Impact of E-Learning Resources on Higher Education

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ABSTRACT

The paper focuses on the understanding of e-learning, its advantages, the driving force behind e-learning, various forms of e-learning, essential characteristics of e-learning, how it is implemented and organised, the recent developments in technology, new methods in e-learning, quality assurance, and emerging policy issues. etc., are discussed in this section. Numerous other research artefacts are also discussed in this section of the presented thesis. In summary, the key objective of this chapter is to provide optimal knowledge transfer related to the research and allied variables. It can help readers or audiences to understand research requirements and allied information effectively.

1. Introduction

This section primarily discussed the theoretical aspects of e-learning, its significance, different types of e-learning tools and technologies, and allied efficiency in the education system. The predominant objective of this chapter was to provide optimal knowledge of the considered research domain and its significance.

E-learning is one of the cutting-edge ways computers are used in teaching and learning. Furthermore, it is far better than CAL (Computer Assisted Learning). E-Learning allows us to learn from anywhere and anytime at our convenience with the help of a well-equipped computer. E-learning helps us to learn from any place and time. The

quality of E-Learning mainly lies in its training and the type of content and delivery. Some disadvantages of e-learning include dull slides, minimal possibility for interaction, and classroom instruction. One of e-learning's advantages is that its software makes the classroom more interactive and piques students' interest in the course or program.

1.1 Definitions of e-Learning

The definitions also vary depending on the goals and objectives of educational settings and institutions and the viewpoints that each of them takes on e-learning. Table 2.1 presents the various definitions of e-learning found in the literature to analyse the primary e-learning characteristics identified from those definitions.

According to earlier definitions of e-learning, specific learning methods involved ICT, while others concentrated on integrating technology into the learning process to facilitate e-learning. Within this framework, e-learning may be characterised as a medium for learning bolstered by the application of information and communication technology, enabling users to gain new skills and knowledge while enhancing the participatory nature of the learning process. The term "e-learning" in this study refers to students using technology and other resources to aid in their studies; this definition is very similar to that put forth by Mbarek and Zaddem et al. (2013) and Varna et al. (2006).

Author(s)	Definition of E-Learning
Masron et al. (2007)	Describe e-learning so that educational institutions may use it.
Mbarek and Zaddem et al.(2013)	Thanks to educational and learning instruction backed by ICT, students can receive new knowledge and abilities online without having to worry about a space-time shift.

Table 1.1 Definitions of e-Learning

2. E-Learning Principles

Developing an effective e-learning program revolves around the ability of the developer to blend pedagogy with the latest technological advances made in the electronic medium and communication technology. Prof. Anderson and McCormick et al. (2005) suggested 10 principles that may help the designers to rebuild pedagogically sound e-learning materials, which will help to promote e-learning and technology. They are:

With defined goals and the content covered, the methodology and the current curriculum should be contrasted.
The learning process, in terms of the objectives or learning goals, tells us about the content covered in the course

• Inclusion
The pedagogy should include the different types of practices involved; e-learning should be accessible to a wide range of social, ethnic, and gender groups and physically disabled people.

• Learner Engagement
It should be noted that e-learning should make the learning process more interactive and positively impact the users.

• Innovative Approaches

It should be justified why learning technologies are implemented instead of the non-technological approach, which is also very effective.

• Effective Learning

This method is very much implemented in many ways: for example, by using different technologies, the students can choose which is suitable for them and satisfies various characteristics such as learner agency, learner autonomy, and enabling or encouraging collaboration.

• Formative Assessment

The pedagogy should provide regular assessments of the student's performance so that the teacher can identify areas for improvement.

• Summative Assessment

The summative assessment must be valid and acceptable by all teachers, learners, and parents and free from emotional impact on the learner.

• Coherence, Consistency and Transparency

The pedagogy developed must be coherent, consistent and transparent. It must contain all the details of the student's activity and assessment that match each other. It must be easily accessible to all.

• Ease of Use

The e-learning developed must be easy to use and understandable by all.

• Effectiveness

The E-Learning technology must be easily available to all at affordable prices. Further, the application of the five principles of adult learning (Knowles et al., 1984:12; Smith et al., 2002) in developing content for professional development programs using e-learning as a medium (QOTFC, 2005) provides the developer with the following guiding principles:

2.1 Types of e-Learning

E-learning approaches and services have come a long way since computers were first used in schools or education. Now, the world is moving to combining technology with learning with the help of an integrated classroom, teaching methods that lend a more collaborative and evolved platform. The vast field has grown from students using laptops and other internet technologies such as video lectures, tutorials, etc., leading to even enabling different forms of distance learning.

Typically, E-Learning can also be classified as blended or distributed learning, where blended learning uses e-learning tools and services and conventional classroom teaching techniques to create a blended platform. Distributed learning, on the other hand, can rely on hybrid learning or the use of entirely online-based learning for knowledge transfer. Lack of awareness, poor network, poor quality, digital divide, lack of interest and language are the most common problems in an e-learning scenario.

• Knowledge Databases

These types of databases are the basic type in e-learning. Knowledge databases on software websites offer guidelines for software questions, and all the step-by-step procedures needed to perform a given task are provided.

• Online Support

Online support is a form of e-learning. Online support usually includes forums, chat rooms, Blogs, online bulletin boards, e-mail, and live instant messaging support. Online support is more interactive. It allows interaction with the users by asking specific questions and giving answers.

• Synchronous Training

"Synchronous learning" refers to a process where the instructor and students unite simultaneously. Synchronous e-learning helps teachers take classes by using the Internet. Synchronous technologies help in peer-to-peer communication. They can take the shape of instant messaging, whiteboards, audio-video conferencing, shared chats, virtual classes, application sharing, and chats. This type of e-learning uses the Internet through network-controlled computer technology for communication purposes where the user and the instructor interact. Many online programs give us a different experience through digital technology.

• Blended Learning

This type of e-learning usually combines different types of learning. It is also called hybrid learning. Hybrid learning consists of both web-based and virtual-based class room training. In this training, various technologies and tools, such as mobile phones and laptops, are used.

• Virtual Classroom

The main goal of this type of e-learning is to change the culture of traditional classroom learning across various campuses in different areas. As the course is available online, it is very beneficial to those who want to pursue learning through distance education. It also provides an opportunity for real-time action between the users and the instructors.

• Mobile and ubiquitous learning

This type of e-learning is extremely flexible, eliminating desktop dependency and leveraging devices such as laptops, computers, audio devices such as MP3 players, certain gaming devices, and mobile phones. Since these devices are very handy, one can use them to combine informal and formal learning experiences.

2.2 E-Learning Conception & Rationale

Brown et al. (2003) stated that e-learning is a significant development in the field of education from the teacher-centred model in the traditional learning system to the learner-centred model. Shui-Fong and Yin-Kum et al. (2007) stated that conventional teaching methods usually take place in classrooms. Lan et al. (2001) stated that traditional classroom techniques were used initially; the primary mode of assessing a student was in terms of conducting an in-class examination. NZCER (2004) and Higginset al. (2000) stated that e-learning is mainly a learner-centred approach. E-learning plays a vital role in meeting the customers' needs, and it is a self-designed course that facilitates good communication between users and instructors. Tam et al. (2000) stated that self-learning helps students learn more efficiently and understand the content well.

2.3 Opportunities & Challenges of E-Learning

Rafferty, Orton, and Ashford et al. (2003) stated that ICT helps improve the educational system by providing new challenges that are different from the traditional approach.

McIsaac & Gunawardena et al. (2001) stated that e-learning is the fastest-growing form of higher education.

Borland, Lockhart, and Howard et al. (2000) stated that in 1995, approximately 33% of higher education in the US offered E-learning courses, and there was a growth of 44% in the year 1998. It was noted that 66% of the e-learning programs used the Internet as the main medium of communication.

2.4 Success Factors of E-Learning

• E-learning provides the flexibility and convenience of completing the course at any time and any place; it need not necessarily be taught on the institution's campus.

• Secondly, Smart & Cappel et al. (2006) said that e-learning has advantages over traditional learning. It involves using multimedia tools as a part of learning, which helps the users understand it more effectively.

• Thirdly, e-learning uses animation, which helps us understand the concepts more quickly. McEwen et al. (1997) stated that e-learning has much potential to improve traditional learning.

2.5 Benefits and Drawbacks of Online Education

E-learning comes with several benefits and drawbacks. This section often addresses the many advantages and disadvantages of online learning, especially compared to traditional classroom instruction, and offers potential remedies.

2.5.1 Advantages

E-learning resources have had a profound impact on higher education in several key ways:

1. **Accessibility:** E-learning has made education more accessible to a broader range of students. It allows learners to access resources and courses from anywhere with an internet connection, breaking down geographical barriers.

2. **Flexibility:** E-learning offers flexibility in terms of scheduling and pace of learning. Students can often learn independently, revisit materials as needed, and balance their studies with other commitments like work or family.

3. **Cost-effectiveness:** E-learning can be more cost-effective for students and institutions. It reduces the need for physical infrastructure, such as classrooms and textbooks, and can lower tuition fees.

4. **Diverse Learning Tools:** E-learning platforms often incorporate multimedia elements such as videos, simulations, and interactive quizzes, enhancing engagement and catering to different learning styles.

5. **Global Collaboration:** E-learning facilitates collaboration among students and educators worldwide. Virtual classrooms and discussion forums allow for diverse perspectives and insights, enriching the learning experience.

6. **Personalized Learning:** Through data analytics and adaptive learning technologies, e-learning platforms can personalize learning experiences based on individual student progress and performance.

7. **Skill Development:** E-learning often includes practical skills development through virtual labs, simulations, and real-world projects, preparing students for the demands of the workforce.

8. **Continuous Learning Opportunities:** E-learning encourages lifelong learning by providing access to updated content and courses, allowing professionals to stay current in their fields.

2.5.2 Challenges

However, challenges such as the digital divide,

• The need for effective teacher training,

• Maintaining academic integrity in online assessments must also be addressed to harness the potential of e-learning in higher education fully

• No Instructor FaceTime: If the student prefers classroom teaching where we can get personalised help from the teachers, they may not like online teaching.

• Perceptions/Reputation

Although many colleges are now accepting e-learning, a significant percentage of people still prefer classroom training.

• Requires New Skills/Technologies

E-learning requires more use of technology, and if one is not comfortable with technology, then e-learning might not work for them.

• No Social Interaction

Although students interact with each other in colleges, e-learning allows them to interact with each other through e-mail and chat rooms, but there are no offline meetings.

• Making Time

It could be difficult for a student to find time for online classes if they are a procrastinator or constantly need additional encouragement to do their work.

• No Campus Atmosphere

The college environment is totally different from e-learning courses. Virtual classrooms are costly, and they do not provide face-to-face interaction. Lack of personal contact discourages many people.

• Learning from a computer display is difficult to get used to, unpleasant, and unhealthy

It is always said that reading from a computer can strain the eyes. Hence, many people prefer traditional classroom training.

3. The Acceptance of E-learning

The implementation of e-learning is not a simple process. There are many factors which need to be considered

• The positive attitude of the colleges

• Having a broad mindset is necessary to adopt this system

• Should accept the system and be comfortable

• The staff and all the teachers must be ready to accept e-learning regarding technology usage access and cultural differences.
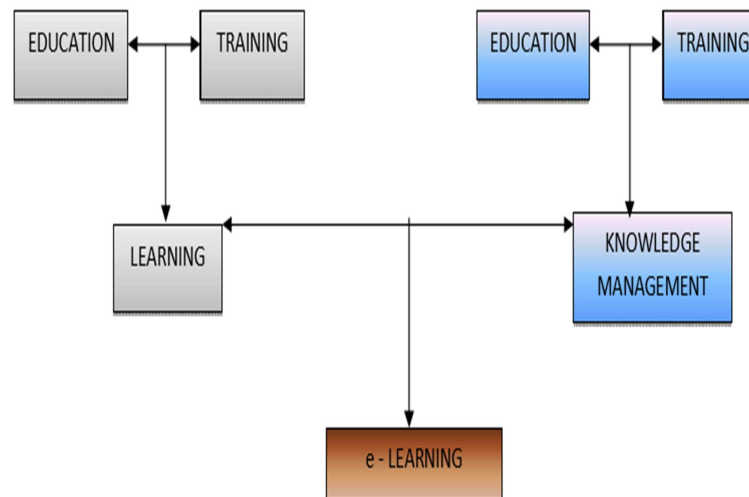
E-Learning Outcomes

Figure 3.1 E-Learning-based Outcomes

3.1 Adaptive E-Learning and Adaptability

The internet has become a powerful medium for sharing information. The developments in web technologies have given students a new experience. With the help of the internet, we are able to experience e-learning. E-learning is an educational program which utilises the Internet to create a meaningful environment. E-learning is the combining of computer-assisted instruction (CAI) or computer-based training (CBT) into web technology

3.2 Current Status of Adaptive E-Learning

Although university teaching is divided into different departments with various support systems, universities generally depend on the strategies of individual lecturers. The multiple support systems and all the individual departments work on these strategies and develop their strategies.

Micro diversity usually depends on the individuals' capabilities and strategies. It tells us how networking and e-learning knowledge between departments grow. A rise in the individuals' strategies gives positive suggestions for more strategies to develop. In terms of the metaphor in Figure 4.7, once a few pioneers map out safe routes for others to follow, the routes can eventually become well-trodden paths as more people use them.

3.3 Current Theoretical Frameworks for E-Learning

Numerous scholars have created a variety of e-learning frameworks that provide a comprehensive understanding of e-learning systems in response to the need to address the effectiveness of e-learning in educational contexts. This paper discusses some significant contributions made by various scholars to the field of e-learning frameworks and provides a critical analysis based on factors such as the framework's nature and focus and its correlation with the effectiveness of e-learning implementation.

Framework	Author	Focus
A paradigm for assessing online learning	AbuSneineh and Zairi (2010) (five elements: learner, teacher, course, design, and technical)	Critical factors of E-Learning
A conceptual framework of the elements that affect how satisfied students are with their online education	Malik (2010) (five elements: learner, teacher, course, design, and technical)	Factors affecting how satisfied students are with online learning

Table 3.2 E-learning frameworks

As can be seen below, several researchers used the strategy of integrating CSFs into an e-Learning architecture.
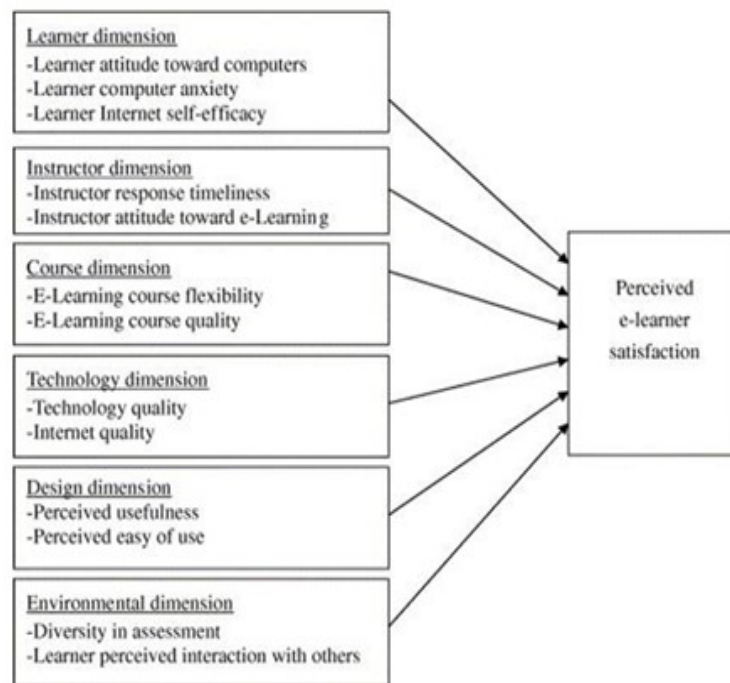

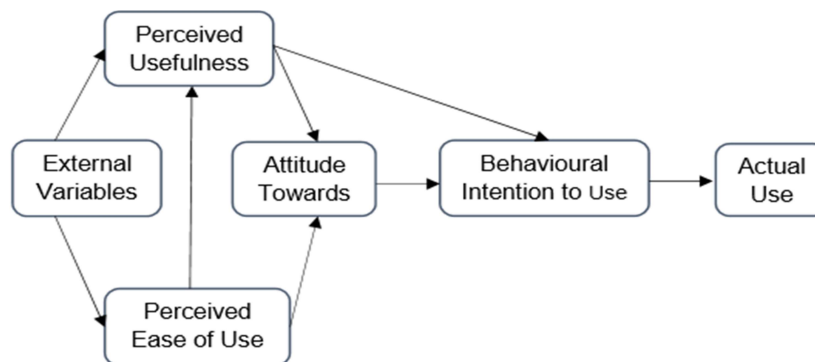Figure 3.3 Shows the original TAM model developed by Davis (1989)

Figure 3.4 Original Technology Acceptance Model (TAM)

4. Conclusion

To summarize, it may be concluded from the research that e-learning has benefitted students, teachers, parents, and even the management of schools. However, challenges such as the digital divide, the need for effective teacher training, and maintaining academic integrity in online assessments must also be addressed to harness the potential of e-learning in higher education fully

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