IJFANS INTERNATIONAL JOURNAL OF FOOD AND NUTRITIONAL SCIENCES
ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11,S Iss 1,Dec 2022

An overview of E-Learning System

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Abstract. The rate of internet usage in our generation is increasing at a vast rate. It is essential to harness this opportunity and improve productivity in every aspect of our life, ranging from medicine, commerce, government, education, military among others. E-learning is one of the major ICT inventions in academia and this has improved teaching abilities over the years. When opposed to traditional learning systems, e-learning satisfies the desire for knowledge and provides online content that can be supplied to the learner whenever they want and at any age through a variety of e-learning options. Instead of physical teaching and learning, e-learning platforms enable learners to acquire knowledge. In this paper, we discuss about various features related with e-learning system. Also, we discuss its various advantages and limitations.

Keywords: Electronic Learning, Education, Student, Internet.

1 Introduction

Electronic learning or e-learning is evolving alongside the World Wide Web [1]. The evolution of e-learning 1.0 and e-learning 2.0 emerged with their prevalent technologies Web 1.0 and Web 2.0 respectively [2]. With the recent shift in our daily life warranted by the outbreak of Covid-19 has given more significance to e-learning as compared to what it used to be. E-learning is the acquisition of knowledge using computer-aided instruction like multimedia presentations, instructional video, interactive simulations, educational games, online courses, and virtual classrooms with the help of devices like desktop computers, laptop computers, tablets, smartphones, smart TVs, and virtual or augmented reality systems [3]. E-learning is a modern platform for learning from mobile phones, computers, and other electronic devices. It can also be referred to as virtual learning as only the electronic copy of the learning materials are available and not the hard copy. It is essentially the control of the learning process by the student [4].

Manual or traditional ways of learning can be referred to as obsolete methods because of the evolvement of Information and Communications Technology (ICT). Majority of the students do not find it interesting to learn with a physical copy of books or other study materials. Furthermore, the manual ways of learning require more space, money, and time in maintaining the learning materials than the electronic ways.

ICT is one of the major tools driving the learning system in the twenty-first century. The manual ways of learning are being faced out in our academia as well as various industries in the world. According to research conducted

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by Quinn in 2011, it was established that the percentage of companies planning to provide e-learning support for their staff has risen from 38.5% in 2007 to 51% in 2011 [5].

Different researchers have the opinion that the traditional learning methods should be used alongside the ICT-driven learning methods. A typical example is Adzobu in his 2014 research titled "Design, Use and Evaluation of E-learning Platforms: Experiences and Perspectives of a Practitioner from the Developing World Studying in the Developed World" where he opined that Online learning platforms will co-evolve with traditional learning platforms in the future [6]. Combining the modern and traditional learning methods will give more effective learning outcomes [7-8].

2 Related Literature

With e-learning being a trending invention in the new world, hundreds of researchers have contributed their findings and perspectives on E-learning and its related topics such as; online learning platforms and learning management systems. The first work to be reviewed in this research is the research carried out in 2015 by Oproiu titled "A Study about Using E-learning Platform (Moodle) in University Teaching Process". The research was empirical and administered questionnaires to students from different faculty of University Politehnica of Bucharest to find out which Moodle platform could increase the learning motivation and how interested students are to develop learning activities in the virtual space. 80% of the respondents agreed that the platform is useful, 5% does not agree that it is useful while the remaining 15% neither agreed nor disagreed [9].

[10] focused on surveying e-learning platforms currently being used in Mauritius. The research was based on Mauritius only and it explicitly gave a comparative summary of different educational portals available in Mauritius [10].

In the same manner, [11] in their research which uses an analytical study of free e-learning platforms which had four platforms evaluated according to the requested criteria filter among the 600 platforms listed in the THOT CURSUS directory. The criterion employed was functional suitability, compatibility, and portability. A comparative analysis of the selected platforms was later conducted by this research [11].

[12] the duo from the department of computer science, Reading University, Reading city, the United Kingdom in their research titled "Review of Monitoring Tools For E-learning Platforms" supports the general opinion that e-learning has made development viable in academia. Also, the research investigated the role of model-driven personalization support modalities in providing enhanced levels of learning and trusted assimilation in an e-learning delivery context as well as analysis of the impact of an integrated learning path in which an e-learning system was used to track activities and evaluate the performance of learners [12].

[13] established in their research that, unlike web applications in which their usage can be measured with the use of indexes and metrics, e-learning lacks appropriate indexes and metrics that would facilitate their qualitative and quantitative measurement. The research described the use of data mining techniques, such as clustering, classification, and association to analyze the log file of an E-learning platform and deduce useful conclusions [13].

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The fact that the e-learning platform is an evolving innovation in ICT is sufficient of a reason for seeing many researchers working on its analysis and uses as well as providing ways to improve the platform. It is believed that we will have more scholars to give their perspectives in the coming years as well as have positive contributions on how to improve the E-learning strategy. The last work to review in this research is the research titled "Platforms to Support E-learning in Higher Education Institutions" by [14]. The research laid more emphasis on the fact that ICT has created many spaces in the construction of knowledge. A case study of platform implementation to support e-learning in the School of Technology and Management, Polytechnic Institute of Viana do Castelo, Portugal was presented in research conducted by Gomes and Gomes and a portal was developed. The research also presents the phases of development and selection of tools and contents and complimented with the evaluation of user satisfaction with the platform created [14].

3 Features of E-Learning

E-learning is aimed to enhance knowledge acquisition and get rid of unnecessary time and resources spent on maintaining physical materials. However, a good e-learning platform should be able to have provision for traditional ways of learning for the system to accommodate students that are trained in the traditional ways. e-learning should also have an online assessment after each tutorial/lesson as well as solutions to various questions asked during the assessment. It is essential to employ the service of Subject Matter Experts (SMEs) in preparing the tutorial questions. Also, the platform should be interactive for students to share their experiences and give feedback about any possibility for improvement in the system.

[15] in his research titled "Features and Effectiveness of E-learning Tools" gave four main features of E-learning. The features are;

- Connectivity or networking
- Flexibility
- Interactivity and collaboration
- Virtual Learning Environment (VLE)

The features further expatiated in this research are as follows;

Connectivity or networking

Since E-learning is not like the traditional way where the students and teacher will be together in a classroom, there should be provision for the distance barrier between the two parties involved in the system. Anywhere, any place in the world, students and teachers should have full access to the system. Furthermore, there should be a strong networking bond between every user of the system especially if they need to work together. There should not be any downtime no matter the number of students that need to access a resource at the same time.

Flexibility

This is one of the keys features a standard software application or platform should have. E-learning is not an exemption in this situation. E-learning platforms should be flexible to accommodate students' schedules and there should be lots of liberty for the students. This implies that students should be allowed to access the learning

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environment at their convenient hours of the day, either early morning late evening, or midnight. Also, the platform should be accessible from different devices such as mobile phones, iPads, laptop computers, or desktop computers.

Interactivity and collaboration

As discussed earlier, typical e-learning should be interactive. Students should have the opportunity of asking the teachers or SMEs any question(s) related to the tutorials or lessons they have taken. The interaction should not be limited to student-teacher alone, as there should be a student-student relationship on the platform which can enable students with similar interests to share ideas and perspectives. Also, there should be room for teamwork and collaboration between students, teachers, and between students and teachers as may be applicable.

Virtual Learning Environment (VLE)

VLE is a virtual environment created to enable students or learners to have access to educational material such as quizzes, text, and visuals. The VLE will be designed according to the subject matter of the tutorial modules. For example, the quizzes that will be provided for medical students should be different from the ones that will be provided for engineering students.

4 Advantages of E-Learning

Day-to-day activities in the twenty-first century seem to be incomplete without Information and Communications Technology (ICT) driven applications. E-learning is not left out in this development, its advantages and efficiency cannot be over-emphasized.

[16] while discussing the advantages of e-learning gave some basic facts that will serve as an eye-opener for the needs of e-learning. The facts are listed below;

- In an ILX Group survey, 51 percent of HR decision-makers said that ongoing E-learning has a direct effect on boosting employee morale, satisfaction, and longevity.
- A study published in the Journal of Applied Psychology found that microlearning makes learning 17 percent more effective, and Software Advice reports that microlearning engages over 50 percent of participants.
- A study conducted by Brandon Hall found that E-learning requires 40 to 60 percent less employee time than classroom training.
- The Research Institute of America reports that learning retention rates improve from 8 to 10 percent for face-to-face training to 25 to 60 percent for e-learning.
- IBM research found that for every dollar you invest in E-learning, the result is $30 in productivity, mostly because employees save a lot of time through online learning and can resume work and apply the new skills faster.

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- In a survey by CertifyMe.net, almost 72 percent of organizations said that online learning is instrumental in enhancing their competitive edge.
- In January, Amalgam Insights anticipated that the corporate and academic E-learning market would exceed $180 billion in 2018.

After the basic facts, he highlighted five advantages of E-learning as follows;

- E-learning saves time and money
- E-learning leads to better retention
- E-learning is consistent
- E-learning is scalable
- E-learning offers personalization

5 Problems of E-Learning

E-learning is attracting more user's day by day. However, these users face some challenges which are preventing them from deriving the full benefits of e-learning and eventually make some of them give up on its usage. Some of the basic challenges of e-learning include credibility, technical issues, computer literacy, time management, and self-motivation.

Credibility

Everyone deserves to get value for the time and resources invested which is justifiable but it does not work that way all the time on an e-learning platform. Since the struggle is not visible like attending physical classes or attending seminars/workshops, people tend to have some doubts about the credibility of E-learning. Also, there are certain discriminations between online degree programs and the ones obtained physically in college.

Technical issue

The technical issue can be referred to as problem(s) that arise from the hardware/software resources of the platform. Most users of e-learning platforms lack the basic technology requirements for the course they are enrolling for. Platform portability, which is the ability for the platform to be accessible from any device, weak internet bandwidth, and hardware challenges such as weak monitor display can be a threat for the users in extracting the full benefits of the platform.

Computer Literacy

Although a typical twenty-first-century student will be computer literate. However, most users lack in-depth knowledge of computer usage such as basic skills to troubleshoot hardware failure, file handling, and word processing. Users with a lack of the above skills are likely to create a problem for themselves even though the entire platform is working well. Furthermore, this may make it hard for them to follow the designed Learning Management System and their learning experience becomes problematic which may eventually prevent them from being at the same level as their virtual classmates.

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Time Management

Online courses are as time-demanding as their offline counterpart. While e-learning gives freedom to students to learn at their desired time, extra care must be taken to schedule the learning because of the regular day-to-day engagements of the students. The vague and digital nature of E-learning indicates that bad-time management could lead to failure.

Self-Motivation

E-learning requires self-discipline which is lacking in many students. The distraction of being on the internet is already there, YouTube, Facebook, Twitter, news websites, and Ads are enough to cause distractions. Users should manage their internet usage closely to avoid wasting precious study time. E-learning, unlike classroom learning, lacks check and balance. If a student lacks proper discipline, he can lag with his virtual classmates which may eventually arose the desire to quit the course.

6 Conclusion

E-learning usage has become part of our daily life in academia, especially with the outbreak of Covid-19. The evolution of the internet also plays an important part in putting e-learning in the spotlight. The usage of e-learning has improved teaching and learning abilities over the years and has kept the majority of academic work going even during the lockdown. This study analyzed the usage of e-learning system in the various departments especially in teaching and learning. With its increasing demand, it is expected that the evolution of e-learning will continue to grow in academia and people will become more familiar and comfortable with the online teaching and learning mode. The results of this analysis are expected to provide an overview of people's usage of e-learning. The scope of this work can be extended to find people's perspective on the usage of e-learning system in various fields.

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