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Review Article

E-Learning as an Emerging Technological Tool in Higher Education System: A Review

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A B S T R A C T

E-learning has changed the dynamics of teaching-learning process, and playing important role in restructuring higher education. It is the technology which lets the learner learn through instruction, education and training via internet over a distance. The importance of e-learning has led to the need in assessing the mental and physical preparation of the users before using the e-learning environment. Therefore, e-learning readiness is required in making sure the users are capable of using the e-learning environment technology in the best way possible. Technically speaking, e-learning readiness is the capability of prospective e-learning users in using a new learning environment as well as the usage of alternative technology.

Introduction

E-Learning has emerged as a new paradigm of teaching-learning. Classroom teaching was previously considered the only method via which education can be imparted. Technological advancement has led to radical changes in the way education is being imparted. Evolution of internet and advancement in information and communication technology has led to emergence of new approaches in teaching, learning and training.

E-learning has changed the dynamics of teaching-learning process, and playing important role in restructuring higher education. It is the technology which lets the learner learn through instruction, education and training via internet over a distance. Tahereh *et al.*, (2010) observed that e-learning as a solution, the possibility of widespread use, access and sharing of knowledge unmatched by other types of instruction delivery. Holley (2000) states that e-learning is difficult to implement without the full cooperation and support of lecturers, as the degree of interaction between lecturers and students is still predominant in e-learning environments. Nowadays, e-learning has become an accepted educational paradigm across universities worldwide (OECD, 2005).

Volery (2000) argues that the expansion of the internet and related technological advancements, in conjunction with limited budgets and social demands for improved access to higher education, has produced a substantial incentive for universities to

introduce e-learning courses. In fact, e-learning is a technology solution which incorporates both, a fully online version as well as a distance mode supplemented with ICT in someway or the other.

Definition of e-Learning

E-learning is a growing field (Area & Adell, 2009; Bates, 2015; Docebo 2014, 2016).

The "e" in e-learning stands for electronic, so the e-learning refers to learning with use of communication and information technologies. There are many definitions given to e-learning. Surjono (2007) define e-learning or electronic learning as presenting learning material through electronic media such as the internet, intranet/extranet, satellite, broadcast, audio/video tape, interactive TV, CDROM, and computer-based training (CBT).

The concept further describes instructional content as well as learning experiences that are delivered or enabled by digital technologies. E-learning incorporates a broad

variety of learning technologies and strategies (Sife *et al.,* 2007). Kahiigi *et al.,* (2007) described the concept of e-learning as a new evolution, whose existence arises in connection with the ongoing development of the information society

The e-learning is not only the student preferred mode of learning but also the preference of teachers (Strother, 2002). According to Bonanno (2011) teachers are the key elements for adapting and implementing all the learning environment to an e-learning platform since they are directly engaged with students and course contents. The Commission on Technology and Adult Learning (2001) defined e-learning as the instructional content or learning experiences delivered or enabled by electronic technology. Therefore, e-learning can be defined as instruction delivered via a computer that is intended to promote learning (Clark and Mayer, 2003). Further, Harman and Koohang (2005) stated that "e-learning is the delivery of education (all activities relevant to instructing, teaching, and learning) through various electronic media." Thus, it can be said that delivery of educational and instructional content through different information and communication technologies is the part and parcel of e-learning process.

E-learning involves asynchronous as well as synchronous modes of communication (Hrastinski, 2008; Anderson, 2008; Kirkwood & Price, 2012). The *asynchronous mode* refers to online learning situations where students interact with each other, over a time gap, with the help of tools such as discussion forums, e-mail, and bulletin boards (Oye, Salleh & Iahad, 2012).

The *synchronous learning* mode, on the other hand, is more similar to traditional teaching because communication in this mode is carried out in real time (Hrastinski, 2007; Rydberg Fåhræus, 2008). Synchronous communication enables students to watch teachers' presentations and verbally interact with the teachers during learning sessions (Keegan *et al.,* 2005). Because the synchronous communication mode is carried out in real time, discussions become more dynamic compared to using solely asynchronous communication (Niehues, 2007).

McConnell *et al.,* (2008) also found that the UK teachers believed that e-learning meant that students were in a better position to reflect on how the group was collaborating and, as a consequence, this reflection "had

beneficial effects on the learning process itself"

e-Learning readiness

The proposed ELR model of Seakow & Samson (2011) related to e-learning readiness in higher education in Thailand consists of five dimensions of measurement namely Policy, Technology, Financial, Human Resources and Infrastructure. The ELR model proposed by Akaslan & Effie (2011) specifically measures the level of e-learning readiness of the faculty aspect based on three components: Technology, People, Content and Institution

e-learning is identified as a mode of content delivery involving the effective utilisation of the internet and integrating technology in education that provides participants with network technology enabling them to communicate, share, cooperate and interact with each other. Borotis and Poulymenakou (2004) defined it as "the mental or physical preparedness of an organization for some e-learning experience or action".

Readiness includes learners' awareness and ability to adapt to technological challenges, collaborative learning in synchronous as well as asynchronous modes. Readiness for an organization intending to adopt e-learning can be defined as the "mental or physical (infrastructural) preparedness for that organization for some e-learning experience or action". It is important to comprehend that readiness can't take only binary values; rather it is a continuous process.

Navani & Ansari (2016) concluded that the individual Mean(s) for each component indicates that the SAU under study is 'ready' in respect of two indicators - infrastructure readiness, and financial readiness; further, it is 'ready but needs few improvements' in respect of technological skills readiness, Online learning readiness,

Attitude readiness, environmental readiness and cultural readiness.

Machado (2007) explained e-readiness in context of higher education as "the ability of Higher Education Institutes (HEIs) and the capacity of institutional stakeholders to generate learning opportunities by facilitating computer-based technologies."

Navani & Ansari (2020) concluded that one of the Indian State Agricultural University under study is not ready on some dimensions such as online learning style readiness and human resource readiness which is below the expected minimum level and the remaining six constituents are above the minimum expected level of e-learning readiness that means e-Learning readiness of these dimensions are either ready to go ahead or needs some improvement. An 'e-ready' society may be said to have the necessary physical infrastructure, integrated with current ICTs throughout businesses (e-commerce, e-services, local ICT sector), communities (local content, organizations being online, ICTs used in everyday life, ICTs taught in schools), and the government (e-governance), and no limits on trade or foreign investment. The importance of e-learning has led to the need in assessing the mental and physical preparation of the users before using the e-learning environment. Therefore, e-learning readiness is required in making sure the users are capable of using the e-learning environment technology in the best way possible. Technically speaking, e-learning readiness is the capability of prospective e-learning users in using a new learning environment as well as the usage of alternative technology.

Navani & Ansari (2017) found after studying the elearning readiness Assessment in one of the SAU in northern India that it is ready but needs a few improvements.

Scope of e-Learning in education

OECD (2005) reveals that Universities are gradually bringing e-learning into the mainstream of their educational programs and it is often an integral part of a classroom-based course. Educational institutions all over the world are gearing up to implement e-learning in their future strategies and plans. Holmes and Gardner (2006) pointed out that e-learning provides access to resources that promotes learning anytime, anyplace basis. The ubiquity of ICTs and its constant growth has made it imperative on education policy makers and strategists to engage different stakeholders in being abreast of ICTs innovations and use. The possible uses of ICTs in education are as follows:

E-learning improves quality of education and raises educational standards.

E-learning contributes to an innovation and modern educational system.

E-learning supports co-operative, creative learning and critical thinking.

E-learning provides accessibility to education for (students with disabilities, minority students, from a lower socio-economic background, students from rural areas or from geographically isolated areas etc).

E-learning enables faster pre-qualification of students and curricula development can be focused on raising employability.

E-learning enables education for a larger section of population.

In the present study, e-learning readiness shall be defined for university teachers. The e-learning readiness will be reflected in the readiness of learners readiness of learners (intended/ targeted) for the acceptance of new technology in education. It pre-supposes the availability of infrastructure, clear learning objectives, teacher/trainer support and guidance and knowledgeable leadership. The e-learning readiness of faculty in this study shall include their readiness to integrate latest ICTs in the classroom situations, technical competency in educational content management (e.g. designing and uploading educational content on the web, online supervision and evaluation systems, etc) and their attitude towards e-learning as a mode of instruction. The e-learning readiness can be assessed by evaluating an individual's technical experience and competency in handling computers. Organizations have to be ready to adopt e-learning and benefit from its advantages. Such e-readiness can be defined as "how ready the organisation is on several aspects to implement e-learning".

Role of e-Learning in higher education system

In recent decades, a technological revolution has taken place in large parts of the modern world. Society has moved from a society haracterised by the living conditions of industrialism to the present knowledge society where creativity and ingenuity stimulates and drives the society (Hargreaves, 2003).

Major technological developments characterising society – especially during the last 20 years and mostly because of the Internet (Castells, 2001) – have changed our view of education.

Laurillard (2004) gives a description of what

the positive aspects of e-learning could mean in higher education:

E-learning has been used very effectively in university teaching for enhancing the traditional forms of teaching and administration. Students on many courses in many universities now find they have web access to the lecture notes and selected digital resources in support of their study, they have personalised web environments in which they can join discussion forums with their class or group, and this new kind of access gives them much greater flexibility of study. Part time students can more easily access the course and this in turn supports the objectives of wider participation, removing the traditional barriers to HE study.

Many researchers are determined that training – for example, through computer courses – is fundamental and has to be provided if e-learning are going to be fully advantageous for both teachers and students in higher education (Bates, 2001; Bhuasiri *et al.*, 2011; Cohen & Nycz, 2006; Galusha, 1997; Mapuva & Muyengwa, 2009).

Navani & Ansari (2020) concluded while comparing 2 Indian SAUs that In terms of Technological Skill Readiness, Punjab Agricultural University scored higher than the other; this indicate that its faculty are beer equipped and more technological competent in terms of Technological Skill Readiness.

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