

## E-Education: An Introduction

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### ABSTRACT

E-education or e-Learning is the process of sharing knowledge through various channels such as e-books, CDs, webinars, etc. Its main aim is to use digital technologies to enhance education. This new model of learning is radically changing our concept of education. It has revolutionized the conventional method of chalk and board style of learning. Today, e-Learning is adopted in almost all training institutions, in both the public and private sectors. This article provides an introduction to e-Education.

**KEYWORDS:** *electronic learning, e-learning, e-teaching, electronic education, e-education, online education, distance learning*

**How to cite this paper:** Matthew N. O. Sadiku | Paul A. Adekunle | Janet O. Sadiku "E-Education: An Introduction" Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-7 | Issue-4, August 2023, pp.813-820, URL: [www.ijtsrd.com/papers/ijtsrd59812.pdf](http://www.ijtsrd.com/papers/ijtsrd59812.pdf)



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### INTRODUCTION

A global revolution is currently taking place in education at all levels. It is driven by the changing nature of work, the realities of the information age, new global partnerships and the growing awareness of the need for equal distribution of educational opportunities. The 21st century has been declared to be the age of information and communication technology (ICT). Educational systems worldwide insist on using information and communication technologies (ICT) to teach students. Our world is changing, and information and communication technology (ICT) is central to this change.

The expansion of ICTs is driving significant changes in many aspects of human endeavor throughout the world. Digital media has revolutionized the information society-and advances in ICTs have dramatically changed the learning and teaching process. The introduction of ICT to our schools will create new possibilities for learners and teachers to engage in new ways of selecting, gathering, sorting, and analyzing information.

### WHAT IS E-EDUCATION?

The concept of e-education revolves around the-use of ICTs to accelerate the achievement of education goals. e-education is about connecting learners and teachers to each other and to professional support services, and providing platforms for learning. It is more than developing computer literacy and the skills necessary to operate various types of information and communication technologies. It is the ability to apply ICT skills to access, analyze, evaluate, integrate, present, and create new knowledge and information [1].

Developments in Internet and multimedia technologies are the basic enabler of e-Education, with content, technologies, and services being identified as the three key sectors of the e-Education industry. Many technologies are being used in e-Education: screencasts, ePortfolios, EPSS (electronic performance support system), web-based teaching materials, hypermedia, web sites and web 2.0 communities. discussion boards, collaborative software, e-mail, blogs, wikis, text chat, computer aided assessment, animation, simulations and games, electronic voting systems, etc. Most e-education

situations use combination of these techniques. Web-based training frequently includes interactive methods, such as bulletin boards, chat rooms, instant messaging, and videoconferencing [2].

Communication technologies used in e-learning are generally categorized as asynchronous or synchronous. Asynchronous activities use technologies such as blogs, wikis, and discussion boards. The participants may engage in the exchange of ideas or information without the dependency of other participants involvement at the same time. Synchronous activities occur with all participants joining in at once, as with an online chat session or a virtual classroom or meeting. Virtual classrooms and meetings can often use a combination of communication technologies.

The concept of digital natives has become popular, and there are certainly likely to be generational influences on the future of e-Education. Digital natives are those born after 1980. They are actively involved in performing day-to-day activities and learning using technology. Figure 1 shows digital natives experiencing e-learning over their laptops [3].

## TYPES OF E-EDUCATION

E-education is the delivery of education or any type of training by electronic teaching methods. There are several terms used today to describe e-education. These include e-learning, e-teaching, online learning, Internet learning, online education, distance education, etc. Let us take a closer look at online education, e-learning, e-teaching, and distance education.

**1. Online Education:** Virtually all public higher education institutions and a vast majority private for-profit institutions now offer online classes. By 2003, more than 1.9 million students were participating in online Education at institutions of higher education in the United States. Independent Student Media has developed a working curriculum that instructs students through an Interactive online textbook. Students generally appear to be satisfied with their online classes as they are with traditional ones. Online education inherits many of the advantages and disadvantages of textbooks and conventional teaching, but also introduces some of its own. A typical example of online education is shown in Figure 2 [4]. Technology has allowed for the development of various methods of delivery for e-learning to suit the various preferences and needs of learners. Companies have heavily invested in developing technology to improve e-learning methods. These companies are involved in the e-education market, including companies such as

New Horizons, SkillSoft, Knowledge Anywhere, Epic, LearnKey, TATA Interactive Systems, Transversale Network-TeN, Semanoor, BlueU, and LearningSteps.com. These companies are developing e-education products and leading innovators in the design and development of e-Education in the commercial world.

Online education has seen dramatic growth over the past two decades. An online course should have course rigor and coverage equivalent to a course taught in a traditional format. Perhaps the best example of this democratization of education is the provision of Massive Open Online Courses (MOOCs) in the early 2000s. These are free courses that several colleges offer and allow for unlimited participation by anyone worldwide. There are over 16,000 MOOCs and they have crossed 180 million learners worldwide.

**2. E-Learning:** In the beginning of the third millennium, a new form of learning called e-learning was introduced. E-learning (sometimes called web-based training, online learning, or technology enhanced learning) is anywhere, anytime instruction delivered over the Internet. It focuses on the electronic networks that allow learners to receive individualized support and have separate, flexible learning schedules. In e-learning, learners and instructors can be together in one place while using digital tools to enhance the learning experience. The term “elearning” was coined by Elliot Masie at his TechLearn Conference in 1999. The term can be used synonymously with web-based training or online tutoring. There are two types of e-learning: synchronous -- instructor-facilitated -- and asynchronous -- self-directed and self-paced. The e-learning decreases the educational costs and it is more effective learning than traditional learning. Globally, it allows the fast dissemination of new techniques and processes, canceling geographic challenges. Users can conveniently access training materials from home via the Internet. E-learning tools can provide training and education to large number of students with diverse cultural backgrounds and educational levels. In USA, e-learning has been more widely spread than in the rest of the world, and in Europe e-learning has tended to be focused in some European nations such as the UK, France, and Germany. Numerous universities worldwide are now offering e-learning sites (portal) for academic and administrative purposes. Blackboard and MOODLE are two popular web-based learning management systems widely used in education.

Blackboard is a hybrid teaching tool. It can be used by lecturers throughout the lecture to discuss ideas or identify main points. MOODLE stands for Modular Object-Oriented Dynamic Learning Environment, built by Martin Douglas at Curtin University, Australia. It is a free software package designed to help lecturers and students as a tool to provide in creation of quality teaching [5].

3. **E-Teaching:** Teaching and learning discourse has been changed. It is necessary for teachers in e-education environment to acquire sufficient knowledge about e-teaching and e-learning. While e-learning is centered on learner, e-teaching focuses on teachers. The term “teaching” is used in two ways: teaching as the teacher activities and teaching as the system of instructional activities. E-teaching is the system designed to improve teachers’ performance, and their self-regulation and motivation. It is the instructional system of processes and activities designed according to the ICT development, characteristics, and models of e-learning. Its service designs are aimed at supporting teachers to teach effectively in an e-learning environment. As shown in Figure 3, realization of e-teaching requires that the teacher has mastered the wide repertoires of knowledge and skills involved in the fundamental categories of professional competencies [6]. Teaching and learning activities can be done easily by students anytime and anywhere.
4. **Distance Learning:** Distance learning or learning from the distance has been introduced in medical curriculum and training. This is any educational or learning process in which the teacher and instructor are separated geographically or in time. It enables permanent learning or lifelong learning, where students can improve themselves professionally at place and time. Distance learning does not preclude traditional learning processes; it is used in conjunction with in-person classroom or professional training. Distance learning compared to the traditional way of learning have many advantages as well as disadvantages. Advantages of distance learning include: students have 24 hour access to needed information; they are given the opportunity to learn the subject in their own time and speed. Distance learning is a trend used in many developed countries [7].

## APPLICATIONS

Applying e-education or e-learning to all levels of schooling has helped to ensure students grasp the lessons adequately at a faster pace. It has worked

towards bringing together learners, tutors, experts, practitioners, and other interest groups. E-learning is an essential opportunity for many pre-primary and kindergarten kids to learn valuable lessons through the medium of online technology. Schools are also an ideal place for free e-learning for kids and distance learning in preschool, as they offer highly qualified educational experiences. We consider medical education and higher education as two common areas of application of e-education.

- **Medical education:** E-learning can be used to teach various topics in medical education, such as research, clinical skills, ethics, and professionalism. A wide range of e-learning modalities are widely integrated in medical education, which is considered a very significant strategy in ensuring the quality of health protection. This includes education leading to the first professional degree, clinical education which is the preparation for general medical, and obligatory continuous, life-long education of each doctor. The major aim of medical education is to educate doctors who are entitled to practice their profession with no restrictions, based on what they learned. Medical education process should include both biological and social sciences as a social/economic aspect of health care. Doctors are destined to lifelong learning. Expansion of Internet use in medicine is truly spectacular. Information technologies are becoming a tool today without which further education of both medical students and doctors is not possible. Within medical education, digital libraries have been established to manage access to e-learning materials. Some medical schools and healthcare organizations are already producing high-fidelity e-learning materials. Distance learning has been introduced in medical curriculum and training. It enables permanent learning or lifelong learning, where students can improve themselves professionally at place and time. Distance learning in medicine has impact on telemedicine and practicing medicine as well [7]. Figure 4 shows an example of using e-learning in medical training [8].
- **Higher Education:** E-learning is becoming increasingly prominent in higher education, with universities increasing provision and more students signing up. Higher education institutions worldwide have been pushed to experiment e-learning as the traditional class-based learning during Covid-19. Currently, higher education around the world is experiencing a major transformation, considering increased



accessibility. Knowledge is being created and implemented to the higher education setting with innovative ways to obtain and share information and changes in technology at a rapid rate. Flexibility is another major advantage of e-learning as it provides learners the benefit to take classes anywhere and anytime. It also provides equal access to the information regardless of the users' locations, their ethnic origins, races, and ages. E-learning ensures that students are completely involved as learning takes place together with texts, videos, sounds, collaborative sharing, and interactive graphics [9].

## BENEFITS

The popularity of e-learning or e-education has skyrocketed over the past decade. Developments in e-learning and technologies are creating the groundwork for a revolution in education. There are many potential benefits: teachers can reuse collaboratively prepared course materials; students can schedule their studies at their own convenience; and employees can participate in selected subunits for refreshers. Other advantages of e-learning are the ability to communicate with fellow classmates, a greater adaptability to learner's needs, more variety in learning experience with the non-verbal presentation of teaching material. Other benefits include the following [10-12]:

- **Convenience:** E-learning provides flexibility, convenience, and the ability to work at any place where an Internet connection is available and at one's own pace.
- **Student's Benefits:** The main advantages students get from e-learning include learner control, accessibility, availability, and personalization. E-learning ensures quick delivery of lessons. E-classes are asynchronous which allows learners to participate and complete coursework in accordance with their personal commitments. Students can take online sessions after work, in the evening, on the weekends, or whenever they are free. All they need is a proper Internet facility, computer or laptop, microphones, and headphones
- **Teacher's Benefits:** E-learning has become an important tool for teachers worldwide.
- **Cost Saving:** It is cheaper to study online. There are no traveling costs, there are no costs of relocating, and there is no need for expensive textbooks. All you need is your laptop or PC, and a good Internet connection.
- **Time Saving:** E-Learning saves time when compared to traditional ways of learning. Take

classroom-based learning, a lecture may be held for an hour a week, and students have to wait until another week for the next class. With e-learning, you can study when you want, as often as you want, in your own time. Also, e-learning courses can be much more fast-paced when compared to traditional forms of learning.

- **Broader Society:** Benefits to the broader society include increased opportunities for lifelong learning, communication and exchange essential to democratic living, and the creation of a pool of globally competitive human resources.
- **Literacy:** Society at large will benefit from an overall increase in literacy and perhaps even computer literacy. Female literacy remains low in developing nations.
- **Updated Content:** Everything changes with time. Online content can be updated and refreshed quickly and instantly. This way, learners can be updated with current trends.
- **Time-efficient:** Time is precious. It is estimated that e-learning can reduce learning time by between 25 and 60% compared to physical in-person learning. This is due to the fact that learners can fit learning around their own schedules and are not slowed down by the needs of other learners.
- **Everywhere Learning:** This separation of learning and geography is what defines eLearning and makes everything else possible. E-learning makes it easy for users to learn anytime, anywhere.
- **Affordable:** For employers, e-education offers an affordable, time-efficient way to train employees. In return, employees benefit from convenient training that enhances their skills and knowledge. The digital devices required for e-learning are affordable.

## CHALLENGES

E-education has its own pitfalls or challenges that must be considered. Critics of e-learning argue that the process is no longer "educational" in the highest philosophical sense. They also argue that technical issues with e-learning and the need for human contact limit its usefulness for students with other learning styles. To obtain the desired results online courses may require more time to prepare than traditional offline courses. For many courses, online materials must be updated regularly to remain timely. The challenge is to transcend the mere exchange of information and to transform e-education into a range of learning activities that meet educational objectives.

Although complex pedagogical approaches have the potential to provide more engaging learning experiences for students, they can be difficult to setup and slow to develop. Other challenges include the following [14]:

- **Internet Connection:** Technological failures can affect the performance in the course. Reliable access and a good Internet connection allow a positive experience in online training and make the most of the course.
- **Investment:** The challenge of providing modern technologies to schools in order to enhance the quality of learning and teaching will require a significant investment. The public and private sectors must join hands to ensure that our children receive high-quality learning and teaching. We want all learners to benefit from this investment.
- **Digital Divide:** This occurs in a world experiencing increasing disparities between the rich and poor, between developed and developing nations. This challenge presents itself within the context of globalization and polarization. It can be regarded as an opportunity to take best practices to the rest of the world and make it applicable in the best possible ways for the people. Figure 5 shows some of those living in digital divide [15].
- **Cheating is Unavoidable:** E-learning includes assessment, just like in a regular classroom setting. However, there are no teachers or proctors to watch over the student during exams. It is easy for online students to cheat and share answers knowing there is nobody watching.
- **Isolation:** Among the students, the lack of face-to-face interaction in their studies is the major disadvantage of e-learning. There is no socializing included in digital learning several students who study through digital mode. Many students feel a sense of isolation and become depressed. This is due to little to no human contact and socializing with peers. Both students and teachers alike are prone to loneliness in virtual learning.
- **Lack of Basic Needs:** Lack of access to basic needs such as food, shelter, clean water, electricity, and security has effect on student's ability to fully participate in online learning while at home, especially in developing countries.

## CONCLUSION

Electronic learning is used to offer instructional programs to distant learners. It has been viewed as the ability to focus on the requirements of individual learners. The implementation of e-learning or e-education in education has been favorable. E-learning

is an effective and affordable tool to transfer knowledge and it has the potential for overtaking the traditional teaching method.

The future of e-education or e-learning is very bright. It has many benefits and holds great promise for the future of training and education. Its demand will increase as more people realize how convenient it can be to study or advance their education. Future education can be expected to require a deeper technological connection between students and learning environments, in a manner requiring significant use of sensors, mobile devices, cloud computing and rich-media visualization [16]. More information about e-education can be found in the books in [17-26] and the following related journals:

- Journal of Education and e-Learning Research
- The Turkish Online Journal of Educational Technology
- Electronic Journal of e-Learning
- The Journal of Open, Distance and e-Learning
- International Journal of e-Education, e-Business, e-Management and e-Learning
- International Journal of Innovative Science and Research Technology
- International Journal on New Trends in Education and Their Implications
- International Journal of E-Learning & Distance Education

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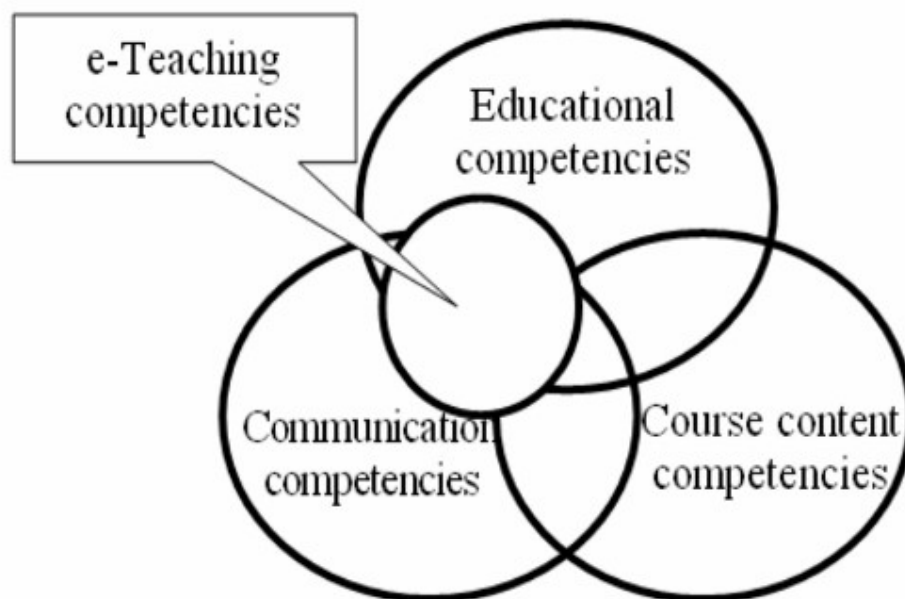


**Figure 1 Digital natives experiencing e-learning over their laptops [3].**





**Figure 2** A typical example of online education [4].



**Figure 3** Structure of teachers' competence [6].



**Figure 4** An example of using e-learning in medical training [8].



**Figure 5 Those living in digital divide [15].**

