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# Is M-learning versus E-learning or are they supporting each other?

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**Abstract**

The massive changes in society and development of technology have an important effect on education. These changes affect all areas of education and this education continues, and is everywhere, at all times, using new technology. Mobile devices bring big opportunities to learners, to learn at all times, with no boundaries for education. Before M-learning, E-learning gave many advantages for learners while they were living faraway from school.  In this study we try to explain the basic definitions of M-learning and E-learning, and try to find answers for the questions "is M-learning derived from E-learning" and "if it is derived, does M-learning support E-learning, or is M-learning in opposition to E-learning?"  Is M-learning supporting E-learning, or are they in opposition??

*Keywords:* M-learning, E-learning

## 1. Introduction

People try to keep changing the way that they communicate and do business. The use of web enabled devices is gradually increasing and affects every sector of education. Usage of web enabled devices on the Internet is now changing the way that people learn. Mobile Learning has growing visibility and significance, and it affects the traditional methods of teaching and learning. The traditional methods of teaching and learning are where the professor stands in the front of a classroom, copying a derivation from his/her notes onto the blackboard, and the students are copying passively from the board.(Rugarcia,2009; Keser, Uzunboylu & Ozdamlı, 2011). The changes start from classrooms, instead of blackboard teachers have started to use projectors, laptops, and intelligent boards to teach. With technology, computer aided education has started. The learning/teaching system extends out of the classroom with the use of mobile technology devices such as PDAs, smart phones, laptops, and notebooks. Students can reach lecture notes, assignments, and homeworks by using mobile technological devices, which promises continued extension towards anywhere and anytime learning. It is commonly known as mobile learning (M-learning), and has been considered as the future of learning or as an integral part of any other from of educational process. M-learning derives from E-learning (a way of learning that benefits on the support and improvement brought by the computer and by diverse communication techniques) E-learning derives from d-learning (Uzunboylu, Bicen & Cavus, 2011; Bicen & Cavus; 2011; Marghescu, 2007). Technology is still growing and that development changes the education. To understand how it changes, we look at the literature to find there are many articles about

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M-learning and E-learning. Those publication numbers increase day by day. In this paper, we try to find answer "what are the differences between "M-learning" and "E-learning"? "Does M-learning use different techniques to learn/teach from E-learning?" such as collaborative or situated learning, "Is M-learning versus E-learning?","Or is M-learning supporting E-learning?".

## 2. M-Learning

Development in technology has resulted in changes in education. M-learning is the amazing art of using mobile technologies to develop the learning experience. According to this, we can do many explanations of m-learning. M-learning as a kind of learning model is allowing learners to obtain learning materials anywhere and anytime using mobile technologies and the Internet.(Lan&Sie,2010; Girgin, Kurt & Odbasi, 2011; Ozdamli&Cavus,2011) Web-enabled devices such as PDAs, notebooks, and laptops, let students to learn anytime, anywhere they want. Student use those technologies to download any documents that are related to their work and they can send e-mail to their teachers. It is a way to keep student in touch for learning.

M-learning technologies eliminate geographic boundaries and provide a collaborative learning environment between foreign groups. Furthermore, advances in handheld devices have facilitated the use of multimedia in mobile applications, which allows mobile learners to have access to a wide variety of richly diversified learning resources (Huang et al.,2010; Ozdamli&Cavus2011)

### 2.1. Designing M-learning

M-learning is a relatively recent innovation, made possible through advances in operating system design, lower cost hardware, and the community acceptance of mobile phone technology (Peter,2005; Hashemi&Ghasemi,2011). The word 'mobile' describes the portable devices which are used for M-learning. To design M-learning tools, according to Sharples et al.,(2000) the first requirement is portability. If it is portable, it supports learning anywhere and anytime. Another requirement is its connection to an individual. This means that learning occurs as an individually study. Moreover, a learner should be able to retrieve knowledge without the technology becoming a deterrent. Communication must be available with friend, teachers and experts. When design an M-learning tool, it must adapt to the learners development in their skills and knowledge. Persistency is another requirement, as there must be persistence of learning despite the technological development. To be useful is another important requirement for M-learning. The last requirement is to be user-friendly.

### 2.2 Advantages and Disadvantages of M-Learning

M-learning has many advantages. The main advantage arising from mobile learning characteristics is that the study can be done by anyone, in any place, at any time when the user willing to learn. M-learning has a focus on sharing information. All learners, through the interactive system, can interact with each other and they can share knowledge and experience anytime and at any place. M-learning should take advantage of the mobile communication devices it uses as its basis (e.g. mobile phones and wifi enabled PDAs) and promote collaborative learning as much as possible. The collaboration can be achieved through the use of SMS or e-mail (V. Garaj,2009).
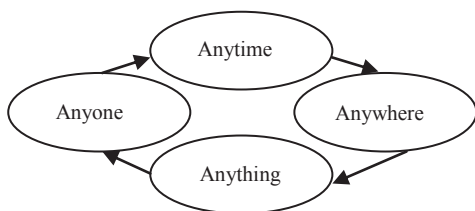


Figure 1. Advantage of M-learning

On the other hand, M-learning has limitations. The teacher and student relationship can be destroyed. The teacher cannot interfere with the students studying, or affect the student's motivation. It is very difficult to create a very accurate way of evaluation, because the student is always next to the information source that can affect the test result. That is M-learning speaks mainly to students at the universities/colleges, and speaks less to the student that attends high school (G. Marghescu at al., 2007; Hussein, 2010).

## 3. E-Learning

Before M-learning, E-learning became possible in education and it changed the style of education to be more learner-centered. Education was teacher-centered before E-learning. According to some researchers, E-learning is the delivery of teaching materials via electronic media, such as the Internet, intranets, extranets, satellite broadcast, audio/video tape, interactive TV and CD-ROM.

E-learning is commonly defined as using technological devices and the Internet for teaching and learning.

### 3.1 Advantages and Disadvantages of E-learning
Advantages of E-learning:
- Class work can be scheduled around personal and professional work, resulting in flexible learning
- Reduces travel cost and time
- Learner may have the option to select learning materials that meets their level of knowledge and interest
- Learners can study whenever they have access to a computer and the Internet.
- Self-paced learning modules allow learners to work at their own pace.
- Development of computer and internet skills are transferable to other facet of learner's lives.
- Successfully completing online or computer-based courses builds self-knowledge and self-confidence and encourages students to take responsibility of their learning. (05/01/2012)
- Motivation is the biggest advantages of E-learning. The student tries to learn when he/she has a good motivation to learn.

Disadvantages of E-learning:
E-learning is a different teaching/learning model, and it has limitations;
- E-learning decreases the relationship between the student with other students and the teacher with other teachers.
- Student and teacher must know how they will use computers for E-learning, and computers must be available.
- E-learning can be done anywhere in the world, in different cultures, students may access E-learning. Culture is a limitation for E-learning.
- Technical limitation.
- E-learning is different teaching/learning process. Therefore, some teachers have less experience and acquaintance with this process.
- Lack of face-to-face interaction with a teacher (Mohammedi,et all, 2010).

## 4. Is M-learning versus E-learning?

Is M-learning versus E-learning? To find answer of this question first of all, we should find commonality and differences of both of process.

M-learning derives from E-learning (a way of learning that benefits on the support and improvement brought by the computer and by diverse communication techniques); and in turn e-learning derives from d-learning (distance learning (G. Marghescu at al., 2007).

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                    ┌─────────────────────────┐
                    │ Educational Environment │
                    └─────────────────────────┘
                       ↙                    ↘
        ┌───────────────────────┐    ┌──────────────────┐
        │ Traditional Education │    │ Distance Learning│
        └───────────────────────┘    └──────────────────┘
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                          │  E-learning  │   │ Distance Learning│
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                  │  On-line  │   │  M-learning  │
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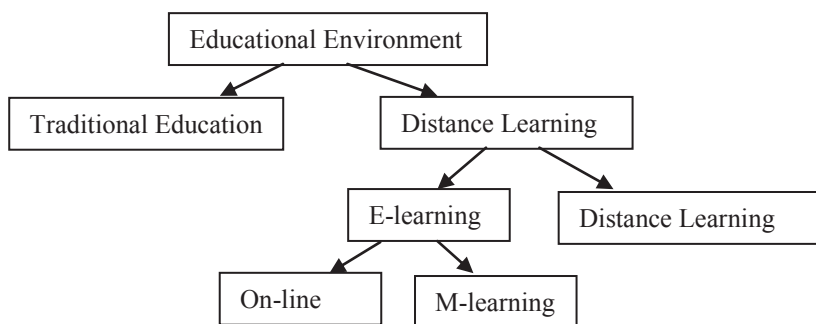
Figure 2. Ways of Learning

In E-learning, there is a specific intent to learn something –in fact the selection of E-learning is generally based on a desire to acquire a specific set of knowledge or skills. For E-learning we generally add some phrases like tethered (connected to something) as well as learning that is offered in a formal and structured manner. For M-learning, the first major difference is that it is untethered. It also is defined by learning that is more informal and opportunistic. M-learning is more private, situational and unstructured (05/01/2012).

In E-learning; the process of learning is enabled by the use of software and Internet tools (K.Nagi).
In M-learning; the process of learning is enabled by the use of mobile devices such as smart phones, PDAs and iPods (K.Nagi).

### 4.1 Common and Different Features of M-Learning and E-learning

When we try to find the common features between E-learning and M-learning, we can say that there are common features in both the learning process and the teaching process. First of all, M-learning and E-learning are student-centered teaching/learning process. Both of them use technological devices for the teaching/learning process such as PDA, wireless laptop, notebook.

Table1 Differences E-learning and M-Learning

| E-Learning | M-Learning |
|---|---|
| Collaborative | Networked |
| Media rich | Lightweight |
| Distance Learning | Situated Learning |
| Formal | Informal |

Table1(K.Nagi), E-learning is collaborative and lets learners converse with contemporaries, present as well as defend ideas and perspectives, exchanging diverse beliefs, question other conceptual frameworks and get actively engaged. Learning in a collaborative environment can take place at any time. It can happen when individuals are in discussion or in a group or over the Internet. On the other hand, M-learning is networked. It uses wireless networks. In fact, E-learning can use a wireless network for the teaching/learning process. Furthermore, learners are also in cooperation with M-learning. E-Learning uses media rich; while M-learning uses lightweight devices. Nowadays,

mobile devices have the capacity to do many operations as well as a computer; so there are not really any differences between both learning processes. E-learning derives from distance learning and according to many researchers M-learning derives from E-learning. Both of them happen away from school, both of them use wireless networks. M-learning, as its name suggests, is mobile, portable learning and M-learning situated learning.  And according to table 1 above, E-learning is distance learning. M-learning is also distance learning. Therefore, both of them use distance learning, and at the M-learning side, the learner learns themselves and they develop their learning skills. E-learning can get support from M-learning because of situated learning.

According to table 1, the last comparison is formal and informal. E-learning is everything driven by an external entity such as an individual, a school, a college, a company etc. The process of formal learning is governed by stakeholders who define the system and the desired outcome. Otherwise, M-learning happens informally; research points that almost 70% of the learning is on-the-job and is acquired in an informal setting. So, informal learning happens naturally and is a consequence of a person being motivated and wanting to learn. In that sense, informal learning is driven by the individual his/herself. The individual is intrinsically motivated and wants to learn and creates or utilizes the right environment to trigger this learning.  Formal and informal is the important difference between E-learning and M-learning. As the situated learning learner improves their application of E-learning and M-learning, both of them use audio, video-teleconference, e-mail to teacher and peers, no geographic boundaries, no need to travel school , if a wireless connection exists it is enough to learn.  There are differences between e-and m-learning environments with respect to method of evaluation shown in table2 below (Korucu&Alkan, 2011).

Table2 E-learning, M-learning  Assignments &Test

| E-Learning | M-Learning |
|---|---|
| Dedicated time | 24/7 Instantaneous |
| Restricted amount of time | Any amount of time possible |
| Standard test | Individualized test |
| Usually delay Feedback | Instant feedback possible |
| Fixed-length test | Flexible-length/number of questions |

According to all comparison and explanations of M-learning and E-learning know the question come in front of us "Is M-learning versus to E-learning?". Figure 1 show E-learning and Figure 2 show M-Learning (Cobcraft, 2006).
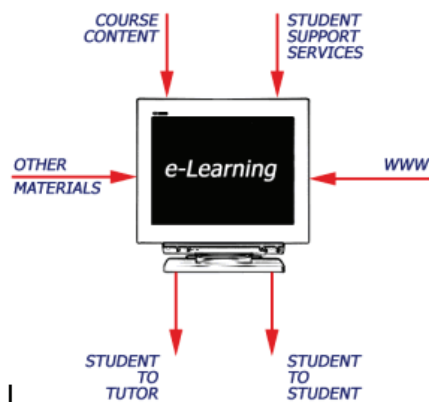


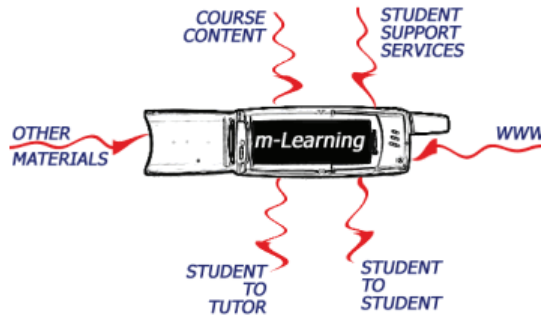Figure 1E-learning (Wired Virtual Learning Environment)

Figure 2 M-learning (Wireless Virtual Learning Environment)

   M-learning, and its perceived relation to E-learning; namely: M-learning is a sub-set of  E-learning –needs to be considered within a blended learning strategy in the same way that any education institution or corporate training department needs to view all other learning delivery methods. M-learning is a means to enhance the broader learning experience, not (as we predicted for e-learning) a primary method for delivering courses/distance learning; M-learning is a powerful method for engaging learners on their own terms especially for those who could be classed as nontraditional learners or for those groups of students who cannot participate in classroom learning for whatever reason (Mellow,2005).

   M-learning is not versus to E-learning, because they have  mainly same features and techniques.  Another question is, "Is M-learning supporting E-learning?" and in practical terms it is. M-learning is situated learning and E-learning is collaborative learning. Learner develop his/her learning skills according to situations. According to situated learning, as espoused by Lave and Wenger (2001), knowledge skills are created in contexts which reflect how knowledge is obtained and applied in everyday situations. Situated learning occurs whenever there is a 'break in the flow of routine daily performance and the learner reflects on the current situation, resolves to address a problem, to share an idea, or to gain an understanding' (Sharples,2000 , Cobcraft,2006) .  Below, the M-learning benefits are listed including those benefits should entegrate to E-learning.
The appropriate of  M-learning have many recognised benefits:

- M-learning helps learners to improve their literacy and numeracy skills and to recognise their existing abilities;
- M-learning can be used to encourage both independent and colloborative learning experiences;
- M-learning helps learners to identify areas where they need assistance and support
- M-learning helps to combat resistance to use of ICT and can help bridge the gap between mobile phone literacy and ICT literacy;
- M-learning helps to remove some of the formality from the learning exprience and engages reluctant learners;
- M-learning helps learners to remain more focused for longer periods;
- Mobile learnimg helps to raise self-esteem;
- M-learning helps to raise self-confidence (Attewell ,2005).

## 5. Conclusion

As a conclusion, when we investigate M-learning and E-learning, both of them are new trends in the learning/teaching process. The use of distance learning is also important. E-learning and M-learning derives from distance learning. Moreover, the learner starts to use and prefer these technological education models. According to our research "Is M-learning versus E-learning or Support each other?", we realize that M-learning and E learning are mainly the same and there is no opposition. Both of them use the same technological devices nowadays because of technological development of technology. When we look at the differences between M-learning and E-learning, it seems there are two major differences. The first difference is E-learning is formal and M-learning is informal. The formal model is everything driven by external entity such as an individual, a school, a college, a company etc. On the other hand, informal learning happens naturally and as a consequence of a person being motivated and wanting to learn. In that sense, informal learning is driven by the individual his/herself. The second difference is that E-learning is collaborative and M-learning is situated learning. M-learning can support E-learning with situated learning. Because situated learning lets the learner develop their learning skills and the learner can learn according to their own motivation. Therefore, according to our research, M-learning can support E-learning with situated learning.

## Acknowledgements

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