E-LEARNING FOR SUSTAINABLE OPEN AND DISTANCE LEARNING IN NIGERIAN EDUCATIONAL SYSTEM

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Abstract
The recent efforts by government in the area of education cannot be over emphasized. On the other hand, the rapid development in E-learning in recent years have resulted in significant changes in the way the world operates and communicates. This in turn, has had an impact on educational needs, both in terms of the content and the delivery of educational services. This paper highlighted the usefulness of E-learning in open and distance education, the paper also identified some challenges militating against the use of this technology in the education sector and made useful suggestions to combat them.

Key words: E-learning, Sustainable, Open and Distance Learning, Educational System.

Introduction

Around the world, application of information and communication technologies (ICTs) are making dramatic changes in economic and social development. These changes go beyond a mere increase in the number of computers appearing in work places, homes and schools, to more fundamental changes in the foundations of economic growth and their relationship capital according to Kozma (2012), these tectonic economic and social changes have been characterized by term such as "knowledge economy" and "learning society", conveying the notion that knowledge and learning are now at the core of economic productivity and social development behind these terms is a new conception of the relationship between knowledge and society (DECD, 1999). From this new perspective, knowledge is both the engine and product of economic and social development. Knowledge is dynamic, rather than static, and the production of knowledge has more valued than knowledge acquisition alone.

Education is of course, at the core of the knowledge economy and learning society, correspondingly, the role of ICTs in schools is shifting dramatically. The traditional role of ICTs has been that of a minor curricular subject, sometimes called information computer literacy, or keyboard.

Alternatively, it has been used as an instructional aid (ie computer assisted instruction) to help students learn other subjects, such as mathematics or sciences.However, in some countries, ICTs are now at the centre of education and efforts that involve its use in coordinating with changes in curriculum, teacher training assessment countries like Singapore, chile, the United State and Norway have taken the position that the integration of ICTs into classrooms and curricular can improve educational systems and prepare students for the 21st Century Learning Society (Ministry of Education, Singapore, 2000; Ministry of Education, Research and Church Affairs, Norway, 2000 and others). Similarly, multinational organizations such as the organization for Economic Cooperation and Development, the European Commission (1995, 2000), and the G-8 Nations (2000) have identified the need to prepare students for lifelong learning in the knowledge economy and they assign a central role in accomplishing the goal (G8 Nations, 2000; European Commission 1995, 2000, and DECD 1998, 1999).

But how are these development affecting education in the larger number of countries. How are they affecting what teachers and students are doing vis-à-vis learning in schools? And can these developments benefit teachers and students in both developed and developing countries alike? This paper briefly review the concept of E-learning in a sustainable open and distance education.

Concept of E-learning

The concept of e-learning, or electronic learning, refers to the use of electronic technology primarily the internet, to facility and deliver educational content and instruction. It involves the integration of digital resources online platforms, and various interactive tools to support teaching, learning and assessment processes. The core idea behind e-learning is to make education more accessible, flexible, and interactive, enabling learners to engage in educational activities remotely and at their own pace.

On the other hand, e-learning is the delivery of a learning, training, or education program by electronic means. It also involves the use of a computer or electronic device (e.g. a mobile phone) in some way to provide training, educational or learning material Marcia L. Conner posted that e-learning is the use of digital technologies to create, deliver and enhance learning experiences it encompasses a wide array of learning methods including online and, classroom training, webinars, podcast, social media, and mobile learning E-learning can include online courses, virtual classrooms, multimedia" presentations, interactive quizzes, discussion forums, and other digital learning resources.

In e-learning process, the teacher / instructor will deliver his/her lesson to a large number of student verbally without being present in the classroom. At the end, the teacher will access them to know if they actually participated discussions, and at the same time allow

the students to interact with him/her, through asking questions on what they have learnt for clarity, because it is not like a normal classroom lesson.

During this e-learning process the instructor will give them assignment and ask them to submit the assignments. This E-learning process will provide flexibility, convenience, and personalized learning experiences through self-paced modules, multimedia resources and interactive activities. This E-learning platform can occur in both formal educational settings such as schools and university as well as informal setting for professional development or personal interest, furthermore, through this seamless and efficient assessment mechanisms, assignments, quizzes and exams can be administered online, allowing educations to provide timely feedback on learner performance, automated grading systems and analytics grading systems and analytics that will enabling educators to track learner progress, identify areas for improvement and tailor instructional interventions accordingly.

Importance of E- learning for sustainable open & distance education

E-learning plays a crucial role in promoting sustainable open and distance education by offering several important benefits. Here are some distance education: key reasons why e-learning is important for sustainable open and

Accessible Education: E-learning provides increased accessibility to education, especially for learners who face barriers such as geographical distance, physical disabilities, or time constraints. It enables individuals to access educational resources and participate in learning activities from anywhere in the world, leveling the playing field and expanding educational opportunities.

Flexibility and Personalization: E-learning allows for flexible learning schedules and personalized learning experiences. Learners can access content at their own pace, revisit concepts as needed, and engage with interactive materials that cater to their individual learning styles. This flexibility accommodates diverse learner needs and promotes lifelong learning.

Cost-Effective Solution: E-learning can offer significant cost savings compared to traditional brick-and- mortar educational institutions. It reduces expenses associated with transportation, accommodation, and physical infrastructure. Additionally, e-learning can leverage open educational resources (OER), which are freely available, adaptable, and affordable, further reducing the financial burden for learners.

Sustainability and Environmental Impact: E-learning minimizes the carbon footprint associated with traditional education methods. By eliminating the need for physical transportation, reducing paper consumption, and utilizing energy-efficient technologies, e-learning contributes to environmental sustainability. It aligns with the principles of

sustainable development by promoting resource conservation and reducing greenhouse gas emissions.

Continuous Professional Development: E-learning allows professionals to engage in continuous learning and update their skills conveniently. Through online courses, webinars, and virtual training programs, individuals can enhance their knowledge and competencies related to their fields, keeping up with the devolving demands of the job market and fostering lifelong learning.

Multicultural and Global Perspectives: E-learning facilitates collaboration and interaction among learners from different cultural backgrounds and regions. It promotes cross-cultural understanding, fosters global connections, and encourages the exchange of knowledge and ideas. This multicultural learning experience enriches educational outcomes and develops a global perspective among learners.

Scalability and Reach: E-learning technology enables educational institutions to reach a larger audience and scale their programs efficiently. With e-learning platforms, educational content can be easily replicated and distributed to learners worldwide, thereby expanding the reach of educational opportunities and contributing to the democratization of education.

Overall, e-learning is vital for sustainable open and distance education as it democratizes access, enhances flexibility, reduces costs, promotes environmental sustainability, supports lifelong learning, fosters global engagement, and enables scalable and inclusive educational approaches. By harnessing the potential of e-learning, open and distance education can become more sustainable, inclusive, and impactful in addressing the educational needs of diverse learners.

How E- learning helped in open & distance education

E-learning has played a significant role in enhancing and transforming open and distance education here are some ways in which e-learning has helped in open and distance education:

Increased Access: E-learning has expanded access to education for individuals who are unable to attend traditional classrooms due to geographical distance, time constraints, or other factors. Through e- learning platforms and online resources, learners can access educational materials and participate in learning activities from anywhere in the world, breaking down barriers and providing opportunities for lifelong learning.

Flexible Learning Environments: E-learning offers flexible learning environments where learners can study at their own pace and according to their individual schedules. This flexibility is particularly beneficial for adult learners, working professionals, or individuals with family responsibilities. Learners can access course materials, engage in

interactive modules, and complete assignments at their convenience, enabling them to balance their personal commitments with their educational pursuits.

Diverse Learning Resources: E-learning harnesses a wide range of digital resources and multimedia tools to facilitate learning. Open educational resources (0ER), such as open textbooks, videos, and interactive simulations, are freely available for learners, providing a rich and diverse array of learning materials. These resources enhance engagement, support different learning styles, and enable learners to explore concepts from multiple angles, thereby promoting deeper understanding and knowledge retention.

Interactive and Engaging Learning Experiences: E-learning utilizes interactive technologies and multimedia elements to create engaging and immersive learning experiences. With features such as quizzes, discussion forums, and interactive simulations, learners can actively participate in the learning process, collaborate with peers, and receive immediate feedback. This interactivity enhances learner engagement, motivation, and knowledge application.

Personalized Learning: E-learning platforms often incorporate adaptive learning technologies that can personalize the learning experience based on individual needs and preferences. Learners can receive customized learning paths, recommendations for additional resources, and tailored assessments. Personalized learning promotes learner autonomy, addresses specific learning gaps, and ensures that educational experiences are aligned with each learner's abilities and goals.

Communication and Collaboration: E-learning platforms facilitate communication and collaboration among learners, instructors, and peers. Discussion forums, chat features, video conferencing, and other online communication tools enable learners to engage in meaningful discussions, share knowledge, ask questions, and receive guidance from instructors and fellow learners. Collaborative learning experiences foster a sense of community and social interaction, even in distance education settings.

Continuous Learning and Professional Development: E-learning has revolutionized continuous learning and professional development opportunities. Professionals can access online courses, webinars, and virtual training programs to upgrade their skills and stay up-to-date with industry trends. E-learning.

Open education

Open education focus on making educational resources freely available and accessible to anyone, regardless of their location or formal qualifications. It promotes the sharing, use, and adaptation of openly licensed learning resources fostering collaboration and knowledge exchange, open education is characterized by two complementary principles; the removal of barriers to learning and the provision of flexible learning opportunities for

all individuals. It aims to make education accessible, inclusive, and affordable by promoting open access to educational resources, open licensing, and open pedagogical practices. Open resources (OER), such as open textbooks, open courseware, and open online courses, are freely available for anyone to use, adapt, and shares open education encourage collaboration, knowledge- sharing, and the development of open communities. It emphasizes the importance of learners' autonomy and empowerment, fostering a culture of lifelong learning and openness in education.

Distance Education

Distance education is sometime called correspondence education, correspondence college, distance learning, home study, independent study, open learning and external studies (Arger, 1987; Ingwu, 2005). By whatever terminology so designated, distance education remains essentially, a mode, form or method of orchestrating education delivery that involves the teacher and the learner who are separated by time and space (Blue print on open and Distance Learning Programmes 2002; National Policy on Education (Federal republic of Nigeria 4th ed) 2004; Enemuo Onwuka, 2006). It is an education organized and conducted using time-tested technologies that are capable of delivering education to students who are psychically present to receive it from their teachers. Occasionally, provision is made for a face-to-face discussion and clarification of some gray area.

The mission of distance education includes openness and flexibility whether in terms of access, curriculum or organization and methods, communication patterns, and the use of various technologies in support of learning, (UNESCO, 2002). In distance education, the various teaching methods adopted are learning contract, independent studies, flexible and guided self-study while the processes of teaching and learning are done through a wide range of technology options namely. The post service, the print, television, voice interactive audio tools such and short- wave radio video (which involves instructional video tools such a slide, films and video tapes), computer (which include e-mail, fax, real time computer conferencing, internet and world wid web application); and pocket mobile learning system which facilities students access to materials stored on a mobile device or through a wireless saver, etc.

The adoption and deployment of distance education delivery system in Nigeria is justified on several ground. These include the provision of education for all and the promotion of lifelong culture of outreach or satellite campuses, cost effectiveness, flexibility the delivery system; maximum utilization of a academic personnel, Enemuo and Onwuka (2006), gave reasons to include the fact that students are enabled to complete their programmes at their own convenience. This is owing to the asynchronous characters in lecture fixture which does not allows candidates to attend lecturers at fixed times and

places. Thus, students can use the facility of the internet and pocket to access the much needed education programmes online while staying in the comfort of their homes or without getting their job. Working adults have even completed their higher degree programmes without having to face the demand of high cost of travelling and living abroad or the stringent visa requirements, which are the hallmark of many western countries. Attaining education in this way means no more day care fees to cateress because the needed information is now home received with the kind at home. The disabled and enthusiastic senior citizens are equally able to draw from this latent advantage.

More striking is the greater guarantee on technological competencies that candidates of distance education enjoy as a result of their exposure to and use of present day information and communication technology systems. This ensures that they remain active and self-directed in their earning environment.

Furthermore, open and distance education is characterized by the flexibility, enabling learners to study at their own pace and convenience. It offers employees self –directed learning approaches and may incorporate elements of e-learning, such as online platforms and digital resources, to facilitate students' engagement and interaction.

Concept of Education

Education can be seen as a systematic process of acquiring knowledge, skills, values and attitudes through teaching, learning or research Ayodele (200) explains that education is the process whereby one acquires the knowledge, attitudes abilities and skills which adapt him to the society in which he lives. According to Macronnis in Azikiwe (2008), is a race course. The transmission of what is worthwhile from generation and the various skills, as well as cultural norms and values to its own members. It is a lifelong process that prepares individual to understand the world, develop critical thinking abilities, and contribute to personal growth, social development, and the advancement of society as a whole.

The primary goals of education include the transmission of knowledge, the development of cognitive and intellectual abilities the fostering of social and emotional skills, and the cultivation of ethical values and responsible citizenship. It aims to equip individuals with necessary tools and competencies to navigate the complexities of the modern world, pursue personal fulfillment and contribute to the betterment of the society. The idea behind e-learning is to make education more accessible, flexible and interactive, enabling learning's to engage in educational activities remotely and at their own pace.

Above all, e-learning refers to the use of electronic technology for online experiences, open education focuses on accessibility and open resources, and distance education refers

to education for learners who are physically separated from instructors. While they may overlap in some aspects and can implement each other, they represent different approaches and perspective in leveraging technology for educational purpose.

Distance education is fraught with problems of electricity, access and affordability, poor postal services poor radio and television services. Many third world countries do not have stables electricity supply. The poor and uncertain reception of television or radio broadcast by distance education subscribes occasions by disruption of electricity supply and use improvised power services is not imaginable. Literature has it that distance education programme will be running without the subscribes knowing or having an inkling as to when to turn on their gadgets (Arger, 1987). Again resorting to the use of batteries and other auxiliary power sources such as generator set are, according to Enemuo and Onwuka (2006) uneconomical.

The access factor points to the need of having in place the basic information and communication infrastructure such as telephone, television, personal computer, etc. in the running of distance education statistics has it that fixed telephone penetration in Nigeria 8 per 1, 000 people and the density of mobile subscribes is 66 per 1,000. The density of internet users is 7 per 1,000 that of personal computer is 6 per 1,000 while television penetration is 26% of the house-holds in a population of approximately 140 million people (World Bank, 2006). For any effective online learning, one must own a computer with access to the internet.

Affordability is linked to access and both have close connection with availability of enabling infrastructure. Availability in Nigeria is determined by economic barriers, constraints in technology, and lack of enthusiasm owing to government policy. Affordability and access is further accentuated by high import dependency. The average annual per capital income in sub-Saharan Africa is placed at US $490 which is below the animal cost for 20 hours of dial-up internet services per month in developed countries which is approximately placed at US $720 (Enemuo and Onwuka, 2006). With such situation prevailing, provision of distance education in Nigeria using the internet will be at an enormous cost.

Roles of E-learning in open and distance education

Here are some ways in which e-learning has helped in open and distance education,

- **Increased Access:** E-learning has expanded access to education for individuals who are unable to attend traditional classrooms due to geographical distance, time constraints or other factors. Through e-learning platforms and online resources, learners can access educational materials and participate in learning activities from anywhere in the world, breaking down barrier and providing opportunities for lifelong learning.

- **Flexible learning environment:** E-learning offers flexible learning environments where learners can study at their own pace and according to their individual schedules. The flexibility is particularly beneficial for adult learners, working professionals, or individual with family responsibilities, learners can access course materials, engage in interaction modules, and complete assignment at their conveniences enabling them to balances their personal commitments with their educational pursuits.
- **Diverse Learning Resources:** E-learning harnesses a wide –range of digital resources and multimedia tools to facilitate learning. Open educational (ofor) such as open textbooks, videos, and interactive simulations, are freely available for learning providing a rich and diverse array of learning materials. These resources enhance engagement, support, different learning styles, and enable learners to explore concepts from multiple angles, thereby promoting deeper understanding and knowledge retention.
- **Interactive and Engaging Learning Experiences:** E- learning utilizes interactive technologies and multimedia elements to create engaging and immersive learning experiences. With features such as quizzes, discussion forums, and interactive simulations, learners can actively participate in the learning process, collaborate with peers, and receive immediate feedback. This interactively enhances learner engagement, motivation and knowledge application.
- **Personalized learning:** E-learning platforms often incorporate adaptive learning technologies that can receive customized learning paths, recommendations for additional resources, and tail lord assessments, personalized learning promotes learner autonomy, address specific learning gaps, and ensures that educational experiences are aligned with each learners abilities and goals.
- **Communication and collaboration:** E-learning platforms facilitate communication and collaboration among learners, instructors, and peers discussion forums, that features, video conferencing and other online communication tools enable learners to engage in meaningful discussion, share knowledge, ask questions, and receive guidance from instructors and fellow learners. Collaborative learning experiences foster a senses of community and social interaction, even in distance education settings.
- **Continuous Learning and Professional Development:** E-learning has revolutionized continuous learning and professional development opportunities. Professionals can access online courses, webinars and virtual programs to upgrade with industry trends. E-learning platforms offer a wide range of specialized courses and certifications, ensuring that professionals can pursue targeted learning pathways to enhance their careers.
- **Assessments and Feedback:** E-learning platform provide seamless and efficient assessment mechanisms assignments, quizzes, and exams can be administered

online, allowing educators to provide timely feedback on learner performance. E – learning platforms often leverage automated grading systems and analytics, enabling educators to track learner progress, identify tailor instructional interventions accordingly.

In the current era of technological advancements, there is a glowing need for effective e-learning platforms in open and distance education system to ensure sustainability. However several challenges hinder the successful implementation and utilization of e-learning in this context.

Some Challenges militating Against e-leaning System of Education

One major problem is the lack of access to quality internet connectivity and digital infracture in many remote areas or developing countries, limited access to reliable internet services poses a significant barrier to the successful adoption of e-learning in these regions. This inequitable access prevents learners from engaging fully with education content and resources available online, leading to a limited impact on their educational outcomes. Another challenge is the insufficient training and capacity building programs for educators involved in open and distance education. Many teachers and instructors lack the necessary skills and knowledge in utilizing e-learning platforms effectively, inadequate training prevents them from fully exploiting the potential of e-learning to enhance teaching methodologies and promote interactive learning experiences.

Additionally, lack of digital literacy among learners is a significant obstacle. Many students may lack familiarity with using digital devices, navigating online platforms, and effectively utilizing digital resources. This results in difficult material and resources, limiting learner engagement and hind the overall effectiveness of the educational experience.

Furthermore, the issue of scalability and sustainability of e-learning platforms in open and distance education arises, implementing and maintaining these platforms require continuous financial resources and technical support. The availability of funding and long term sustainability plan often remains a challenges, resulting in a lack of consistent and reliable e-learning services. Overall, the summary of the problems highlights the need to address issues related to internet access, technological infrastructure, educators training, digital literacy, and sustainability in order to promote effective and sustainable e-learning in open and distance education systems.

How sustainability help to sustain open and distance education

Sustainability and environmental impact

Sustainability

Sustainability refers to the facilities and resources availability that can be obtained through reduced costs while increasing organizational income, returns on investment and surplus. Technology based learning system that promotes lifelong learning while achieving economic development that promotes lifelong learning while achieving economic development that promotes cost sawing and expands returns of investment and surplus. Technology based learning system that promotes lifelong learning while achieving economic development that promotes lifelong learning while achieving economic development that promotes cost saving and expands return of investment.

The concept of sustainability in e-learning and distance learning refers to the practice of conducting education and training programs in a manner that minimizes negative environmental, social, and economic impacts while maximizing positive outcomes. It involves the implementation of strategies and practices that ensure the long-term viability and well-being of individuals, communities, and the planet.

Here are some key aspects of sustainability in e-learning and distance learning:

1. **Environmental sustainability:** This focuses on reducing the environmental footprint of e-learning and distance learning activities. It involves using energy-efficient technologies, minimizing waste generation, promoting paperless practices, and adopting renewable energy sources.

2. **Social sustainability:** This involves promoting inclusive and equitable access to education and training opportunities through e-learning and distance learning platforms. It ensures that all individuals, regardless of their background, location, or socio-economic status, have equal opportunities to benefit from these learning methods.

3. **Economic sustainability:** This aspect revolves around ensuring the affordability and cost-effectiveness of e-learning and distance learning programs. It involves using open-source software and resources, encouraging partnerships and collaborations, and offering financial support to individuals who may face barriers to accessing education and training.

4. **Pedagogical sustainability:** This refers to designing e-learning and distance learning programs that promote effective learning outcomes. It involves incorporating active learning strategies, fostering critical thinking skills, providing

personalized feedback, and utilizing interactive and engaging multimedia resources.

5. **Ethical sustainability:** This focuses on fostering ethical practices and values in e-learning and distance learning initiatives. It involves promoting academic integrity, respecting students' privacy and data protection rights, and adhering to ethical guidelines in the development and use of educational materials and technologies.

6. **Continuous improvement:** Sustainability in e-learning and distance learning also entails a commitment to continuous improvement. This involves regularly evaluating and improving the quality, effectiveness, and impact of educational programs, incorporating feedback from learners and stakeholders, and adapting to evolving technological, social, and cultural contexts.

Overall, the concept of sustainability in e-learning and distance learning emphasizes the integration of environmental, social, economic, pedagogical, ethical, and continuous improvement principles to create educational programs that are both impactful and sustainable over the long term.

Conclusion

Open and distance education is gaining recognition both nationally and internationally as a credible alternative to traditional or conventional mode of education. It also makes education accessible and reduces cost while maintaining quality. The use of open and distance learning makes for equity of educational opportunities and services. It has become fully integrated into the Nigeria higher education system. It is however observed that the potential of distance education as a means of improving access has not been explored at the universal basic education level. However despite the innumerable advantages accruing from the aims and objectives of open and distance learning, achieving these can only be made possible when the problems of low teledensity, electricity, inconsistency in programme and policy implementation, poor economy, absence of trained teachers, poor postal system, bad public image, are no longer prevalent in the system.

Recommendation

The recommendations need to implement in order to improve the situation within the area of open and distance education.

1. There should be academic collaboration between Nigerian federal universities and open and distance education learning institutions in Nigeria.
2. Provision of the enabling environment and adequate ODL facilitates for successful and effective ODL service delivery.

3. Management should admit students in line with the available resources on the ground and make the criteria for admission of students to be in line with conventional institution.
4. The enthusiasm shown by government and steps take so far can only be sustainable with the involvement of all stakeholders (government, business groups, community leaders, teacher, student, conventional institutions, UNESCO and grassroots citizen.
5. Provision of adequate power supply. The government should subsidize open and distance education programme and improve the electricity supply to the nation.

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Journal of Information System and Digital Technology vol. 2, No2, 2020

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