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*Efficiency of E-Learning as a Substitute to Conventional
Learning in Higher Education*

Mohammed Y. Al-Ghamdi

*Department of Computer Science,
Faculty of Science and Arts at Baljurashi,
Albaha University, Albaha, Saudi Arabia*



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Review Article

Efficiency of E-Learning as a Substitute to Conventional Learning in Higher Education

Mohammed Y. Al-Ghamdi ^{a,*}

^a Department of Computer Science, Faculty of Science and Arts at Baljurashi, Albaha University, Albaha, Saudi Arabia

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ABSTRACT

In the fast-changing environment led by the rise of the internet and new technologies, e-learning has emerged as the most promising solution for the universities. Perception and attitude of students towards IT application and e-learning technologies are important factors towards the successful development of academic programs. This paper is focused on the adaptation of e-learning as an alternative to traditional learning. Moreover, it looks at the perception of lecturers towards e-learning. The paper investigates two main points: (i) the impact of e-learning on academic performance, (ii) the motivation of the students. Through an exhaustive review of the preceding researches in this domain, it was concluded that e-learning offers several benefits over traditional methods of learning. Lecturers too perceive e-learning in a positive manner as it assists them in a better delivery of lesson contents. Amongst several other benefits, e-learning offers more flexibility and greater channels of communication as compared to traditional classroom-based learning. Students undertaking e-learning have greater internal motivation compared to those opting for classroom-based education. Most importantly, e-learning is shown to have a positive impact on the performance of the student.

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1. Introduction

Education systems serve as the base on which proactive and talented individuals conduct activities for building the nation [1-2]. The focus of any education system as such is on human development. Traditionally over the past 20 years, education has been delivered face to face (F2F) within the close confines of the classroom. However, modes of learning are witnessing a change with the advent of new technologies. To keep pace with the rapid changes shaping the world, countries are making use of technology to revamp the prevailing system of education [3-4]. Recent advancements in technology have made it possible to provide better education to the students. As a result of the advancements of e-learning technologies, more effective learning opportunities are received by various audiences across the world [5-6].

Amongst the several positive effects of eLearning, most important, is its ability to bring together students located in different parts of the world [7]. The aim of this research is to study the usage of e-learning in the education sector and verify

whether it offers superior benefits compared to traditional learning. The paper is structured as follows: Section 1 is the research overview which gives a broad definition of the term, discusses the different generations of e-learning and puts forward the research questions along with the research paper aims to discuss. Section 2 explains the related works of the research which describes how the research area has been viewed. The challenges and future work form the section 3 which included some suggestions and the future's plan of the research. The last section of this paper is the conclusion that addresses the research questions.

E-learning is used to cover several modern concepts that have evolved owing to technological advancement in learning [8-9]. Different concepts were covered such as mobile learning, electronic, distance, web-based and digital. E-learning refers to the usage of numerous tools like mobile, digital and electronic to support learning [10-11]. Among the several advantages offered by e-learning most importantly it saves time, is cost-effective, offers flexibility and easily accessible. E-learning gives the flexibility to enable students to study at their pace from any location they feel comfortable [12-13]. Based on the need of the learners, the instructional method offered by e-learning platforms can be modified. E-learning makes use of a variety of multimedia components like text, audio, video, etc. for presenting information to learners and aid in the learning process [14-15]. Thus, as compared to traditional methods, e-learning uses the power of information technology to distribute greater information and accessibility to customers. With the right use of technological tools and customized instruction



* Corresponding author: Department of Computer Science, Faculty of Science and Arts at Baljurashi, Albaha University, Albaha Saudi Arabia.

Tel.: +966 50 9599 928.

E-mail address: myahya@bu.edu.sa (M.Y. Alghamdi).

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method, learners will be motivated to learn and find e-learning is a good choice of learning.

A new focus area in the field of mature tutelage is lifelong learning (LLL). As compared to traditional learning which ends with the attaining of adulthood, LLL looks at the desire, interest, and needs of the individual learners of any age [16-17]. The adoption of technology in education is becoming a fundamental necessity [18-19]. Recognizing the merits that adaptation of technology can bring in to the educational sector like easing the process of teaching and learning [20], higher educational institutes have been investing in technology and have been participating in the technological revolution [21-23]. Owing to the tech-savviness of the students, it is expected that the inclusion of technology would increase their engagement in learning [24]. Incorporation of technology in learning can also make the students adept in using those technologies. Additionally, by using technologies like the internet, the student can access and update information easily through simple handheld devices like a mobile phone. In line with the research aim, the research paper aims to address the following research questions:

- I. How do lecturers across the world perceive technology-based education?
- II. Can e-learning serve as a successful complementary to conventional learning approaches?
- III. How does e-learning impact the motivation and academic performance of the student?

Researchers opine that there have been three-generations of e-learning to date [25]. The period of 1994-99 is termed as the first generation which saw the passive use of the internet in learning. In the first generation, traditional materials were modified into online format [26-27]. The second generation saw an increase in resources, higher bandwidth, and richer streaming media during the period of 2000-03 [28]. These developments led to the creation of virtual learning environments wherein students could gain access to student services, communications and course materials over the internet. Currently, the third generation of e-learning is under progress [29-30]. The third generation makes use of tools like blogs, e-portfolios, wikis, networking, social bookmarking and simulations to facilitate project-based learning, socialization and greater collaboration amongst the stakeholders. Another factor having a profound impact on the third generation of e-learning is the rise in mobile computing. Personal handheld devices offering the flexibility to be used anywhere are referred to as mobile computers [30]. Additionally, it is a prerequisite for the device to have a battery and lots of data storage facilities. There have been numerous researches studying the impact of mobile technology in education [31-32].

According to Van Weert, mobile technology can be used to reduce the digital gap existing in civilization [33]. There are lots of benefits that mobile technology can bring to the educational sector [34]. Along with improving the sense of individuality, mobile technology facilitates cooperative learning amongst the students [35]. By facilitating active participation in social and supportive activities, mobile technology inspires the students to have ownership of their learning process [36-37]. Besides, mobile technology works towards empowering learners and helps in getting employed [38]. Mobile technology additionally helps in venturing into new businesses without the need to worry about costs. Mobile technology helps to market their products online. Moreover, it helps in marketing online products. Academicians can benefit by effectively using mobile technology in a teaching environment [39].

2. Related Works of the Research

E-learning has been investigated in recent years by some researchers and it can be found that those researchers have various views towards e-learning. Thus, this section details and discusses in-depth the findings of other researchers towards e-learning and shows the position of this research. One of the research studies is related to learner motivation and e-learning design conducted by Keller and Suzuki [40]. They viewed that if motivationally enhanced instructions can be systematically designed in e-learning systems, it can lead to positive motivational results and lower dropout rates [40].

The motivation level of students in conventional classroom and e-learning courses was also studied by Rovai et al. [41]. They found that as compared to students going to traditional classrooms, students opting for e-learning courses have greater intrinsic motivation. However, when it comes to extrinsic motivation, they could not identify any difference between the two platforms. They also found that in both traditional education and e-learning, graduate students had greater motivation levels as compared to the undergraduates [41]. Liaw et al. [42], examines how learners approached the e-learning systems. It was concluded that four factors that affect the approach of learners towards e-learning systems. These are the function of e-learning in solving problems, the job of e-learning in facilitating learner autonomy, e-learning in assisting the teachers and the development of e-learning as multimedia-based learning.

Virtual competence and information and communication technology experience were deliberated to be the factors that affected e-learning [43]. The hypothesis was tested on 383 students taking part in online courses. Their study verified the impact of ICT and virtual capability on the results of e-learning [43]. Payne et. al, [44] studied whether constructivist principles can be used on e-learning platforms to train people in highly specialized skills that normally needed prolonged training and expert individuals [44]. The study presented that factory beginners can be better aided with e-learning surroundings as compared to traditional learning. This is because e-learning offers them to learn privately and better utilize their time through asynchronous learning [44].

Paechter and Maier [45], studied the most favorite aspects of e-learning amongst the Austrian students. They also tried to understand scenarios where the learners favored customary learning over e-learning. They concluded that learners select e-learning as it provided a clear structure of learning material. The researchers also revealed that traditional learning was preferred by the students over e-learning in learning communication as they wanted to extract shared comprehension [45]. Lawa et al. [46], state that one of the key proficiencies is created through skills in computer programming. The researchers demonstrated the importance of a lot of training to improve computer programming skills in students. However, the students would not be willing to go through the rigorous training if they are not motivated. They had inferred those e-learning systems that are well-assisted result in increasing the learning motivation amongst the students [46]. After studying the function of educators in e-learning, Yengina et al. [47] have come with a model to assist the teachers in designing online courses that successfully involve learners in the education practice [47]. Mateo et al. [48] believe that technologies and ICT can break the obstacles in the existing social scenario. They also underline the importance of these technologies for a skilled person. Due to the communication possibility that these technologies offer through e-learning devices outside the classroom environment, they are increasingly finding widespread use in the education sector. Approaches based on ICT are being used by universities to bring innovation in the learning

methodologies. The researchers have developed a model of e-learning where students graduating from universities in the first-world modify the course contents for using it to deliver instructions in developing countries [48]. The association between customary learning approaches and e-learning revealed that students lacking computer skills failed to contribute to online communication techniques and failed to effectively communicate with the lecturer. Although e-learning as a teaching method pleased the students, they did not want to participate in another e-learning course if they lacked internet and computer at home [49]. Factors like teachers' motivation and organizational readiness have an important effect on the results of e-learning [50]. O'Neill et al. [51] showed that medical students were optimistic about the practice of e-learning to improve thoughtful notions [51]. After studying the changes that occur in the motivation of learners during e-learning, Kim & Frick revealed that a positive change in motivational levels was best forecasted by the motivation levels exhibited during self-directed e-learning [52]. The curriculum plan is equally significant in the accomplishment of e-learning in developing countries. Bhusari, et al. [53] think that learner behavior, motivation, and awareness of technology are factors that would play an essential role in the execution of e-learning in developing countries.

Students both male and female are shown to be highly aware of e-learning at an academic institution [54]. Educational performance is influenced and reinforced by extrinsic and intrinsic inspiration in learners [55]. The interference on motivation enhanced the quality of learning and such a higher quality of learning is liked by students who have a deep approach to learning [56]. Regarding the data source of this research study, information available through the databases of ACM, Google Scholar, Elsevier, and Google was collected, organized, reviewed and compared. The keywords used for conducting the research included computer education, E-learning, technology-enhanced learning, and online knowledge. The inclusion criteria for the research paper were research design and similarity of the title with the topic of research. On the other hand, the exclusion criteria were studies where only the abstract was accessible and those research papers that were not written in English. A bibliographic software manager Mendeley was used for the study. After citations are imported, Mendeley assisted in reviewing them so that those not meeting the inclusion criteria and the duplicates could be removed.

3. Challenges and Future Work

It can be inferred from this study that e-learning is an advantageous method and it can offer numerous advantages to lecturers and learners as it eases the process of teaching and learning. E-learning has positive impacts on students' academic performance and increased their motivation towards learning. However, some possible challenges can be faced by academic staff and students towards the implementation of E-learning in higher education institutions [57-58]. Those challenges would include academic staff need to be aware of the available technological tools that can support them for the teaching process. Besides, academic staff who are not from an IT background would need some more effort and training on how to use technology appropriately. Students will need some more instructions to use technology effectively. Students need to have some essential proficiencies of using computers to get the full advantage of learning electronically. Another challenge of E-learning can be the development of e-learning systems with personalized learning mechanisms. This challenge can be a suggested work to those who are newcomers in this field. In terms of the future work of this research study, it will be planned to conduct an experimental study at Albaha University on academic staff and students to evaluate their awareness statistically towards the use of e-learning applications in the

instructive process and find out on their views towards the use of E-learning as a substitute to conventional learning. Then, it will intend to support them to use e-learning applications effectively.

4. Conclusion

E-learning is revolutionizing the educational sector and converting it from one that was lecturer driven to one that is inspired by the learners. Through the review conducted in this research study, several implications come out. For instance, e-learning offers several benefits to lecturers and learners. It provides an efficient, reliable and effective form of learning. Moreover, E-learning provides a high degree of flexibility to the learners. E-learning offers learners with greater channels of communication as the communication is not controlled to the confines of the classroom. Also, E-learning provides a more cost-effective solution to learning and allows a great deal of democracy to perpetuate the learning process wherein individuals can access similar standards of educations regardless of age/ gender or other constraints. From the review of several studies on this research, it can be confirmed that students taught through e-learning have higher levels of intrinsic motivation as compared to those who learn through the traditional classroom. Interestingly, e-learning has been revealed to have a productive influence on the performance of the student.

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