

## Longevity of E-learning Towards Quality and Effective Delivery in Educational Institutions

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### Abstract

There is an urgent need for stakeholders to find ways to improve the modes of education delivery, especially based on the experiences and innovations that emerged as positives from the pandemic era. Looking beyond the present situations and challenges that came with pandemic as it relates to the delivery of quality e-learning, to the post-pandemic and the emergence of the new normal in teaching, learning and research. There is, therefore, a need to carry out this study to enhance a better understanding of e-learning for quality and effective use, and delivery of knowledge in our educational system. This study addresses four issues of e-learning: development, accessibility, emerging technologies that bring a new dimension, and cost-effectiveness. The study concludes on the need for Administrators and stakeholders to review institution mandates if accessibility to quality education for sustainable development is to be an achievable goal through e-learning in our institutions.

**Key words:** E-learning, technology, accessibility

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### 1. Introduction

E-learning can be described as the ability of a system to electronically manage, support, transfer and monitor learning resources and materials for effective acquisition of knowledge and testing of the knowledge acquired (Olafsen & Cetindamar, 2005). Urh et al., 2015 defined e-

learning as information and communication technologies used to support students to improve their learning. Valsamidis et al., (2014) described e-learning as delivery and management of teaching, training and learning by electronic means with an important goal of making it more effective, better or equivalent to traditional modes of delivery offered through classroom-

based or face to face methods of instruction. From the oxford dictionary, “e-learning is defined as a learning system based on formalized teaching but with the help of electronic resources.” It can also be described as the mode of delivery of information for educational and training purposes through telecommunication technology (Sun et al., 2008). E-learning is a fundamental part of the students’ learning experience in higher institutions and due to the advent of the COVID-19 pandemic, e-learning has recently become an integral part of the learning process of educational institutions at all levels.

Teaching can be done in a school and an out of school setting with the use of the internet and computer being major components of e-Learning. The emergence of e-learning and online learning are mostly used synonymously, while other terms such as learning by correspondence education, distance education, open learning, distributed learning, and the virtual classroom are interpreted differently. An effort is made in this section to define and clarify the terms as available in the literature to clarify any misunderstandings which may be associated with the terms used throughout this study. The following terms are defined as used in the study;

**Correspondence Education:** In the context of this study, correspondence education is referred to as a study in which communication occurs through writing and postal services through which students and learning facilitators exchange information or learning contents. (Wang & Koiwa, 2021).

**Distance learning:** Merriam Webster defines distance education as, “a method of study where teachers and students do not meet in a classroom but use the Internet, e-mail, mail, etc., to have classes.” Simply put, distance education is when students are separated from teachers and peers.

**Distributed learning:** This is the use of digital networks to ensure interaction between students and facilitators of learning, and resources without the constraints of geography and time (Beznosikov et al., 2020).

**Open learning:** This is a system of learning which gives opportunities for learners to study at their own pace, time and space using varieties of instructional materials and methods ranging from classroom courses to independent study (Simpson, 2018).

**Virtual classroom:** It is a computer-mediated communication system for which is designed to create an enabling environment for teaching and learning. (Ajabshir, 2019)

The terms defined are related to correspondence education and the expansion of these terminologies is an indication of the growth and development of distance education.

## 2. The Development of E-learning

Willis (1993) mentioned that "Despite the higher visibility it has received in the past several years, distance education has been around a long time and is a direct outgrowth of earlier print-based correspondence study programs" (p. 8). Jenkins (1987) acknowledges that the fundamental origin of distance education is rooted in correspondence education. Barker et al., 1989, further concur "Distance education has its historical foundation in correspondence study" (p. 39).

Jenkins (1987) further states that the founding of the British Open University in 1971 marks the beginning of a new era. Literature had it that the first major public correspondence learning institution was the British Open University. The university is noted for a significant step forward

in the development and the growth of e-learning. Since the emergence of corresponding education it has continued to grow through print-based materials. However, between the 1980s and 1990s, it began to play a major role in learning by distance as technology advances.

The advent of the twenty-first century welcomed technological advancement which provided e-learning with necessary tools for reaching larger audiences and today's technology provides greater accessibility of education for all members of society. COVID-19 pandemic has further accelerated the development of e-learning. E-learning is part of the experiences and innovations that emerged as positives from the pandemic era.

### **3. Accessibility**

Bates (2005) mentioned that access to education is perhaps the most common rationale for the use of online education. The fact that e-learning has existed to provide access to education cannot be overemphasized. This section focuses on access to education with a specific interest in the people living in rural communities and the needs of today's society. It also focused on the need to recognize the varieties of delivery systems required, the challenges, and the independence of e-learning.

#### **3.1 Rural Communities**

Indeed, providing access to education and training for people in the rural areas includes providing quality and accessible education for individuals who can affect the entire communities' quality of life significantly and meaningfully in all ramifications (Astrakhantseva, 2021). It was further stated that the opportunities for lifelong learning are crucial to the survival of rural populations, whose problems of technological- advances, displacement from agricultural occupations, and unemployment all

require educational solutions. The inadequacy of training and lack of opportunities for the same only leads to deterioration of rural life in rural communities and relocation of people for better opportunities. It is noteworthy that access to quality education is a major key to different areas of growth and development in rural communities, and this includes economic growth and development. Providing accessible education through e-learning will be a major factor in the renewal process of the emergence of functional and educationally developed rural communities.

#### **3.2 The Growing Recognition**

"Increasing numbers of adults will need access to learning opportunities and continuing training in order to do their jobs and to be ready to adapt to changes in their job" (Misra, 2018). To facilitate students' accessibility to suit their needs, place of residence and constraints, a variety of delivery systems is needed. Makoe (2015) best summarizes accessibility and E-learning in this context by stating: "E-learning seems to offer solutions to all of these problems separately, and, probably uniquely, to offer a single solution to each of them simultaneously: access can be widened, to adult students or other desirable 'target groups, and at a most favourable set of costings"

#### **3.3 The Attractions and Barriers**

What attracts students to e-learning most, includes the fact that they: "'prefer to study in their own time', 'prefer to study at their own pace and 'prefer to study at home" (Moore et al., 2011). Parsons (2010) mentioned that students became distance learners because it allows them to learn at their own pace at home and to try new learning methods. The attractions to these new learning environments embodied what is known as the virtual classroom. Novychenko (2021) identified areas through which virtual classrooms will improve access to education. He identified the following points: Location; students are free and

comfortable to access their courses from anywhere in the world and within any institution. Time flexibility; it can be done at any time of student's choice and convenience (either day or night). No need to incur travelling expenses or accommodation costs. Students have the opportunity to share workspace, information and lastly, they have enabled an environment for equal opportunity to ask questions and make contributions.

Studies have also shown that the barriers to e-learning and online learning lie within the institutions. These barriers are identified as follows: invisible students which pose negative connotations, the never-ending school calendar, fiscal factor and traditional nature of the staff and (Pardanjac et al., 2009). Others include; limited offerings, equipment requirements, delayed feedback, textual skills, and technical skills (Sadeghi, 2019). Khurramov (2021) also found that "the barriers most commonly cited by adult learners are cost and lack of time".

### **3.4 The Independence of E-learning**

In general terms, one of the ways to reduce or remove the barriers of furthering education is to leverage the opportunity provided by e-learning. It solved the problem of accessibility to quality education and further studies for those whose life circumstances make it difficult or impossible to come to campus, (Williamson et al., 2020). It also offers the opportunity for the convenience of studying within the comfort of individual homes or preferred environments. Also, for individuals working or gainfully employed who want to improve their quality of life by acquiring more knowledge through further studies, e-learning gives such opportunities to learn without having to border themselves on either day or evening classes. It is important to note that access to education for people in the workplace could be their key to advancement and promotion at work, e-learning could be the only or best means of acquiring new skills and

certifications to earn a new post, or promotion (Dickey, 2005 & Clerk, 2020).

Accessibility to education through e-learning provides universities with a broader range of student population than ever before. Universities should consider e-learning as an opportunity to expand educational programs, and to make education relevant to people's lives. Onojetah, (2020) in his work on Challenges and coping strategies for enhancing the effectiveness of distance learning in achieving business education objectives remarks that taking education to people by offering them convenient and accessible educational opportunities in the comfort of their domains remains the best approach to ensure education for all members of society. This is productive and transformational in nature, it impacts the entire life of individuals and the society at large.

### **4. E-learning and Emerging Technologies**

This section reviews some of the most relevant technologies used in E-learning. It should be noted that this review is not an exhaustive list of emerging technologies in e-learning but an attempt to describe a few new platforms that have paved the way for e-learning in recent times.

E-learning itself is not a new idea but a lot of new technology has emerged in recent times to revolutionize learning through electronic means. These new technologies and learning tools are increasing, evolving and emerging on a day by day basis. The emergence of new technologies in today's educational system has provided alternative educational delivery systems for reaching out to students through e-learning. "Technology advances such as the Internet, teleconferencing systems, and interactive networked multimedia systems provide an effective means for facilitating faculty/student, student/content, and student/student communication, interaction, and involvement" (Vlachopoulos & Makri, 2019). The major shifts in

society today are a result of technological advancement and the emergence of new technologies. These advancements had increased the quest for knowledge, information generation and transmission, communication and accessibility of information in the growing population of today's society. (Mpofu & Nicolaidis, 2019). This is bringing revolutions in all areas of life including education and industry.

The networking technologies that apply to e-learning are the internet, teleconferencing, e-mail, and collaborative software. The growth of the internet specifically perhaps is the single greatest contribution to the communications explosion in the entire world (Langdon et al., 2021). Individuals can link one another, share information and collaborate across the globe via the internet. The advent of the World Wide Web along with the development of "web browsers," makes access to internet resources easy. Some universities already offer courses via the Web. Universities now have the opportunity to create new, exciting and conducive learning environments via e-learning.

Next on the list of these emerging new networking technologies is teleconferencing. Teleconferencing describes communication ability in real-time with one or more people at different locations. Basically, there are three types of teleconferencing: audio, audio-graphic and video. Videoconferencing, such as Google meet and ZOOM, is the most rapidly evolving platform making e-learning easier, engaging and effective in real-time.

Networks make access to learning resources possible for learners through established services that allow anytime or anywhere access to course materials and fellow students (Lin & Lin, 2019). Through virtual classrooms, courses are offered to give learners freedom of mobility. E-learning gives a prime opportunity for learning through the potentials of educational technology, and benefits enormously from the combination of

networking and mobile access for effective learning. (Mpofu & Nicolaidis, 2019; Lin & Lin, 2019; Onojetah, 2020).

With the emerging technologies came new methods of delivery and alternative methods of learning. This necessitates considering the best means of integrating the new technologies available for maximizing them for effective learning and total transformation of life, community and society at large. The individual ability to take advantage of the power of emerging technologies for maximum use for effective study depends largely on personal creative ability. The tide of education from traditional to E-learning is already changing.

#### **4.1 Benefits of Technology**

The benefits of technology in education as mentioned by Sarker et al. (2019) includes access to learning opportunities (in order words people can take advantage of the opportunity without restrictions). Learners' access to better information, improved resources and varieties of learning strategies through technology that addresses different learning needs. Further, technology can provide exciting experiences which could motivate learning and encourage higher levels of interaction amongst students, between teacher and student(s). From previous works, some suggestions emphasized the benefits of technology in education as follows; instructional method and medium are more effective, engage the students in the learning process (active learning) that promotes critical thinking, and study becomes individualized so that students can learn at their own pace. It was further stated that technology inspires students to learn, gives room for flexibility for students with special needs or disabilities, promotes cooperative learning, enhances communication skills and multisensory delivery which allows students to learn and assimilate knowledge at their own pace (Dumford & Miller, 2018; Rokanta, 2018).

## 4.2 Limitations of Technology

The paradox of access and technology is that e-learning is designed to promote access but reliance on technology may restrict access. In the study of Oliveira et al. (2018) the following limitations to technology are discussed. Challenges of gaps between those who can afford technology and those who cannot, quality of materials and programs, cost of development and effectiveness. Could it be cost-effective? Standardization of hardware is difficult in technology and hardware bought today can be obsolete tomorrow. Others include human contact and interaction, training of learners in terms of preparation for the use of both soft and hard wares. No doubt as technology evolves, it will continue to influence the entire events of life including the way of life and academic pursuit. Hence the need for educators to adapt to changes and to ensure technologies are used properly to effect changes we desire to see in academic the system. Barron and Orwig (1997) mentioned that "Technology can also provide an excellent avenue for student motivation, exploration, and instruction in a multisensory, diverse world. Technology, however, is only a tool. The challenge rests with educators to effectively integrate it in appropriate places throughout the curriculum". It is important to note that man created technology and not the other way round, hence as technology evolves it is possible to control, manage and channel it rightly to achieve creativity and maximum productivity for the benefit of mankind. Technology can be maximized for effecting e-learning at all levels and creating an enabling environment for education for all.

## 5. Cost-Effectiveness: An Exploration

Many variables affect the cost-effectiveness of e-learning systems. Riedling (2020) mentioned that the "cost structures of distance and traditional education are so different that those setting up distance systems experience considerable difficulty in describing the operation and economies of their institutions to officials in government and funding agencies". The traditional system and e-learning system could be different in their objectives. The two systems may be designed in ways to teach students with different subjects or possibly the same subjects in different ways but the outcomes and quality of learners produced in both systems may come out differently. Stakeholders in education must be clear on goals to be achieved in each system. In another related study, it was mentioned that programmes goals had to be established, specific technologies for achieving the goals needs to be selected, and these should be followed by budget formulation. The institution must then consider the budget considering both fixed and variable costs for the e-learning system intended for achieving the educational objectives. (Li, 2017).

Further costs to be considered are students' related costs which include the costs of materials supplied to students, cost of facilitation and payment of tutors for face to face contact, setting and marking of examinations and assignments. (Riedling, 2020). It should be noted that the cost would be higher if more materials are given to students, while the cost per student of tuition varies depending on the hour of tuition given, and the student-tutor ratio (Li & Wang, 2021; Riedling, 2020). It is pertinent to note that, with many variables involved there is no guarantee that e-learning entirely could be cost-effective, but it only promises the potential of being cost-effective when other factors are properly put in place.

Research and development of courses are expected to be a major focus on informing budget models and educational objectives. The institutions must be clear with the courses to be offered through e-learning platforms. Efforts should be put in place to ensure the three domains of learning; cognitive, affective and psychomotor are properly catered for while planning the objectives, methodology and transmission of e-learning. Further, the institution should consider the following points while planning; the target group to reach, students' willingness to offer the course through e-learning, the number of students, among others. This definitely helps in determining the cost-effectiveness of e-learning for the academic system Berigel (2017), further points out, "Many studies fail to take into account continuing personnel costs and the financial implications of developing and maintaining the required technical infrastructure. While the e-learning system may be cost-effective, it is never inexpensive" (Dumford & Miller, 2018).

The prospect for E-learning to become cost-effective depends on the institution's educational goals. Chatterjee et al., (2020) opined that the quality and extent to which educational goals are achieved through e-learning depend greatly upon economic realities, educational priorities and missions of the institution. If e-learning is to be a top educational priority, then the educational goals of the institution must reflect this reality. One important question for institutions is, "Can e-learning provide the means to do more with less?" For this question to be properly answered then the university should pursue well-defined mission statements, educational goals, budget planning, well-structured program and course objectives along with the commitment of universities toward e-learning. Commitment and time will be one way in which the exploration of e-learning can be determined as cost-effective for universities (Babu, 2018).

## 6. Conclusion

Studies have shown that e-learning has been in use for a while. Since its advent, the tools for maximizing e-learning have evolved in different forms at different times. Technological advancement in recent years presents e-learning with new and appropriate tools to meet the present-day demands, especially in the education sector providing better access for students and tutors for effective teaching-learning programmes. The evolving nature of tools for e-learning also pose more challenges and tasks on institution administrators to create a conducive environment for e-learning by upgrading the old facilities with current technologies for effective dissemination and transmission of learning objectives, contents and subject matter. With this came the challenge of cost-effectiveness in providing a sustainable and efficient e-learning platform in the university. As much as technology is a tool for providing effective access to educational resources and for achieving educational goals, it can also be a hindrance to effective delivery if not properly managed, due to cost and some other factors.

Literature also revealed that with e-learning the problem of accessibility to quality and affordable education is solved. For example, people living in rural or remote communities who could not access education through traditional means can now access one through e-learning. Further, it also affords learners to study within individual space, time, pace and comfort especially for those who for work, family and other reasons could not for traditional education.

With this came a challenge for the university stakeholders to find a balance in creating appropriate access technology and a cost-effective e-learning system for effective delivery of desired learning objectives, contents, and subject matter to produce academically sound students in whom educational goals and values are achieved.

Within the last decades in the century, the growing need for greater access to education had been recognized by stakeholders in education and especially in the university. This necessitates taking critical decisions concerning the accessibility of education for students. E-learning offers opportunities for quality and affordable education to members of society. It is imperative on the part of the education providers, stakeholders and university administrators to ensure its availability, accessibility and cost-effectiveness.

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