

CONTRIBUTION OF MODERN SCIENTIFIC TECHNOLOGY FOR THE DEVELOPMENT OF HIGHER EDUCATION

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The Internet has become one of the vital ways to make available resources for research and learning for both teachers and students to share and acquire information. Technology-based e-learning encompasses the use of the internet and other important technologies to produce materials for learning, teach learners, and also regulate courses in an organization. There has been extensive debate about a common definition of the term e-learning. Existing definitions according to scientists tend to reveal the specialization and interest of the researchers. E-learning as a concept covers a range of applications, learning methods and processes. It is therefore difficult to find a commonly accepted definition for the term e-learning, and according to different scholars there is even no common definition for the term. There may be as many definitions of the term e-learning as there are academic papers on the subject.

In some definitions e-Learning encompasses more than just the offering of wholly online courses. For instance, e-Learning has transformed from a fully-online course to using technology to deliver part or all of a course independent of permanent time and place. Also, the European Commission describes, e-Learning as the use of new multimedia technologies and the Internet to increase learning quality by easing access to facilities and services as well as distant exchanges and collaboration. The following are also different definitions of e-learning.

E-learning refers to the use of information and communication technologies to enable the access to online learning/teaching resources. In its broadest sense, it defines E-learning to mean any learning that is enabled electronically. They however narrowed this definition down to mean learning that is empowered by the use of digital technologies. This definition is further narrowed by some researchers as any learning that is internet-enabled or web-based.

According to scientists the term 'e-learning' is applied in different perspectives, including distributed learning, online-distance learning, as well as hybrid learning. E-learning, according to OECD (2005) is defined as the use of information and communication technologies in diverse processes of education to support and enhance learning in institutions of higher education and includes the usage of information and communication technology as a complement to traditional classrooms, online learning or mixing the two modes. Also, the term e-learning refers to the attainment and use of knowledge that are predominantly facilitated and distributed by electronic means. To them, the e-learning depends on computers and networks, but it is likely it will progress into systems comprising of a variety of channels such as wireless and satellite, and technologies such as cellular phones. In the literature review on definitions for e-learning, we found that the features of e-learning process are chiefly centered on the internet; global sharing and learning resources; information broadcasts and knowledge flow by way of network courses, and lastly flexibility of learning as computer-generated environment for learning is created to overcome issues of distance and time. Few scholars argue that the concept of e-learning is proposed based on distance learning, thus a transmission of lectures to distant locations by way of video presentations. However, some claims that the progression of communications technologies, particularly the internet, did transform distance learning into e-learning.

Other researchers also defined e-learning as a revolutionary approach to enable a workforce with the knowledge and skills needed to turn change into benefit. For instance, the e-learning approach as centered on the learner as well as its design as involving a system that is interactive, repetitious, self-paced, and customizable. It also referred to the term as the use of computer network technology, principally through the internet, to provide information and instruction to individuals.

Some scholars defined e-learning based on the summaries of its characteristics. In the first place, they propose a multimedia environment. Secondly, they incorporate several kinds of information. Thirdly e-learning systems support collaborative communication, whereby users have total control over their own situations of learning. In the fourth place, e-learning support networks for accessing information. And fifth, e-learning allows for the systems to be implemented freely on various kinds of computer operating systems.

According to some scientists, this new environment for learning that is centered on electronic networks has allowed learners in universities to receive individualized support and also to have learning schedules that is more suitable to them as well as separate from other learners. This facilitates a high interaction and collaboration level between instructors or teachers and peers than traditional environment for learning. E-learning in academics which is characterized by the use of multimedia constructs made the process of learning more active, interesting and enjoyable. The main constructs that have made e-learning the most promising educational technology include service, cost, quality, and speed. It is apparent that e-learning can empower students at higher educational levels to acquire their education in while at the same time perusing their personal objectives as well as maintaining their own careers, with no need to attend be subjected to rigid schedule. Some in support of this thought reported that the number of courses online has vividly increased as a result of the attained benefits for both learners and universities.

The evaluation of the effectiveness of the e-learning experience in Saudi Arabia categorized the definitions of e-learning from three different perspectives: the distance learning perspective, the technological perspective and also from the perspective of e-learning as pedagogy.

It can therefore be concluded from the above that it is difficult to identify a common definition for e-learning. Some of the authors refer to e-learning as providing complete online courses only whereas comprise web-supplemented and web-dependent services for the provision of educational and support processes

The adoption of E-learning in education, especially for higher educational institutions has several benefits, and given its several advantages and benefits, e-learning is considered among the best methods of education. Several studies and authors have provided benefits and advantages derived from the adoption of e-learning technologies into schools.

Some studies give advantage of e-learning as its ability to focus on the needs of individual learners. Scientists review on e-learning strategies for delivering knowledge in digital age noted that one of the advantages of e-learning in education is its focus on the needs of individual learners as an important factor in the process of education rather than on the instructors', or educational institutions' needs. Some of the advantages that the adoption of e-learning in education, obtained from review of literature includes the following:

4. It is flexible when issues of time and place are taken into consideration. Every student has the luxury of choosing the place and time that suits him/her. The adoption of e-learning provides the institutions as well as their students or learners the much flexibility of time and place of delivery or receipt of according to learning information.

5. E-learning enhances the efficacy of knowledge and qualifications via ease of access to a huge amount of information.

6. It is able to provide opportunities for relations between learners by the use of discussion forums. Through this, e-learning helps eliminate barriers that have the potential of hindering participation including the fear of talking to other learners. E-learning motivates students to interact with other, as well as exchange and respect different point of views. E-learning eases communication and also improves the relationships that sustain learning. E-Learning makes available extra prospects for interactivity between students and teachers during content delivery.

7. E-learning is cost effective in the sense that there is no need for the students or learners to travel. It is also cost effective in the sense that it offers opportunities for learning for maximum number of learners with no need for many buildings.

8. E-learning always takes into consideration the individual learners differences. Some learners, for instance prefer to concentrate on certain parts of the course, while others are prepared to review the entire course.

9. E-learning helps compensate for scarcities of academic staff, including instructors or teachers as well as facilitators, lab technicians etc.

10. The use of e-Learning allows self-pacing. For instance, the asynchronous way permits each student to study at his or her own pace and speed whether slow or quick. It therefore increases satisfaction and decreases stress.

The above-mentioned advantages of e-learning has been summed up and noting that the ability of e-learning to assess the students or learners as they learn, and at the same time increasing their experiences in education, by way of interactivity suitable to community education, cultural diversity and globalization, and eradicating boundaries of place and time. To them the most vital characteristics as well as advantage of e-learning in education is that it centers on the students or learners.

Through e-learning, objectives can be accomplished in the shortest time with least amount of effort. Both learners and instructors can be able to accomplish and keep up with development as they obtain experience that is provided by numerous specialists in the various fields of knowledge. The impacts of e-learning on educational ethics are ensured. This is because the environments for e-learning are tolerant, so they are a good way of offering equal access to the information world irrespective of the locations of the users, their ages as well as ethnic origins, and races. The environment for e-learning also aids learners or students to depend on themselves for the reason that instructors are no longer the solitary knowledge source. They instead become advisors and guides. E-learning also aids in the preparation of the society to globally communicate and to dialogue with others. However, the likely benefits of e-learning are greater than the benefits of traditional learning if e-learning is used and applied in proper ways.

Authors gave the positive impacts of e-learning from the perspectives of the students or learners. They stress that e-learning permits the exploration of much flexible learning ways with much reduced need for travel to go to classes. E-learning, via interactive video facility permits learners to watch all activities that are conducted in the classroom and also listen to instructors as many times as needed. This offers teachers with several ways of interacting with learners and to give them instantaneous feedback. However, it is essential for those who embrace the advanced technology during the process of teaching and learning has a variety of skills in Information and Communication Technology (ICT).

Other studies also give the advantages or benefits of e-learning to students. For instance, e-Learning systems enable improved communication between and among students and between students and faculty or instructors. Scientists have stated the opinion that full time and part time students can participate in their degree courses chosen from any place or location, offering people who are relocated or travel, an easily accessible resource for

learning and experience. They also noted that, the adoption and implementation of e-Learning provides disabled people the chance to further their education from any location.

E-learning, in spite of the advantages that it has when adopted in education, also has some disadvantages. Studies support that e-learning possesses some disadvantages. For example, despite the claims that e-Learning can improve the education quality, but some argue that making learning materials available online results in improved learning results only for specific forms of collective assessment. Also, e-Learning is simply a support device for existing methods of learning. The most noticeable condemnation of e-Learning is the complete absence of vital personal interactions, not only between learners and instructors, but also among colleague learners. According to scientists, regardless of all the disadvantages of e-learning, there are a lot of benefits which inspire its use and also encourage the search for ways to reduce disadvantages. The disadvantages of e-learning that have been given by studies include the following:

1. E-learning as a method of education makes the learners undergo contemplation, remoteness, as well as lack of interaction or relation. It therefore requires a very strong inspiration as well as skills with to the management of time in order to reduce such effects.

2. With respect to clarifications, offer of explanations, as well as interpretations, the e-learning method might be less effective that the traditional method of learning. The learning process is much easier with the use of the face to face encounter with the instructors or teachers.

3. When it comes to improvement in communication skills of learners, e-learning as a method might have a negative effect. The learners. Though might have an excellent knowledge in academics, they may not possess the needed skills to deliver their acquired knowledge to others.

4. Since tests for assessments in e-learning are possibly done with the use of proxy, it will be difficult, if not impossible to control or regulate bad activities like cheating.

5. E-learning may also probably be misled to piracy and plagiarism, predisposed by inadequate selection skills, as well as the ease of copy and paste.

6. E-learning may also deteriorate institutions' role socialization role and also the role of instructors as the directors of the process of education.

7. Also, not all fields or discipline can employ the e-learning technique in education. For instance, the purely scientific fields that include practical cannot be properly studies through e-learning. Researches have argued that e-learning is more appropriate in social science and humanities than the fields such as medical science and pharmacy, where there is the need to develop practical skills.

8. E-learning may also lead to congestion or heavy use of some websites. This may bring about unanticipated costs both in time and money disadvantages. E-learning involves the use of digital tools for teaching and learning. It makes use of technological tools to enable learners study anytime and anywhere. It involves the training, delivery of knowledge and motivates students to interact with each other, as well as exchange and respect different point of views. It eases communication and improves the relationships that sustain learning. Despite some challenges discussed, the literature has sought to explain the role of e-learning in particular and how eLearning has made a strong impact in teaching and learning. Its adoption in some institutions has increased faculty and learner's access to information and has provided a rich environment for collaboration among students which have improved academic standards. The overall literature which explains the advantages and disadvantages of e-learning suggests the need for its implementation in higher education for faculty, administrators and students to enjoy the full benefits that come with its adoption and implementation.