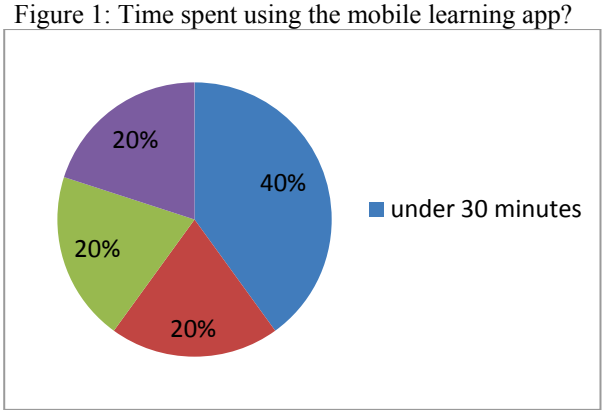
## III. Methodology

The research used mixed methods where qualitative and quantitative data were collected. A total of ten subjects completed the mobile learning app lessons. The qualitative data was obtained using a questionnaire. The quantitative data was obtained using post-test performance data. The data obtained was analyzed by a research assistant who was not involved in the data collection. The development of the app was done by a group of experts consisting of content experts, instructional designer, and mobile technology experts. The team developed the mobile learning app to train workers on Presentation Skills that was delivered on Android smartphones. The app was pre-loaded on the mobile phone and provided to the learners. To complete the training, the learners click on the App to access the lessons. The effectiveness of the App was evaluated by a test to determine how much the subjects learned from the App. The test was based on the learning outcome of the training lesson in the App. The App was also evaluated by asking learners to complete a survey to determine their satisfaction level with using the App and how the App benefited them. At the end of the training, the learners completed a post-test to determine how much they learned from the mobile learning App. The post-test consisted of multiple choice, completion, and matching questions. This was followed by the completion of the survey to determine the satisfaction with the mobile learning app experience.

## IV. Results and Discussion

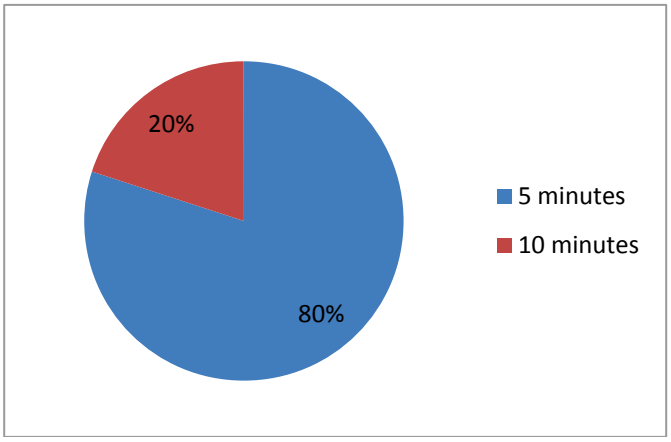
After learners completed the training using the apps, they were asked to complete a survey to obtain information on the use of the apps. Learners were ask how long they spent using the app. The amount of time spent using the app to learn ranged from less than 30 minutes to more than 3 hours (Figure 1). The majority of the learners used the app for under 30 minutes.

Figure 1: Time spent using the mobile learning app?



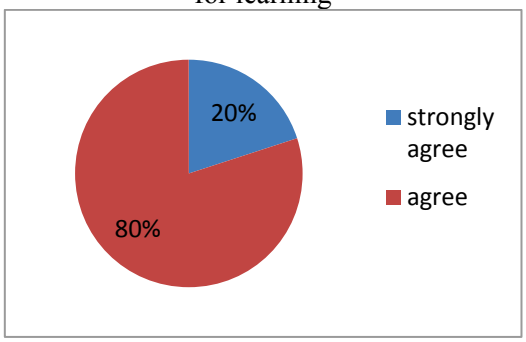

The learners were asked how long they spent on the app outside of the formal training sessions. The majority of learners spent five minutes while others spent ten minutes using the app outside the formal training session (Figure 2). The reason is because the instructor gave students some time during the formal training session to access the app individually. However, some learners did access the app outside the formal training session. This shows that there is the potential of learners using mobile apps to learn on their own time. Learning from anywhere and at anytime are major advantages on using mobile technology to deliver training.

Figure 2: Amount of time using the app outside the formal training session



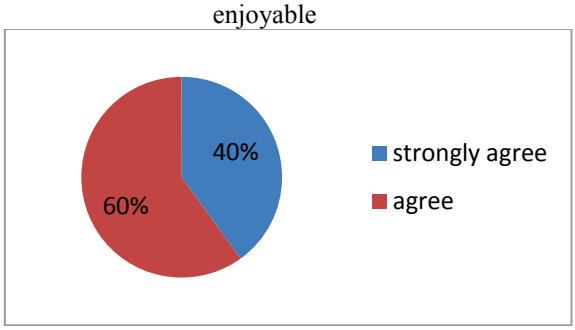

The learners were asked whether the mobile learning app provide flexibility to learn anywhere and at anytime. All of the learners either strongly agreed or agreed that the app allowed them to learn anywhere and at anytime (Figure 3). This is one of the major benefits for use of mobile learning in the workplace.

Figure 3: Mobile learning app provide flexibility for learning



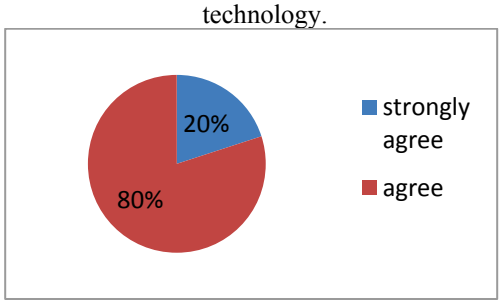

Learners were asked whether the mobile learning app increased their enjoyment of learning. All of the learners either strongly agreed or agreed that use of the mobile learning app increased their enjoyment of learning (Figure 4). The mobile learning training lesson was interactive and relates what the workers were learning to what they were doing on the job. This made the learning more meaningful which resulted in positive experience with using the app. Also, learners were provided with feedback as they completed the training lesson which allowed them to check how they are doing with the lesson. Timely feedback and relating to the job environment are important for workplace training. It seems as if the learners were comfortable using the technology because they have used mobile technologies in the past. They were able to transfer the technology skills while learning with the mobile apps.

Figure 4: Learning with the mobile technology is enjoyable




Learners were asked whether would like to take other lessons using mobile technology based on their experience using the mobile app for learning. All of the learners either strongly agreed or agreed that they would complete other mobile learning lessons (Figure 5).

Figure 5: Would take other lessons using mobile technology.




Upon completion of training with the mobile learning app, learners were given a post-test to determine how much they learn for the mobile learning app. The average score was 79 percent indicting that the mobile learning app resulted in high level achievement.

The learners were also asked to provide general feedback on the use of the mobile app for learning. Learners reported that they like the flexibility the mobile learning app provide for learning. They also reported that the technology allow them to re-use the app to learn at a later time. This is important for review and future skills development. They also like the portability of the mobile technology which makes it easy to move around to learn. However, some learners said that they prefer to use the app at work rather than at home. Possible reasons are (1) the learners, who are full time workers, are tired after working all day and do not want to do "work" at home and (2) they have family responsibilities that they need to attend to at home. Future research studies should investigate how motivate workers to use mobile learning apps to learn outside the workplace. Some learners whose English is a Second language said that the app should be presented in English and in their own language to make it easier for them to learn. This project deliberately developed the app in English since one of the outcomes of the project is to improve the English skills of the workers.

## V. CONCLUSION

This is the first time the workers are experiencing the use of mobile learning apps to learn. They have used mobile devices before for communications but not for learning. They reported that they like the flexibility that mobile learning provided to learn at their own convenience. They said that mobile learning is a good method for workplace learning. The workers in this study are always on the move and downloading the app on their mobile device allowed the workers to control when they can access the app to learn. This is important since in some workplace there is limited access to networks for workers to access learning materials to complete their training. The use of apps for worklplace training should give learners the option of downloading the apps on their mobile device and then

completing the training at a later time or letting the learners access the training if they have connectivity to a network. Additional research is needed on how to integrate the use of mobile learning apps with hands-on practical training since some training on the job requires hands-on skills. This required research on location-based learning and contextual learning in the workplace using mobile learning apps.

## ACKNOWLEDGMENT

*This publication was made possible by NPRP Grant # 4 - 125 - 5 – 016 from the Qatar National Research Fund (a member of Qatar Foundation). The statements made herein are solely the responsibility of the authors. The authors thank Qatar University, Athabasca University and Qatar Petroleum and their associates who have provided facilities and staff to support this project.*

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