A Brief Survey and Comparison of m-Learning and e-Learning

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ABSTRACT

Recent years have been marked by the rise of electronic learning (E-Learning) and that of mobile learning (M-Learning), promoted by the continuous development of new information and communications technology. We cannot work in society without online technology. Online technology has also entered the field of education. E-learning is a subset of the Distance Learning and m-learning is an e-learning subset. But the two terms are not always used correctly, with a bit of confusion and differences between them where they overlap. And more complex words, thinking about the differences between e-learning and m-learning can be especially useful for teachers who use technology in the classroom, as it can help them choose the techniques that are best for the teaching scenario. The present article is based on secondary data sources highlighting the concept of comparison, the characteristics, advantages, disadvantages, similarities and differences between e-learning and m-learning.

Keywords: *E-learning, M-learning, U-learning, Technology, Distance learning.*

1   INTRODUCTION

E-Learning is a distance learning process using multimedia resources, which allows one or more persons to form from their computer. Multimedia materials used can combine text, graphics in two or three dimensions, sound, image, animation and even video.

Many authors (Nyíri, 2002 [1], 2005 [2]; Sharma and Kitchen, 2004 [4]; and Tuimala Hosseini, 2005 [3]; and Laouris Eteokleous, 2005 [6]) see mobile learning as simply the natural evolution of elearning, completing a missing part of the solution, or as a new stage of distance learning and E-learning (eg, Georgiev, et al., 2004 [5]), the who described as occupying a subspace in the e-learning space which in turn holds a subspace in the d-learning space
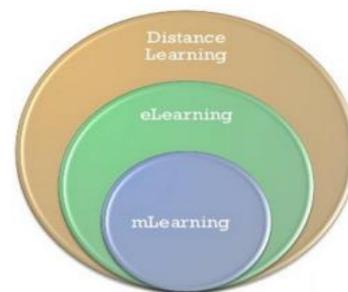

Fig. 1. The positioning of mobile learning as part of the E-Learning and D-Learning. [5]

The MLearn community, however, has a slightly different view of the relationship. Rather than seeing them as sub-assemblies, the community properly views them as three sets that overlap. In this point of view no such set are a subset of each other, but each set bit intersect with each other together. Figure 2 illustrates this view. [7]
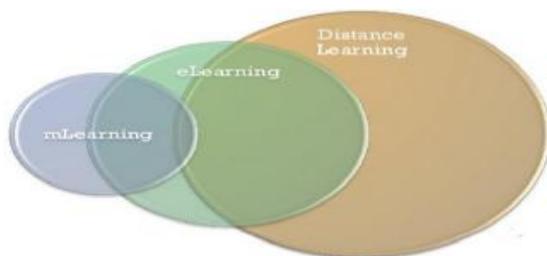
Fig. 2. The view of the MLearn community [7]

1.1 Importance of Studying

The latest modern technologies play a vital role in our lives. The technological revolution poses enormous challenges for educators to rethink their basic principles, to apply creative technology to rethink education. In this context, E-learning and M-learning are important. These are the new innovations that help more learning opportunities for students. The study will cover a wide range of topics concerning the context of E-learning, m-learning, their characteristics, advantages and disadvantages. This study also considers the similarities and differences between e-learning and m-learning. The study found supportive education through modern technology, solving problems of education; promote educational outcomes between the situations of real life.

1.2 Study Objectives

Below are the specific objectives of this study:

- To shed light on the concept of e-learning and M-learning.
- To focus on the characteristics of E-Learning and M-Learning.
- To compare the benefits of e-learning and M-learning.
- To compare the E-Learning and disadvantages M-Learning.
- To assess similarities and differences between e-learning and M-learning.

1.3 Research Questions

The study examined the following questions:

- What is E-Learning?
- What is the M-Learning?
- What are the characteristics of E-Learning?
- What are the characteristics of M-Learning?
- What are the advantages and disadvantages of E-Learning?

- What are the advantages and disadvantages of M-Learning?
- What are the similarities and differences between e-learning and M-learning?

1.4 Study Design

The study was conducted in five main phases:

1. First phase: The concept of e-learning and m-learning.
2. Second phase: The characteristics of E-learning and M-learning.
3. Third phase: Comparing the benefits of E-learning and m-learning.
4. Fourth phase: Comparison of E-learning and M-learning disadvantages.
5. Fifth stage: Similarities and differences between e-learning and M-learning.

2   THE CONCEPT OF E-LEARNING AND M-LEARNING

E-Learning is a learning mode that takes advantage of the use of information technology and communication at all levels of the training activity. It particularly refers to a training program whose main objectives can be defined as independent learning, distance learning, individualized training courses and development of educational relationships online. Using the Internet for education in multiple forms is developing in all sectors of education and particularly in academia. This new modality of teaching offers benefits including the include facilitating distance education. The term e-learning is used to describe the use of the Internet as part of a formation. E-Learning is the dissemination of training through a network (Internet, Intranet…). Any training whatever the field taught mainly based on the actors involved (learners, trainers, authors, etc.), the underlying educational field and teaching resources used for learning. E-Learning is the ability to follow a distance learning program, self-paced or accompanied, individually or collectively. E-Learning is based on the Internet and multimedia tools to offer short training modules, progressive, adapted to the levels and needs of learners.

There are several definitions of e-learning, we quote below a few:

- E-learning is the instruction that is transmitted electronically, in part or in full - via a web browser over the Internet or intranet, or

through multimedia platforms such as CD ROM or DVD (Hall, 1997).

- E-learning is a structured targeted use of an electronic or computer system in support of the learning process (Allen, 2003).

- E-learning covers a wide range of applications and processes, such as learning web-based, computer-based learning, virtual classrooms, and digital collaboration. It includes the delivery of content via Internet, intranet / extranet (LAN / WAN), audio- and videotapes, satellite broadcast, interactive TV, and CD-ROM (ASTD, 2001).

- E-learning is training provided to a computer (including CD-ROM, Internet or intranet) that is designed to support individual learning and organizational performance objectives (Clark & Mayer, 2003).

- Although the concept of mobile learning is very new, is generally regarded as the area that processes the relationship between teaching and learning in the scope of mobile technologies. According to (Winters, 2006), this area can be defined in four different views:

- As an extension of e-learning or e-learning - e-Learning (Brown, 2003): Coming from distance learning, online learning is not just the combination of content and services provided by electronically (Waller and Wilson, 2001), but the distance (geographic and / or temporal) between teacher and learner (Paulsen et al., 2002) linked by a computer network; mobile learning would be an e-Learning intersection with mobile technologies (Chabra and Figueiredo, 2001; Milrad, 2004; Quinn, 2000; Trifonova and Ronchetti, 2004).

- As a learning performed using mobile devices. This techno-centric definition, which is the most dominant in the literature, is believed to be accurate but useless because it only seeks to place the M-Learning somewhere on the portability spectrum of e-learning (Traxler, 2005).

- As based learning mobility of the modern student (O'Malley et al., 2003; Sharples, 2006). In this sense, Göth and Schwabe (2008) adopted the following definition: «Mobile learning is learning of mobile actors. In contrast to --other mobile activities (e.g., for pleasure or work), mobile learning activities are embedded in a didactic framework ». For their part, Ryu and Parson (2009) consider the activity in mobility admitting that it is less useful to focus on the technical, but it is

necessary to understand how the learning activities are integrated technology.

3 THE CHARACTERISTICS OF E-LEARNING AND M-LEARNING

There are some important features of E-learning mentioned below:

- Internet: Is the average access to the material.

- The E-Learning: E-learning usage is generally limited to "learning" conducted by the Internet or technology based on the Web, without interacting face-to-face.

- Authorized by digital technology: E-Learning is a teaching authorized by digital technology.

- The learner is central. It can set his own pace, its environment and its way of working.

- The environmental studies can be tailored to specific training needs.

- The whole is supported by a network of experiences that can be shared.

- The system uses different teaching techniques: a local virtual classroom, simulations, various forms of collaboration, discussion groups (communities) and online learning.

- All stages of traditional education are met: studies, examinations and certificates.

- Registration, management of personal data and monitoring are done online.

- Furthermore M-Learning has the following characteristics:

- Accessibility - Information is always available whenever learners need to use it.

- Immediacy - The information can be retrieved immediately by learners.

- Interactivity - Learners can interact with peers, teachers, and efficient and effective experts across different media.

- Awareness Context - The environment can adopt with real situations to provide adequate information to learners.

- Permanence - The information remains unless the students express kidnap.

- access to information or knowledge anywhere and anytime

- Most mobile devices have lower prices than desktop PCs.

- Similar size and light weight than desktop PC.

- Another great feature of M-Learning is the learning method adapted to the learning activity.

4 COMPARING THE BENEFITS OF E-LEARNING AND M-LEARNING

E-learning is of considerable interest and offers unique opportunities for people who might otherwise have limited access to education and training. Some of the benefits are summarized below:

4.1 On the side of the learner

- Learning actor of his e-learning

- Interactivity and attractiveness of e-learning content

- Flexibility and adaptability according to availability (time, place)

- training at their own pace independently of other learners

- Self-assessment during and at the end of the course

4.2 The side of the business (University, schools)

- Training "mass" (unlimited number of learners)

- Economy on indirect costs-face training (travel, accommodation etc.)

- Flexibility and adaptabilities according learners availability (time, place)

- individualisation and adjustment of training courses according to the skills and predefined learning objectives

- reduced logistical constraints (no room hire, employee travel, accommodation etc.)

- Supports perennial and updatable training

- 4.1. On the side of the trainer

- Prerequisites to assess the level of learners

- Training interactive and attractive tools for him and learners

- Flexibility and adaptability according to availability (time, place)

- Tracking learners from the platform (tracking)

In view of large group of users of mobile devices, Sharples, 2003 [8] considers that educators must find ways to exploit the potential of mobile technologies to allow them to benefit from their advantages in learning. Some of the key benefits:

- Learners can interact with each other and with the practitioner instead of hiding behind big screens.

- It is much easier to adapt several mobile devices in a classroom than several desktop computers.

- PDAs, Tablet PCs are lighter and less bulky than bags full of files, paper and textbooks, or even laptops.

- Writing with the stylus is more intuitive than using the keyboard and mouse.

- Mobile devices can be used anywhere, anytime; at home, on the train, in hotels.

- These devices engage learners; young people have lost interest in education, such as mobile phones, gadgets and gaming devices.

- The size of these devices is smaller and lighter than PCs.

- Most mobile devices have lower prices than PCs;

- Using GPS technology the m-Learning can provide education location dependent.

5 COMPARING THE DISADVANTAGES OF E-LEARNING AND M-LEARNING

If the e-learning has many advantages, the system also has its limits as mentioned below:

5.1 On the side of learner

- Apprehension of computers, reluctance to new technologies

- Management of autonomy because no set framework

- Management of motivation and involvement in its e-learning, concentration effort

- No direct contact with the trainer

5.2 The side of the business (University, schools)

- Companies sometimes uninformed and cautious with new technologies

- No control over motivation, involvement and management training by learners

- Investment in hardware and software

- Change Management to implement in the training department

5.3 On the side of the trainer

- No direct contact with the learner (except for blended learning training)

- Changing Role of "knowing" in the role of "conductor"

- Passage of a predominantly oral to written

- Despite the advantages provided by the use of mobile devices in learning, they have potential limitations which may be:

- The readability of the screens of mobile devices (small screens of mobile and PDA) which limits the amount and type of information that can be displayed. [9]

- The limited memory size (the latest phones have the ability to expand the memory size by adding memory cards) [10]

- The autonomy of the devices (battery capacity), the batteries must be recharged regularly, and data can be lost if it is not done properly.

- They can be much less robust than desktop computers (although tablet PCs begin to address this issue).

- It is difficult to use animated graphics, especially with mobile phones, although 3G and 4G will allow.

- The data rate, but this is much improved 3G.

- The rapid obsolescence of equipment; This is a rapidly changing market, especially for mobile phones, devices can become obsolete very quickly. [9]

- Bandwidth may degrade with a larger number of users when using wireless networks.

6 SIMILARITIES AND DIFFERENCES BETWEEN M-LEARNING AND E-LEARNING

E-Learning is a subset of distance learning - the M-Learning E-Learning is a subset. The E-Learning conceptual passages in M-Learning to U-Learning are given below:
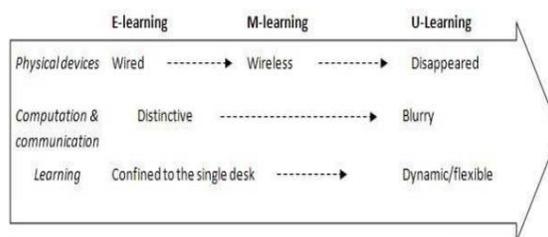

Fig. 3. Comparison and flow of E-learning, M-learning, and U-learning [11]

6.1 Similarities

➢ Each needs an infrastructure and a broad base of the community facing the wire and wireless electronic computer

➢ Each technological needs a high pressure system.

➢ E-learning and M-Learning offers students digital culture by focusing on the processing of information.

➢ The students are the center of the learning process in both models (self-learning).

➢ In both models of learning students can access and surf the Internet.

➢ In both learning models of learning content is delivered in the form of text, images and video clips.

➢ E-M-Learning Models are able to provide learning opportunities for many students.

➢ Learning Materials may be updated continuously in both learning models.

6.2 The Differences

➢ E-learning using fixed, wireless devices such as PCs, but the M-Learning uses wireless communication devices such as smart phones and cell phones, PCs and PDAs.

➢ In The E-Learning, Access to Internet is made available via telephone service, while the M-Learning uses the IR by accessing the Internet anywhere and anytime.

➢ In The E-Learning, messages are exchanged via the internet then MMS and SMS are used to exchange information between users.

➢ In E-learning, it is difficult to transfer books and files between individual learners, while in M-Learning, Bluetooth and IR technologies are used to exchange books and files between learners.

➢ Storage applications used in e-learning is more effective than those used in the M-Learning.

➢ Communication channels in E-learning have low levels of protection, while the M-Learning offers users more protection that learners use their own devices to connect with others.

Table 1: Terminology Comparison of E-Learning & M-Learning (Sharma and Kitchen, 2004) [5]

E-learning	M-learning
Computer	Mobile
Bandwidth	Bluetooth
Multimedia	Objects
Interactive	Networked
Hyperlinked	Situated Learning
Collaborative	Realistic Situation
Distance Learning	Constructivism
Simulated Situation	Social Interaction
Hyper Learning	Collaborative

Table 2: e-learning compared to m-learning (Traxler, 2007)

E-learning	M-learning
Structured	Personal
Media-Rich	Spontaneous
Broadband	Disruptive
Interactive	Opportunistic
Intelligent	Informal
Usable	Pervasive
	Situated
	Private
	Context-Aware
	Bite-Sized
	Portable

Table 3 : Differences between E- and M-Learning.

E-learning	M-learning
Computer	Mobile
Bandwidth	GPRS, G3, Bluetooth
Multimedia	Objects
Interactive	Spontaneous
Hyperlinked	Connected
Collaborative	Networked
Distance learning	Situated learning

Table 4: Communication between actors (instructor and student)

E-learning	M-learning
Communication	Communication
Asynchronous	Synchronous
Scheduled	Spontaneous
Time-delayed	Instant delivery
Passive	instant

Table 5: .Communication between student and student

E-learning	M-learning
Face-to-face	Flexible
Audio-teleconference	Audio and video-conference

common	possible
Private location	No geographic boundaries
Travel time to reach Internet site	No travel time since wireless connectivity

7 CONCLUSION

However E- and M-Learning are important in the field of modern education. Despite some differences, there is a certain relationship is found between them. E- and M-Learning encourage teachers and students to take responsibility for their own learning. When teachers are able to build self-knowledge and self confidence among them. E-learning and M-Learning will also bring a substantial change in the knowledge dissemination method to improve the quality of teacher training in respecting the global standard. Thus, they are beneficial to education, companies and all kinds of teachers / learners. This is the effective learning process created by combining the digital content delivered with the support and service learning. Therefore, we can conclude that teachers need to acquire technological skills to succeed in e-Learning. Mobile technology is also used in this type of learning. It is an innovative educational approach that provides learning opportunities for students.

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