

Electronic learning challenges & techniques



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Abstract

The entrance of new communication technologies to the domain of education has changed the process of teaching-learning process. These technologies not only has changed face-to-face educational methods in universities, but also has extended its domain to establishing new environments. The responsibility of these universities, instead of transferring information, is to improve the skills of solving problems, critical thinking, the skill of information management, and also to improve students' skill in communication and negotiation. This method has some advantages such as consuming less time, accelerating the speed of reading, accessing to up-to-date information. Besides these advantages, it has some disadvantages such as: lessening social communication of the students, lessening face-to-face and no-word communication. In this article employing the theoretical framework, a meticulous definition for electronic learning and studies of improvement at Iran's universities in this domain is given. Besides, we will study the advantages and disadvantages and also suggest some methods to eliminate shortcomings of this method.

Key words: E-Learning, E-Learning definition, E-Learning methods, E- Learning challenges

Introduction :

All available and accessible technologies for human being, also the progress of information technology and communication have made a basic revolution in learning and education. The other classic system of education including student, textbook, class, test, teacher and many educational and aid tools have been outdated. In light of revolution in technology, some opportunities would be provided for faster, easier and cheaper learning which have not existed before, those methods which required physical presence of student in the classroom had disappeared. Virtual learning which is also called E- Learning is a kind of education in which the technology of web and internet is used for the training and assessment of student. In fact, E-Learning makes us aware of some deficiencies in current

education. E-Learning has some unique capabilities in supporting non-synchronous communication and partnership in dynamic educational environment. In this regard, for developing training periods through E-learning, we should answer the following questions: what is E- Learning and what are its differences with face- to- face learning? How many different kinds of E-learning do exist? What are the advantages and disadvantages of E-Learning? What barriers do exist in E- learning in Iran?

Definition and the Concept of E- Learning:

Different people define E-Learning from different perspectives and views.

Matt Comerchero introduces e-learning as a means of education that incorporates self-motivation, communication, efficiency, and technology .

Allison Rossett (2001) defines e-learning as: *Web-based training (WBT), also known as e-learning and on-line learning, is training that resides on a server or host computer that is connected to the World Wide Web*

Regarding the provided definitions, we can say that E- Learning is a kind of learning in which some modern technologies are used instead of traditional methods and its basis is web- based learning.

The objective of E- Learning is developing the knowledge and human skills through applying updated and cost- effective program. In this kind of learning which is based on information technology, the quality of education and learning is very important in so far as for those who are using this kind of virtual education; this is substituted for traditional education and should have the same output as traditional education.

Types of E- Learning :

Negash et, al (2008) has provided six categories for E- learning, inspiring from Flash, and has examined their differences and similarities which are as follow:

1. E- learning with face- to face presence and without electronic communication (face to face)
2. E- learning without physical presence and with electronic communication (self-learning)
3. E- learning without physical presence and with electronic communication (non-synchronous)
4. E- learning with virtual presence and with electronic communications (synchronous)
5. E- learning with often presence and electronic communication (combined/ double, non- synchronous)
6. E- learning with physical presence and electronic communication (combined/ double, synchronous)

Negash et al (2008) assert that in order to understand the differences between these categories it is necessary that the readers distinguish between the transfer of content and access to content. Transfer of content refer to a process in which the teacher or content provider, prepare and transfer educational material and content, but access to content is a process during which the learner receive the content and have access to it.

In this classification, the presence is considered available and accessible when the teacher and learner are accessible synchronously and simultaneously (whether physical or virtual),

and the electronic communication is considered accessible when there is electronic communication between learner and teacher at the time of transfer of knowledge or electronic communication, the main media is considered at the time of the training course execution. These types have been explained below:

1. Electronic learning with physical presence and without electronic communication

This type is the same as face-to-face traditional classes and the difference is that in these classes some common tools for electronic learning is used for supporting the method of knowledge transfer in classroom. In this type, both the learner and the teacher are physically present in the classroom at the time of knowledge transfer and so they are called accessible presence. In this method, no tools of E- learning are used and the content is not transferred, on the other hand the main communication is held between learner and teacher in the classroom in form of formal meetings or through phone. So the electronic communication is not considered accessible.

2. E- Learning without physical presence and with electronic communication

This kind of E- learning is the same as self- learning. In this kind, the learner uses the media for learning and they are responsible for their own learning. There is no presence (whether virtual or physical) and no communication (electronic or non- electronic). In this method, the learners receive the pre- recorded content or have access to the archived versions, in this method, the content which is usually related to a special practical and applied subject, is provided through pre- recorded media such as CD- ROM or DVD.

3. E- Learning without physical presence and with electronic communication

In this method, the learner and the teacher don't meet each other during the content transfer phase and there is no presence (virtual or physical). So that, in this method, presence is not regarded as accessible. Here the teacher pre- records the content (content transfer) and the learner should have access to content in another time (access to content). In this method, content transfer and content access occur independently in such a way that a delayed time would occur between content and data transfer and access. In this environment, the learner and the teacher communicate with each other through a vast majority of media and technologies for E- Learning. Here, there is no electronic communication at the time of content transfer but non- synchronous electronic communication is used as the main route and method in teaching and learning so electronic communication is regarded accessible.

4. E- Learning with virtual presence and electronic communications (synchronous)

This kind of E- Learning is regarded synchronous and in the literature of E- learning, it is known as immediate communication. In synchronous E- Learning, the learner and teacher don't meet each other physically, but they meet one another at the time of content transfer virtually. So, in this method presence is regarded accessible, furthermore E- Learning is used to a great extent and virtual class is held through E- Learning technologies. So, E- Learning is considered accessible and in addition to used technologies in non- synchronous environment, some synchronous technologies are used such as voice, live image and immediate messaging.

5. E- Learning with often presence and electronic communication

This method is known as combined/ double method. In this method, presence occurs often. Content is transferred during physical meetings which occur between learner and teacher

(in face-to-face classes and at least once within a month) through E-Learning technologies when there is not physical presence. So, this is a combined form of non- synchronous E-Learning and face-to-face accessible E- Learning classes. On the other hand, presence occurs often and occurs at the time of content transfer in face-to-face classes physically and virtually or non- physical in non- synchronous communication. So, presence is regarded as often.

6. *E- Learning with physical presence and electronic communication*

This method is combined/ double and presence is accessible during content transfer. In this method, electronic communication is widespread and is used synchronously, so that electronic communication is regarded accessible. In this environment, the presence is moving between virtual and physical status. Some of class meetings are held physically (i.e. in traditional classes and in form of face-to-face) and the remaining time of learning is done with virtual presence (in synchronous form). In this method, the learner and teacher meets each other at the same time, sometimes physically and sometimes virtually. However, presence exists during the whole time or content transfer. So, presence is regarded accessible and is used as a part of learning time and the remaining part is allocated to the use of live voice and picture in virtual meetings. Anyway, meetings are held at the same time and with the presence of learner and teacher. So this is a combined form of face-to-face and synchronous E-Learning (classifications are presented in table 1).

The advantages of E- Learning :

The following are some of advantages of E- Learning:

1. *Permanent Learning* :

general access to content and material in every time and place and the use of internet and network which is a logical solution for permanent education and removing the limitations of its use.

Types of Learning	Presence	Electronic Communication	General name
Type 1	Yes	No	Face-to-face
Type 2	No	No	Self- learning
Type 3	No	Yes	Non- synchronous
Type 4	Yes	Yes	Synchronous
Type 5	Often	Yes	Combined/ double and non- synchronous
Type 6	Yes	Yes	Combined/ double and synchronous

Table 1: classification of E- Learning (adapted from Negash et.al (2008))

2. *Saving in costs*:

it reduces the costs for transport and consultants, the period of training is reduced and the output is increased.

3. *Collaboration and cooperation*:

E- Learning like traditional education make some collaboration between student and teacher for better understanding of concepts, the only difference is that in discussion between two students, other class members can continue education regardless of the subject matter. These communications are possible through on-line technologies such as chat rooms, E-mail, bulletin board.

4. *Risk-free learning:*

students which register in an online course enter a risk-free environment where they can examine new matters and commit some mistakes without being criticized by others. This capability creates a high value for this kind of education.

5. *Update Education:*

for institutions and manufacturing and educational companies the main matter is to train forces according to technology progress in order to make them ready to enter competitive markets and earn more profit.

In E- Learning, educational manager can change their pages and educational contents in terms of market demand while in traditional education, the stages of revising and content change lasts several months.

6. *Simulation of educational settings:*

E- learning is able to produce different educational settings considering different software and make them available to users. In this type, users are able to enter some spaces which is impossible to enter in reality or use some educational aid and tools according to their needs.

The limitations of E- Learning :

Despite all these advantages, E- Learning includes some limitations including:

1. *Technical and Technological Barriers:*

the initial cost for installing and use of computerized facilities is high. The cost for making use of phone lines in education is high, so it is not possible that this learning is done through narrow band width lines and with low-speed internet and it might happen that there is not enough band width for the use of different learning methods.

2. *Economic Barriers:*

the cost of learning and teaching is high in this type of learning since the students might have not enough knowledge of computer, in this case they should attend some courses for learning computer (like ICDL), and this raises some costs (both economically and temporally).

3. *Legal and official barriers:*

it is necessary to make the teachers familiar with some copyright, content presentation and other educational matters.

4. *Pedagogical barriers:*

Some expert regard virtual education non-professional from some perspectives, they believe that there is not direct supervision of the education of student and it is a E-trade of educational degrees, but some other experts of information technologies believe that the goal of academic education is not just learning some courses or obtaining information and skill. They say that university is a stage for socialization and entrance to society as the school in lower stages of education has this critical role, so internet is good substitution for the breaks of schools. This educational method cannot be a replacement of revolutionary challenges which exist in face-to-face communications, however the internet communications

become richer every day and there might not be such a criticism toward this kind of education.

E- Learning in Iran :

Anyway, the replacement of this kind of learning has many problems but its positive effects cannot be ignored and one cannot stop trying to develop it. In our country, due to the fact that it is new and because of the remaining infrastructures from the traditional education, the barriers might be more.

1. One of the many problems in this country is that this kind of learning has become a way for earning money instead of being a ground for developing science and it is regarded as a kind of trade. Furthermore, in virtual universities inside country, the costs have increased in spite of the fact that the teacher, student and facilities are not present. According to the surveys the content production in its proper form and with the minimum volume, has many costs for the country.

2. The electronic content which means the transform of documents, books to electronic forms to share them in internet ⁽¹⁾ has made E- Learning troublesome and problematic in Iran. Virtual education in Iran needs electronic content in order to make the ground for developing the concept and making it understandable for E- Learning since most of virtual learning in universities of the country is in form of video and audio and no more! So the ground and proper infrastructure should be provided in order to make its growth faster, we cannot be sure of E- Learning in so far as electronic content is provided.

3. Internet communication which is the alphabet of virtual university faces many problems, so it is not possible to make optimum use of video and audio conferences which is the main principle of E- Learning with low speed internet. This problem is due to low bandwidth which can be considered as a barrier in developing E- Learning in our country. Considering the use of high speed internet in the country, this problem has been solved to some extent but we have a long way to access high speed internet in the whole country.

4. There are two main problems in E- Learning including software and hardware:

- In hardware section, if the authorities wish they can improve the internet communications by the use of update technology and without the need to cable.
- There are some problems in software section which is not in providing or production of software but in production of content and the use of intellectual and material right, if the views toward intellectual right and science is changed, we can be hopeful to future.

5. The other problem which cannot be ignored is that the cost for the use of internet communication in Iran is high; furthermore, there is not proper proportion between cost and speed of internet. This is the case while in the recent surveys done by Speedtest.net site it is shown that the status of Iran's in terms of internet speed is 175 in the world. These surveys show that the average speed of internet in South Korea is 6.14 Megabyte per second which made this country the speediest country in offering high speed internet for general users. The cost of the speediest internet in South Korea is 50.28\$ monthly in a condition that according to the report offered by the national office of statistic in this country, the average income of a worker family with the least education is 27,384\$ in

South Korea. While in Iran the condition is completely different from every other country in so far as the average speed of internet in Iran is 0.61 Megabyte per second and in this regard Iran is in 176 ranks among 185 countries of the world. It might be an interesting point that Afghanistan, with the rank of 145 and average internet speed of 28.1 megabyte per second, is in a higher and better rank than Iran. Furthermore, the internet users of Iran should pay 15000 Toman which is equal to 15\$ for high speed internet with the speed of 128 kilobyte per second. This is while, in neighboring countries, the cost of internet with the speed of 4 Megabyte per second is about 25\$, annually.

In order to have access to a virtual university we should localize the patterns of other countries according to infrastructures and the culture of the country.

Conclusion:

In spite of widespread progress of E- Learning in educational setting and institutions, unfortunately, there is disagreement among authorities on its dimensions and specifications. In this paper, the researcher has examined the concept and meaning of E-Learning using theoretical studies and then provided a complete definition for E- Learning and finally has examined different kinds of E- Learning and its deficiencies and barriers from Negash perspective. So, if we continue the way with the traditional facilities and methods, our gap with developed countries would not be filled, however, it would increase day by day. For example, in the field of "Education" we can say that despite the efforts done for removing the existing barriers in educational setting, it is said that there are still some deficiencies in class, teacher and professional in this filed. Sciences and technologies are updated so quickly that we are not aware of them immediately, since accessibility to updated books and scientific journals is very difficult for us. In a big country such as Iran, if we want to overcome these barriers through traditional methods and tools, we would loss the time and financial recourses of the country since traditional methods are time-consuming and expensive. If we want to go ahead with today's world, the only way is to make shortcut and jump over barriers. This is possible through information technology and spread of information network of the country.

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