

Mobile Learning Challenges and Capabilities

P. Tamilarasan, S. Karthick, C. G. Anupama



Abstract: *Out of a 6 billion-total populace, more than 1.8 billion cell phones are being used. Over the previous decade, there has been a quick improvement in cell phone innovation from straightforward Phones to the most recent age cutting edge telephones which are multifaceted and go about as PDA, phone, camera, minicomputer, and can likewise move various media documents. There is a steady development towards new innovation in cell phone advertise . M-learning is the procurement of any information or ability through utilizing portable innovation, anyplace, wherever. M-learning happens continually, even away from work environments and study halls. Music, radio news, or sports projects are individuals' primary decisions when returning from school or work. After arriving at home, a cell phone is their most ideal method for learning. M-learning doesn't try to supplant conventional adapting yet empower it to utilize new innovation and improve. This paper intends to demonstrate the focal points just as the detriments of M-(Mobile) Learning which by and large fall into: Psychological, Pedagogical, and Technical impediments.*

Keyword: *populace, innovation, environments, Psychological, Pedagogical, and Technical impediments.*

I. INTRODUCTION

The coming of E-Learning [7] started in the late 80s and 90s. Handheld gadgets have just improved in handling power while additionally getting to be less expensive and progressively unavoidable because of expanded use of games, business and remote association way of life. This has prompted the advancement of M-realizing, which is a variant of learning progressing.

The increase in mobile phone users and other portable and wireless devices have led to a change in usage of technology-supported learning. These methods have improved various facets of learning such as retention and student achievement, which are the strategic goals of education. It also helps facilitate varying learning needs and also reaches students who would not be able to take part in the education process.

Research has also been done with regards to the connection between mobile technology and the traditional as well as modern methods of teaching and learning (TLP), to prove the usage of mobile technology across a wide range of activities [5] [9] and highlights the various upcoming issues [11].

Learning resource access has also increased alongside formal education opportunities due to mobile phones. For going on foreign vacations, booking tickets comes with an offer to download a phrasebook to your phone.

To improve language skills, mobile technology makes it easier to download new material and access websites on the go. However, there are many practical issues such as cost and usability, which come with mobile learning which is self-initiated. This paper looks to present what mobile learning is and its possible effects on language teaching and learning. Technology does not determine educational practices, nor does it act as a defining factor in everyday education. However, if we consider the society and its culture, which influence the way students/faculties learn thereby increasing the teaching learning process effectively.

1.1. Mobile Learning:

Molenet says that the meaning of portable learning is "the misuse of universal handheld advances, together with remote and cell phone systems, to encourage, backing, upgrade and broaden the compass of educating and learning." Mobile learning [11] [12] is multi-faceted and should be possible anyplace whenever, be it study halls, work environments, home, network areas, and keeping in mind that voyaging. MP3/most recent players (for example iPods), PDAs, cell phones, cell phones, handheld gaming gadgets (for example Sony PSP, Nintendo DS), Ultraportable PCs (UMPCs), smaller than usual scratch pad or netbooks (for example Asus EEE), handheld GPS or casting a ballot gadgets, and extraordinary compact advances in use in science labs, designing workshops or ecological or agrarian examinations are generally versatile innovations. It improves availability as it gives offices to downloading, transferring too working web based utilizing remote or versatile systems, and gives connects to institutional frameworks, for example, virtual learning conditions (VLEs) and the board data frameworks (MIS).

This paper does not aim to present the field of mobile learning as it has already seen immense growth and diversification and is nearly impossible to summarize. Many researchers and practitioners have published papers on the general orientation and the progress in the field such as [10] [11]. Instead, this paper aims to focus on points necessary to learn more about mobile learning. There is no fixed definition for mobile learning as it is a constantly evolving field as well as the unclear meaning of 'mobile' – if it refers to mobile technologies or the mobility it provides. Mobility [4] should be seen as something more than simple movement and instead as movement allowing time shifting and boundary crossing [3][12] for mobility analysis.

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There have been predictions that one day, one would no longer have the need for mobile devices for technology would become one with the surroundings. Even today, students switch between desktop computers and mobile devices in public spaces, each for a different task of learning. Technology-induced interactions also coincide with direct interactions among people.

Due to the learner's movement, they reach various environments for learning and mobile technology is not the only form of technology facilitating the same. Learning experiences are not defined by the special, temporal and/or conceptual boundaries and require interaction with mobile devices and technology. Interaction in mobile technology develops the business interaction and used to increase the learning skills. [10].

One can say that rather than the usage by device learners, the more important matter of focus is the access and learning conversations constructed on the way. When one focuses on the primacy of technology, the conversation can be seen simply as a techno-centric [3] opinion on education. But the devices that learners use cannot be ignored as anyone in the field can attest to. The first and most important thing is if the learner and one that the learner is familiar with or if it is borrowed, as it has different effects, own the device. The second is if the learner owns multiple devices or just one as the latter can have battery life or reliability problems that the former wouldn't face. Thirdly, various mobile devices have different specifications, either it is work-related or leisure. For example, a Nintendo DS owner would look for games in his mobile device, by which way the devices and available technology directly affect the learning choices. Learning ability to the current generation increases through smart gadgets specifically used for games by youth. A publication aimed at Dutch teachers shows the usage of GPS (global positioning system) tracking their friends location and mobile technology in learning systems in the form of learning games. They add that GPS can add "an additional dimension" to mobile learning [5]: it gives rise to a whole range of possibilities. The GPS can gain access to the student's location via satellite and device and based on the position, the students can obtain information specific to their position. It leads to identify the activities of student physically and normally where a large amount of information can be accessed at the same time.

1.2. Usage of Mobile Learning:

Mobile devices [10] find their main usage in education in the form of admin, institutes, and faculties for practicing and support tools in learning for students. The main benefits are:

- Interaction of learners with each other and with the practitioner is greater rather than with the screen of large monitors.
- The space required for mobile devices is much lesser than that needed for desktop computers.
- Paper, textbooks, files, and laptops are much heavier and bulkier than PDAs, tablets, and e-books.
- One can write with a stylus pen rather than typing on the keyboard which makes it more intuitive.
- It is easier to share the information and improves collaboration as both learners and practitioners can e-mail, cut, copy, and paste the information, can easily pass a single device around or even transfer the data

using wireless networks such as Bluetooth or the infrared working of PDA.

- Usage of mobile devices has a wider range including at home, while travelling, and in a hotel, which facilitates work-based training.
- It improves the interaction between young learners as they are interested in the smart gadgets.
- Mobile equipment (such as PDAs) are cheaper than desktop computers which decreases the digital divide caused by rate.

However, there may also be a few disadvantages:

- As the mobile and PDA screens are smaller in size, the type and amount of information that can be viewed is limited.
- There storage capacity of mobiles and PDAs is much lesser.
- Data can be lost if the battery life is less or one forgets to charge it.
- Except upcoming tablet PCs, most mobile devices are less robust than their desktop computer counterparts.
- Moving graphic usage is difficult but can eventually be solved by using 3G and 4G.
- The devices are under constant and quick development and hence, the mobile devices get outdated faster.
- With an increase in user numbers, the bandwidth of the wireless networks decreases.

Usage of M-learning:

1. Easier access to document libraries and documents consisted in them.
2. Quizzes and self-assessment games and questions are easily available.
3. It is easy to take part in a variety of lessons and tutorials.
4. Lectures can be received at any time, either in archives or live broadcasts.
5. Video clips and audio libraries can be obtained.
6. Asynchronous postings can be found and read.
7. Work done by students can be displayed.
8. Virtual learning community participation increases.

1.3. M-Learning Technology:

- a) SMS:- Users can send and receive messages between mobile phones up to 160 characters.
- b) MMS: It's the same as SMS but with addition of images.
- c) WAP: It enables access to the internet due to international protocol on WAP enabled mobile devices.
- d) GPRS: It provides faster connection speeds (171kb/s) for internet on mobile devices.
- e) Bluetooth: It is a wireless [6] connection only accessible in close distances. PDAs can send and receive messages between mobile devices using it.
- f) 3G and 4G phones: In another 10 years, 4G (4th Generation mobile phones) can provide upto 100 mb/s speeds which are enough for transferring multimedia.
- g) PDAs: Personal Digital Assistants, which can perform various functions as mini or large PCs using Palm OS or MS Pocket PC operating system.
- h) MP3s: It is used for audio file formats, which can be shared due to compression of the file.
- i) CAMs: Video cameras, which can be found on mobile phones and PDAs.

1.4. M-Learning Availability:

As mobile devices are smaller, lighter, more portable, and better shaped, they are friendly devices, especially for disabled users. Mobile devices that come with organizer functions help learners with learning disabilities organize their own schedule and become independent and self-sufficient.

PDAs consist of dictionaries and thesauruses, which help learners with dyslexia and other difficulties, keep updated and have a constant reference [13]. Tablet PCs enabled with text-to-speech functions and voice recognition help disabled users as well. The small size of the devices also helps attaching them easily to even wheelchairs with small brackets. Table 1 shows the performance analysis of various cycle test unit wise conducted for the subject English for Engineers, to students of total 500 out of which 422 were using Smart phones and 88 were using tablets. The overall performance is improving in every cycle test and evaluated to 77%. Hence it proves that the smart gadgets increase the learning capacity in students thereby serving in education. Figure 1 shows the graph for the data given in Table 1.

	Total number of Students	No. of students installed the app	Utilized
smart phones	422	415	412
tablets	88	82	82
Performance(average)			
Cycle Test - I	Cycle Test -II	Cycle Test-III	over all performance
65%	79%	89%	77.7
63%	77%	87%	75.7

Table 1 Performance analysis for the M-Learning in education

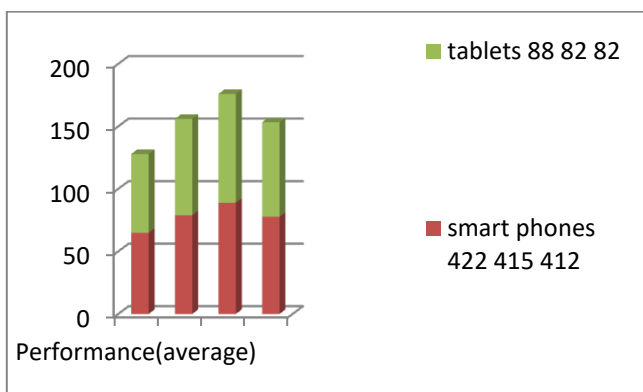


Figure 1. Graph for the Performance analysis

1.5. Benefits Of M-Learning:

- a) Interaction: It improves interaction among learners and with the teachers.
- b) Portability: Due to PDAs being lighter than traditional notebooks, it is easier for students to carry them around and take notes by typing, writing, or text-to-speech conversion.
- c) Collaboration: Students can work together even from different locations on the same assignments.

- d) Engagement: Mobile devices such as PDAs, phones, and gaming devices are better liked by the younger generation.
- e) Motivator: The commitment to using and learning from a handheld device is much more when one owns it.
- f) Bridging digital divide: Handheld devices are much cheaper, and hence, more accessible than larger systems.
- g) Just-in-time learning: Work and learning performance of the learner is improved.
- h) Learners with learning disabilities benefit as these devices assist them.

1.6. Disadvantages Of M-Learning Devices

- Mobile phones and PDAs have lesser screen space.
- PDAs have lesser storage capacity.
- They have lesser battery life and need to be charged regularly.
- Various mobile devices have different operating systems.
- As the hardware is varying, content creation is a problem as it cannot be common for all.
- It is less robust.
- Moving graphics usage is difficult.
- Expansion potential is limited in the case of certain devices.
- Devices are constantly outdated.
- The increase in user numbers can lead to lower bandwidth.
- Printing is difficult without network connection.

II. CONCLUSION

The most important tool in the world of ICT is mobile learning. Mobile learning could be more successful than traditional learning methods in brining young adults into the world of learning. Mobile phones are a combination of PDA functions and cameras, videos, and MP3 players. Similarly, tablets are a combination of PDA portability and desktop functionality. This leads to a more flexible and exciting way of learning. Mobile technology is versatile as it can be used indoors and outdoors, in formal and informal areas, depending on the learner and giving them control. It takes into account the preferences and needs of the language learners on the learning material and content. As mobile [9] technology enables learning even out of reach of the teacher and out of classrooms, it is not a threat but rather a challenge to developing the content that is best learnt in a classroom and what is best learnt outside and the connection between the two. This identification enables better learning.

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