Uses of Mobile for Teaching and Learning, Effects and Influence Among Secondary Level Schools in Pakistan

Muhammad Shahzad Ashfaq[1], Nargis Abbas Mirza[2]

Abstract

The smart mobile phone devices are very famous in all over the world, being the high power screen resolution devices; the smart mobile phones are seems in hands of everyone. Now we may consider the uses of smart mobile phone devices for education purpose. Educational technology is a medium, which potential should improve the effective learning through mobile teaching. The rapid pace of change in educational technology, such as mobile learning, has progressive impact in educational World. This review study explores and analyzes the definition of mobile learning with its appropriate learning environment, the possibilities and potential of this approach and its limitations. Furthermore, this article also critically examine the previous studies demonstrating the favorable and negative effects by m-learning and teaching, implies this paradigm of the advent on the pedagogical approach help the students in learning development in various ways, mainly if done correctly have been applied. In this review some strategies and practical methods of implementation of the m-learning approach has been recommended, despite its limitations and challenges. This review study can become guidance for policy makers, educators and for researchers in the educational field.

Keywords: M- learning, appropriate environments, new technology, prodigious impact.

Introduction

Mobile learning is specified by Toteja & Kumar, (2013) that "learning by mobile phone devices, such as smart phones, tablets, multimedia and other portable devices". M-learning have different aspects, offering learning through affordable opportunities and expanding space for learners. As a result, m-learning demonstrates an important value in education by providing opportunities to learners and educators by prosperous progress and expansion of mobile technology in different mobile phone that are the main technologies being used today (Chuang and Tsao, 2013).

The main advantage of m-learning is to get information by quick and easy, with the speedy progress of smart phones technologies, students use these smart devices for learning purpose and communication, (Pena- Ayala et al., 2014). M-learning becomes the cornerstone of educational technology; it has turned into a mobile society. It creates attitude and generates an intention of positive behavior that helps in the context of learning. Mobile phone devices becoming gadget in our lifestyle, since the various mobile phone devices are exceeding the popularity in all over the World. According to Ozdamli and Uzunboylu (2015), it provides help in the context of learning compared by the conventional system. The usages of mobile phone technologies have increased in various sectors, such as, economics, entertainment, banking, bibliographic research, tourism. The previous studies confirmed that successful integration of m-learning is possible anytime and anywhere on mobile devices. People who support mobile technologies also support m-learning (Pena- Ayala et al., 2014).

[1] Ph.D (Scholar) Faculty of Education, University of Sargodha. Email: shahzadashfaq24@gmail.com

[2] Assistant Professor, Faculty of Education, University of Sargodha. Email: GDRESEARCH@gmail.com

Mobile phone technologies have paved the way for m-learning. Reduce the gap among learner and learning material of students. It is a fun for teachers and students. It provides complete and recent information, but excessive information, sometimes creates irrelevant irritation for students, (Hwang and Chang, 2011).

The user of phone was 38% in 2014; it is exceeded by 50% in 2018. Due to rapid use of this technology to stay up-to-date and help you get a hands-on education. The density of cell phones increases year by year. The usage of mobile in 2002 was 4.2% which enhanced in 2017 to 72.4%. With the speedy progress of technology, broadband and internet services also increasing the number of users (Pakistan Telecommunication Authority, 2017). The statistics indicate the success of the use of mobile smart phones and the variety of mobile smart phones, the trend of mobile phone user, all over the world is increasing. The mobile phone users in all over the world in 2017 were 4.77 billion; the mobile phone markets are gaining the popularity of smart phones.

Regular increase of figures of mobile phone users, use of mobile phone is common. In these days, we cannot imagine any professional from any work place without a cell phone or without PDA. The usage of mobile phones devices started in end of 1990s, to train learning actions, and this type of learning known "mobile learning" was combined. M-learning is learning through mobile technologies such as mobile phone devices (Birkbeck, 2005).

Mobile devices offer a range of educational benefits on laptops. Firstly, their low weight and flexibility of orientation make it superior for reading and content access. Secondly, its ignition and the rapid change between software programmes, allow learning process to continue without delay. Thirdly, its touch screen provides high degree of interface for user interactivity. Fourth, there are a lot of mobile smart phone and laptops, because scholars can transport them in or out of a study room without having to shut down and can carry in pocket or bag and use them for data collection and taking notes. Fifthly, since it is economical, therefore, it is increasing multiple free or low price mobile net packages can be use for education purposes. The long battery life of mobile devices enables them suitable for educational institutions (Warschauer, 2011). One topic that has become clear is mobile learning focused on technologies.

According to Traxler (2005), definitions based on techno centrism/e-learning only seek to identify "mobile learning somewhere on the spectrum of learning portability".

Increase formal education: The literature on mobile education, formal education is described as a face to face educating or as stereotyped conference. The development of government infrastructure for many years, the locations developed in region the Asian present the highest percentages in the world of penetration of the internet, mobile devices, especially smart phones and Internet penetration mobile. In fact, in many of these places, smart phones have the normal way to access internet access of 3G and 4G networks (5G after some time) supplemented by upgraded Wi-Fi access, even in educational institutions.

The era of the "technology boom" is spreading all over the world today. The transition of technological innovation from a laptop to a smart phone has succeeded in transforming the means of knowledge exchange. Any knowledge about economy, education and others can be obtained effectively and flexibly. In addition, the smart phone comes with a variety of applications such as image acquisition, web browsing, online communication in the form of text, voice or video conference, the search for positions via the global positioning system (GPS), playing games, watching video, listening to music and more, which can replace the role of the computer. This privilege can encourage people from all walks of life to own them as a necessity, since it is no longer a luxury. In the Nielsen report, 2014, penetration of smart phones in Asia

Pacific continued rapid growth which exceeded the percentage in European countries and States. The usage of smart phones in China (71%), Australia (75%) and Malaysia (80%), the Asia-Pacific region is the highest in Hong Kong and Singapore with 87%, and smart phone owners spend average time above three hours a day on the smart phones in Southeast Asia. They maximum time spent in chat applications, entertainment, games and multimedia, social network have led to a higher level of participation. Today, students are considered the next generations to 90, classified as "the man of the digital age" and have been voted as students of the era-e. Like millennia on or Generation Y, they were born in the computer age, they grew up the age of the internet and mobile devices used every day. They accept to use the new computer technology to improve learning in a natural way and have become a routine of their life. This can be supported by Google's latest Consumer Barometer annual report in 2016, which showed that many Internet users worldwide (all countries included in the statistics) are online every day. This is true in all age groups that occupy 84%, especially among young people under 25, up to 92%. The rapid advancement of mobile computing and mobile devices has changed the lives of students outside of school. Mobile phones play an effective role in the routine life of students as devices to communicate and have succeeded in attracting young people. Therefore, mobile devices have a huge bright future as a tool in educational technology. Meanwhile, mobile phones learning have also recognized the most effective technology in educational field. Therefore, the power of influence of mobile education in education to young people is undeniably promising. As a result, this review explores and analyzes the definition of mobile learning appropriate learning environment, the possibilities and potential of this approach with its limitations. Previous studies demonstrating the favourable or negative effect of mobile learning on teaching and learning will be critically reviewed and then analyzed. Furthermore, some practical strategies and methods of implementation of the m-learning approach have been recommended, despite their limitations and challenges.

Literature Review

Mobile devices learning is an educational technology which has an intersection in mobile programming and e-learning that integrates hardware and software with multiple technologies for multimedia software programmes (Lavin-Mera et al., 2008) that helps learning process through the different types of mobile phones devices, and using a wide range of wireless (Wi-Fi) or broadband internet services with no limits in terms of location or time. From this definition, we can see that mobile devices for m-learning can cover a wide range, which includes laptops, mobile phones, net books, smart phones, tablets, etc., which has the function of wireless and portable technology. This is consistent with Park, et al., (2012) which define m-learning as "an educational arrangement in which the unique or dominant technologies are portable or pocket devices". However, mobile phone is the most important device among today's consumers in different countries, in the Consumer Barometer report, conducted by Google in 2016. For example, 71% of internet users in Malaysia are more likely to use smart phones instead of computers/tablets and note that 99% of those under 25 are using smart phones. Potential of this smart phone may be the best in its use, especially in education. According to Crompton, Muilenburg and Berge, mobile learning is defined as learning in a variety of contexts, the social, the relationship between the contents, using personal electronic devices. Here we understand a variety of contexts: participating in formal learning, self-learning and spontaneous learning. In my opinion, self-learning and spontaneous learning can take place in an informal and non-formal way. OECD (organization for economic cooperation and development), grading briefly as:

1.Formal learning: Intentional structured and planned. Formal learning normal organized by department/institution. Typically, these types of learning are based on the curriculum and on other types of formal programs.

2.Non-formal learning: Which may be or may not be intentional or organized by the department, but generally takes place in different ways, although it is poorly organized? No official credits will be granted in situations of non-formal learning

3.Informal learning: Informal learning a kind of learning which is not recommended. But consider on the basis of experience, is spontaneous or unplanned, instead of guided by a rigid curriculum.

Learning Environment

M-learning could be adapted to the four types of learning environments that include behaviorism, constructivism, informal or located learning and collaborative learning (Orr .G (2010).

Affordable and Potential

There are several noteworthy features, such as portability, it can be adopted regardless of location, social interaction can be supported collaborative activities, context sensitivity, since it can be performed on the basis of particular situation and task, and connectivity, you can connect to a wireless network connection via broadband or Wi-Fi and individuality, as it can be customized to individual needs. In addition, the hardware used with m-learning, such as smart phones and tablets, is light weight. Features such as light weight and battery life encourage students to use these devices in portable way for longer time in different situations. For example, a fully charged iPad will last ten-hour in an active state of connectivity. The touch screen, which only features present latest gadgets, delights, users, compared to keyboard and mouse, but there are still those who do not like this feature, because it makes it difficult to write because of its small screen size. In other words, mobile learning encourages students to evaluate through computer learning collaboratively and interactivity everywhere, at any time, using the internet to meet their needs. It has overcome a bad connection to the internet, battery charging problems, unavailability and lack of support for IT structures, especially in rural and remote areas, with a large and solid telephone network. Therefore, we affirm that the mobile device has different features, such as portability, because it is light, has a long battery and can be easily transported everywhere in a pocket, with the flexibility that can be used every time when we want it, the accessibility of the device price and internet availability can be obtained anywhere to get what we want, which is compliance with Chen & Toh (2005) and Yamaguchi (2005). All these features make our lives easier to learn everywhere, anytime and on any mobile device, without any obstacles leading to an exceptional paradigm and trend, namely mobile learning.

Favorable Effects

In the review of the literature of Wu, et al., (2012), observed it that 86% of total 164 mobile phones learning studies have positive results in general; mobile learning has improved the educating and learning process in general. In particular, it can motivate and encourage students to collaborate and communicate in order to achieve effective results, such as greater interaction

between friends who are online and encourage students to solve problems through discussion and sharing of knowledge. It cannot be denied that the mechanism of interaction and feedback between students, teachers and learning materials will achieve effective learning when students are actively and cognitively involved in learning activities. In addition, previous studies have shown that m-learning can increase interest and commitment, attention to learning, motivation, collaboration with teamwork and student performance can be improved. Beyond that, it supports environmental learning and helps students to have total control over their learning due to characteristics such as, flexibility, accessibility, portability and availability of its learning materials where the content are stored on the mobile phone devices could be shared ,copied and transferred.

Adverse Effects

The contrasting situation is always in every context, which includes mobile phone learning. Chu, (2014) stated that student responses, which is known as "effective", that are not appreciate the student's learning, adding negatively affects, if not have adequate treatment. Mobile learning use new paradigm of learning techniques that involves the virtual/physical word to obtain the data at the same time for learning, could be confusing learning worse, the performance of the student if support is not provided on the right. It is consistent with many other researchers who stressed that effective module or learning tools are required to achieve positive learning performance. Some unexpected or unfavorable results in mobile phone learning have reported in previous studies, due to lack of support for learning and after inadequate learning pedagogy. Chu, (2014) has an experience of an activity of mobile learning on the basis of training, evaluation method, the students placed on confusing/problem learning contexts that should answer the questions looking for answers in the real environment of the World. Unfavourable results of mobile learning as a course of social study were reported. Cognitive loads of the students in the experimental group will be exacerbated significantly and their learning outcomes have been disappointing. The complete learning method of mobile learning environment must be planned, so that the cognitive domain and the emotional domain of the students could be improved.

Limitations and Challenges

Limitation and challenges are the most worrying problem of all. The small size of the screen is the most exceptional problem among all those that cause difficulties in learning activities, such as slow text input. Albers and Kim (2001) can affirm these problems even more. They said that the small screen causes more difficulty reading than paper; it can only adapt with limited graphic information and challenge interactive activities when a text entry is inserted. Apart from this, there are still many mobile devices particularly convenient for many, which are equipped with limited internal memory. In addition, connectivity coverage in an isolated or remote area is, or even some cities remain weak or intermittent. The preparation of the instructors remains unfavorable, as they may also be reluctant to change to incorporate the gain of m-learning due to lack of necessary technical knowledge. Teachers are inclined to traditional teaching practices that are familiar to them and are in their comfort zone. Factors like as limited resources and teacher training, trust, lack of appropriate access, lack of time and support and also lack of teacher's willingness to adopt the learning process and teaching. The most obvious challenge is the lack of support in terms of structures or tools. Several countries have banned or restricted the usage of mobile smart phones at school premises due to the perception that mobile

devices will be similar to disturbing devices. Mobile devices in case of improper use, of course, can cause abusive and harmful use, and the fear of improper use is the main cause that can lead to the prohibition of mobile phones in classes by teachers. In addition, controversial issues are often raised on distracting, engaging and harmful mobile technologies, especially in Asia, and educators have conceived them as disruptive to the classroom learning process. Beyond that, many other factors which cause the use of mobile phone learning in the school environment become difficult, including lack of an effective model for mobile phones learning to meet the goals of 21st century's student, non-availability of research support about its effectiveness teaching in classrooms.

Conclusion

In summary, mobile learning, which was a pioneer almost three decades ago, in the Western country as the United Kingdom, can be implemented in the educational system anywhere in the world, since it is one of the established structures and services that provide users, electronic information, in general and to help in search for educational information, regardless of content, time and location. Through the use of mobile phone learning, teaching and learning can be improved independently from the formal, non-formal or informal level at all school levels. The study conducted by Supyan, Mohd Radzi, et al. (2013), that shows the students are familiar with computer technology and its uses and are welcomes use mobile phone technology in education field. Therefore, educators or policy makers should expect the integration of mobile technology in educational institutions of any academic program in any country in the world. Parents must also be aware of the power of learning M in the educational field. The 2014-2019 AIDS Mobile Market report created by Ambient Insight in December 2014 is the result of a survey conducted online by the Asian parent site, sponsored by Samsung, of above than 2,700 parents of Singapore, Thailand and Malaysia. The Philippines and Indonesia, approximately 98% of parents have said, they allow children between 3 and 8 years of age to use mobile devices for educational purposes. The Samsung Smart School platform as one of the aspirations for 2020 by device manufacturers includes pre-loaded tablets in particular, as a Mobile Learning Management System (m-LMS) with the third-party education content. The launch of Samsung's smart school recently took place in Asia, and in February 2015, particularly in Malaysia .Therefore, it is very significant that M-learning has attracted the attention and concern of many governments in the country and is expected to be implemented on a large scale in most of the country in the world in the coming years. The premium report "The global market for mobile learning 2012-2017" by Ambient Insight, stated that the 10 countries of Large Asia consumed more on mobile learning than that of on e-learning in 2017, which included, Laos, Malaysia, India, Indonesia, Thailand, Nepal, Cambodia, Bangladesh, Pakistan and Sri Lanka. Last, but not least, mobile learning will be interpreted as a precursor of the future of learning.

Recommendations and Methods of Implementation

Integration of ICT into education has been adopted by many governments over then the 20 years ago. The use of mobile smart phones in classroom environments, governments and institutions may have to establish clear guidelines or policies to overcome these problems. Careful planning is needed to make successful mobile learning, being it has potential for mobile device learning, especially in developed countries. BYOD (bring your own device) is one of the solutions for students in school for education purpose. The good thing about BYOD is that, those students have familiar devices could be tailored to their necessity. However, not all students can

afford to have one. In this case, the government or institutions should instead provide tools for mobile learning. The government should allocate some portions of the national budget for this purpose, so that education in the country is not left behind. The professional development of teachers regarding this new technological integration should be intensively provided. This will allow appropriately technical and pedagogical assistance and also knowledge on the integration of the mobile device in the learning to which they are exposed. Therefore, the teacher's confidence level will be increased in adopting the mobile technologies in their educating practices and the option of the mobile learning approach may be launched. The new rules and regulations concerning BYOD or the usage of mobile phone devices in school premises must be modified so that they become an adequate guide to avoid any mishap or misuse. Some recommendations for rules and regulations for the use of the mobile device for school purposes must be prepared. Any crime will lead to the confiscation of the mobile device for a period of time (at least 1 year) and will carry out social activities such as punishment, such as cleaning the school bathroom, etc., for serious crimes.

References

Ambient Insight 2014-2019-*Asia Mobile Learning Market- Overview* (2014). Retrieved June 1, 2016,

Ambient Insight 2012-2017-*Worldwide Mobile Learning Market Executive-Overview* (2012). Retrieved June 1, 2016,

Albers, M., & Kim, L. (2001). Information design for the small screen interface: an overview of web design issues for personal digital assistants. *Technical Communications*, 49(1), 45–60

Birkbeck. (2005). University of London. *Glossary of Terms*.

Consumer Barometer. (n.d.). Retrieved June 1, 2016

Chen, C.J. & Toh, S.C. (2005). A feasible instructional development model for virtual reality (VR)-based learning environments: Its efficacy in the novice car driver instruction of Malaysia. *Educational Technology Research and Development*, 53(1), 111-123

Chu, H.-C. (2014). Potential Negative Effects of Mobile Learning on Students' Learning Achievement and Cognitive Load—*A Format Assessment Perspective. Educational Technology & Society*, 17 (1), 332–344

Chuang, Y. H., & Tsao, C. W. (2013). Enhancing nursing student's medication knowledge: The effect of learning materials delivered by short message service. *Computers & Education, 61*, 168-175

EC. European Commission (2001**).** http://europa.eu.int/comm/index_en

Hwang, G. J., & Chang, H. F. (2011). A formative assessment-based mobile learning approach to improving the learning attitudes and achievements of students. *Computers & Education*, *56*(4), 1023-1031

Mir, J.I., Reparaz, C. et al. (2003). La formación en Internet. Modelo de un curso online (1rd ed.). Barcelona. Spain: Ariel

Nielson Report (2014, January 14). *The Asian Mobile Consumer Decoded*. Retrieved from http://www.nielsen.com/ph/en/insights/news/2014/asianmobile

Organization for Economic Co-operation and Development / Organization de Cooperation et de Developments Economiques (OECD). (2007) *Recognition of Non-formal and Informal Learning* Retrieved June 1, 2016

Orr, G. (2010, April). A review of literature in mobile learning: *Affordances and constraints. In Wireless, Mobile and Ubiquitous Technologies in Education* (WMUTE), 2010 6th IEEE International Conference on (pp. 107-111)

Ozdamli, F., & Uzunboylu, H. (2015). M-learning adequacy and perceptions of students and teachers in secondary schools. *British Journal of Educational Technology, 46*(1), 159-172

Peters, O. (1998) Learning and Teaching in Distance Education. Kogan Page, London.

Park, S. Y., Nam, M. W., & Cha, S. B. (2012). University students' behavioral intention to use mobile learning: Evaluating the technology acceptance model. *British Journal of Educational Technology*, 43(4), 592-605

Pena-Ayala, A., Sossa, H., & Mendez, I. (2014). Activity theory as a framework for building adaptive e-learning systems: A case to provide empirical evidence. *Computers in Human Behavior, 30*, 131-145

Traxler, J. (2005) Mobile learning its here but what is it? Interactions, 9,1. University of Warwick.

Toteja, R., & Kumar, S. (2013). Usefulness of M-devices in education: A survey. *Procedia-Social and Behavioral Sciences, 67*, 538-544

Warschauer, M. (2011). Tablet Computers in Education. Eventually Tablets will facilitate more Personalized and Interactive Learning. *Educational Technology Debate – Exploring Learning in Developing Countries*

Wu, W. H., Wu, Y. C. J., Chen, C. Y., Kao, H. Y., Lin, C. H., & Huang, S. H. (2012). Review of trends from mobile learning studies: *A meta-analysis. Computers & Education*, 59(2), 817-827

Yamaguchi, T. (2005, August 2-4). Vocabulary learning with a mobile phone. Program of the 10th Anniversary Conference of Pan-Pacific Association of Applied Linguistics, Edinburgh, UK. Retrieved May 4, 2016