APPLICATION OF E-LEARNING FOR SUSTAINABLE EDUCATION OF PERSONS WITH SPECIAL NEEDS IN HIGHER INSTITUTIONS IN NIGERIA

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Abstract
The history of e-learning shows that it has been a transition over the years. It has proved to be reliable source of teaching and learning for diverse learners worldwide. Nations have been greatly influenced by the multiplicity of its role in Education. E-learning technologies are not quite new in the global community. They have been quite around and common over the decade and are still very much around. E-learning is a type of learning where teachers and students interact electronically despite distance, time or location using online devices. The term encompasses a broad array of content and instructional methods which teachers and students use especially in higher institutions of learning in Nigeria. The provision of E-learning is an important factor in providing comprehensive solutions within educational sector. Persons with special needs can benefit greatly from e-learning education and home schooling if the application is done successfully and sustainable. In this paper, the authors discussed issues in connection with the application of e-learning for sustainable special needs in higher institutions in Nigeria. Further discussions in the paper were various issues such as who are students with special educational needs, concept of E-learning and historical perspectives, application of e-learning to students with special needs, the relevance of e-learning to students with special needs. The paper concluded that Federal Ministry of Education should provide laptops, data and free or affordable WiFi to enhance learning. In addition, teachers or persons with special needs should develop positive attitude toward incorporation of E-learning. Finally web designers, technicians and developers should consider the unique needs of persons with special needs in designing this technology to enable them carry out their learning tasks effectively.

Key words: E-Learning, sustainable education and children with special needs education

Introduction

One of the objectives of Nigeria's 2nd national development plan is building of level full of opportunities for all her citizens, regardless of physical or mental conditions. In this objective, the national philosophy of education is anchored on the inclusion of the Nigerians to become sound and effective citizens and equal opportunities for all her citizens of the nation at all educational levels both within and outside formal system of education. (National Policy on Education, 2008). The educational aims and objectives to which philosophy is linked include the acquisition of appropriate skills, abilities and competence, both physical and mental, as indispensable instruments for individual to live in and contribute to the development of the nation or society Vandehand Ikpa,(2007). As pointed out by Khasar (1999), neither the national objectives nor philosophy of education discriminate against any citizen of the nation. Both emphasized equal opportunities including the acquisition of skills for Nigerian citizens, so therefore, today the wide spread movement over the world struggles to include persons with special educational needs in the affairs of human endeavors is paramount. The fact, that the social right to education for all children with impairment, has been clearly stated at the local, national and international levels in the Salamanca statement (UNESCO,1994) that every child has a fundamental right to education including those with special educational needs must have access to regular school which accommodate them within a child centered pedagogy capable of meeting their educational needs. The recent introduction of e-learning in higher institutions in Nigeria cause a revolution in education, giving the green light to new conceptual paradigms in teaching and learning processes, based on active participation and cooperation of students, (Gooden, 1996, Lau, 2000 and Rogers, (2002).

The educational needs of person with special needs are diverse. On one hand, they must learn as their peers, get knowledge and skills required in society which they live. Application of e-learning for sustainable education for students with educational needs plays an essential role in providing high quality education. E-learning have been introduced into teaching and learning process in order to improve quality, supportive curricular changes and new learning experiences. In this way it is possible to meet the specific learning needs of different learners with special educational needs through adaped application of e-learning resources.

Meaning of special needs education

Special needs simply mean children and adults who are impaired in one way or the other and suffer disability and handicap. The disability imposes on their capability and restriction that affect adversely functioning in education and social life. A person said to have special needs either because of significant sensory deficit or unusual high intellectual ability that if not properly addressed in regular school programme can affect the individual wellbeing.

From the generic use of the term, special education emerged the connotation, special needs education. The inclusion of the term "Needs" between special and education was to drew the attention of students of education and special education teachers, special education practitioners and professionals as well as applied psychologist to the utility value of understanding the psychological underlying factor underpinning the manifestation of differences in human developmental and learning tendencies in all individuals. (Kolo 2023).

However, special needs education connotes that everyone has one form or another of developmental and learning needs which may impede, influence or even facilitate achievement of related psychological or specific learning tasks (Sattler, 1982). Special needs education therefore, simply refers to specialized teaching and training psycho-educational methodologies designed to address specific learning and developmental skills acquisition of individuals either as a particular person or on the bases of homogeneous and heterogeneous manifestations of learning traits, Adapted teaching methodologies of the regular and core curriculum (Braile medium, sign language and total communication, diagnostic teaching, task process teaching, clinical teaching, learning assessment and evaluation based teaching, simulation learning, therapeutic sensitization, Adapted physical and kinesthetic activities, active teaching and learning are all specialized educational methodologies referred to as special needs education.

On the other hand, Persons with special educational needs are those learners who require individually planned and systematically monitored arrangement of physical setting, special equipment and materials, special teaching procedures and other interventions in order to achieve success and self-fulfillment. They are also those with physical, intellectual, social, emotional, cultural and linguistic characteristics or other conditional that make it difficult for them to be educated in the normal way without special interventions.

Therefore, persons with special educational needs require special education and other related services including e-learning if they are to perform their full potentials. Such persons are markedly different from most children in one or more of the following: mentally Retarded (now called intellectual disability), physically handicapped, or have disordered speech, emotionally disturb, impaired sight and Gifts and Talents among others.

Sustainable Education

The term "Sustainable means something that can continue, or to be continued for a long time. A system is sustainable if it empowers all people with secular livelihood in way that the ability of future generations is not compromised. Therefore, the word sustainable is

generally termed as the endurance of systems and process often captured in the use of Sustainable development that meet the needs of present without compromising the ability of the future generations to meet their own needs.

According to United Nations General Assembly (1987). Sustainable education is necessary considering how our action today will impact on the quality of life of future generations environmentally, socially, culturally, economically, educationally and personally. It is a broad concept that has many applications across all subject areas. Sustainable education is conceptualized as continuous education programme of activities that involves accurate evaluation, appropriate educations/ training based on needs and ends with full employment. Sustainable education ensures that nothing is left out in the efforts of the application of e-learning to enable persons with special needs learn successfully to overcome the psychological impact of disability, rise from the state of dependency to independence and become confident, self- reliant contributing to self, members of the society to which he/she belong. Many developing countries are currently aspiring towards providing high quality education including the application of e-learning to persons with education in our contemporary higher institutions of learning in Nigeria.

Concept of E-Learning

The push for technology is also apparent in university education where online learning has been described as a revolution for formal education (Ruiz, Mintzer, & Leipzig, 2016). Online learning has also been promoted as a tool that can create greater motivation to learning compared with traditional lectures (Woo and Kimmick, 2016); enhance critical and reflective skills (Ammenwerth, Iller & Mahler, 2016) and lead to greater student satisfaction. The development of online learning and computer competence has not only been promoted as a means for developing 21st century skills but also as a method for encouraging teaching professionals to become more involved in the development of technology. The adoption of online learning in university education has been slow and limited.

E-learning otherwise known as online or electronic learning is one of the 'newest' technological platform that provide learning and training development especially to persons with special needs education in higher institutions through different electronic platforms like computers, audio, internet, video, phones just to mention a few. The significant of e-learning is highlighted in the fact that many institutions of higher learning resort to its usage of the internet to get fast and easy information rather than taking tasking to the library and pain-takingly looking for information. (Obiadiaru, 2020)

Today, many certificates and even Degree programmes are now obtained through online learning. Again, meetings and conferences could be attended across the world, all within

the comfort of the home. All these would make education dissemination and participation easier to students with special educational needs in higher institutions in Nigeria because it helps them get cheap and easy information and also bridge distance barriers.

E-learning has been defined in numbers of ways in the literature: Ong, Lai and Wang (2004) defined E-learning in general as the expression broadly used to describe instructional content or learning experiences delivered or enabled by electronic technologies. Abernathy (2020) defined E-learning also as electronic learning as the acquisition of knowledge which take place through electronic, technologies and media. Asoro and Osunade (2020) viewed E-learning as an alternate learning process that is done over the internet. There is no physical classroom for students and teachers.

E-learning as a concept has become a platform for meeting the educational needs of many learners all over the world. The demand for this technology came as a result of the desire to make education accessible to all diverse learners.

Historical Perspective of E-Learning

Historically, the origin of E-learning can be traced as far back as the 19th century when Isaac Pitman taught his pupils shorthand, later, in 1924, Professor Sidney Pressey invented the testing machine. Consequently, in 1954, a Harvard Professor Skinner invented the "teaching machine" which enable schools to administer programmed instruction to their students. However, in the 20th century, the arrival of computer and internet brought about the digital world as global village. The internet is a global wide area network that connect computer systems across the world. (Lorette, (2021).

This system has changed the world so much so that most people prefer it as a major means of everyday communication. E-learning is fast and convenient and has available instant messaging tools and social networking sites. Immense quality of information is uploaded and down loaded over the internet which can be used to solve virtually any problem. In the area of education, it has provided boundless possibilities for learning as Google classroom, Moodle, Edmodo and many more. Today, the e-learning is used to access libraries, encyclopedias, art galleries, news archives as well as research anywhere in the world. (Ekwueme & Umeano, (2020).

Ajadi and Adeoye (2008) opined that e-learning is important to say that information and communication technology is the back bone of e-learning, without ICT, E-learning will become more incomplete. Hence, as ICT keep advancing, E-learning will also advance to become more practicable in school and providing lifelong learning. (Hussain, (2012).

Application of E-Learning for Persons with Special Needs

The E-learning can be applied in learning instructions of children with special needs in higher institutions through the following ways:

Mobile Phone

Mobile phone which can also be known as cellular phone or handset is a device which can make and receive telephone calls via a radio communication link can be moved around a wide geographic area. In addition to telephone services it can be used for text access, short range wireless communication (inframed and bluetooth) wilkeducator 2011).

Power Point Presentation

Power point presentation refers to a collection of slides designed to aid the delivery of information to audience (wikieducator, 2009). A slide is like a frame in a presentation that represents data. Presentations are saved as files in a power point environment.

Computer: A computer is an electronic device which is capable of receiving process store and retentive information at any given time. It has three components, the central processing unit, the monitor and the keyboard. Computer is an essential instructional tool is Tertiary education programme. Computer allow the undergraduates and students to communicate in learning process. The modem ie modulator and demodulator enable the teacher to dispense lecturers, purchase vital instructional materials, access Tertiary education journals and place advertisement.

The major applications of computer in electronic driven Tertiary education programme are

- **Computer assisted instruction CAI and computer instruction CMI.** This allows for individualized drill and practice in shorthand, keyboarding, accounting and statistical problems. It can also be useful in tutorial system for the understanding of concepts and skill development. Tertiary education use the computer for marking, grading, scoring, quizzes, students records and continuous assessment.
- **Teleconferencing: is** a telephone orvideo meeting. It is an interactive electronic communication among people located at two or more different places. There are four types of teleconferencing based or the nature and extent of interactivity and the sophistication of the technology and they are audio conferencing, audio graphic conferencing, video conferencing and web-based conferencing.
- **Audio Conferencing:** Involves the live (real time) exchange of voice messages over a telephone network when low bandwidth text and skill images such as graphs, diagrams or pictures can also be exchanged along with

voice message, then this type of conferencing is called audio graphic. Non moving visuals are added using a computer keyboard or by drawing/writing on a graphic tablet or while board.

- **Video conferencing:** This is the conduct of a video conference which is also known as video teleconference. It is a set of telecommunication technologies which allows two or more locations to communicate by simultaneous two way video and audio transmissions. This implies that exchange is not just of voice and graphics but also moving images. Videoconferencing technology do not use telephone lines but either a satellite link or television network. According to Wikipedia video conferencing in Tertiary education programme will provide student with the opportunity in two way communication forums. Teachers and learners worldwide can be brought together through remote or otherwise isolated educational facilities. Students from diverse communities and backgrounds can come together to learn about one another. This provides such students the opportunity to explore, communicate, analyze and share information and ideas with one another. Students and teachers are able to participate in defenses at other institutions.
- **Web Based conferencing:** This involves the transmission of texts and graphics audio and visual media via the internet. It requires the use of a computer with a browser and communication can be both synchronous and asynchronous.
- **Satellite Communication:** Adeniran (2002) described it as a geostationary communication microwave repeaters, that is located at 35, 700km above. It helps to update teachers with the current scientific discovery and breakthrough in the world of business and educational development. It allows an e-auditorium platform where learners and teachers could interact and exchange idea and development.

i. Assistive and Adaptive Technologies: Technology that supports students with disabilities, such as screen readers, and virtual pencils.

ii. Video Conferencing: This is a video output in which people in different geographical locations can have a meeting. They can see and hear one another, using computers and communications. This ranges from videophones to group conference rooms with cameras and multimedia equipment to desktop systems with some video cameras, microphones, and speakers.

iii. Voice over Internet Protocol (VoIP): According to Adepoju & Akinwumi (2019), this enables transmission of voice across the internet. It allows holding of meetings or discussion in which people are connected to phones. Here people share audio information only. There is no face-to-face interaction. It is only the sounds that are connected. A teacher can have an audio conference with his students no matter where

they are located as long as they are connected.

iv. **The Internet:** According to Okpa; a (2021), this is the heart of Information Age. It is called "the mother of all networks." It is a large computer network available to everyone with a microcomputer and a means to connect it. It is a worldwide computer network which connects hundreds of thousands of smaller networks. The network is made up of wires, cables and satellites. Internet networks links educational, commercial, non-governmental agencies, military as well as individuals.

v. **Multimedia:** The word is from 'multiple media' meaning technology which presents information in more than one medium such as text, still images, moving images, and sound. It is the sequential or simultaneous use of variety of media format in a given presentation or self-studied programme.

vi. **Teleconferencing:** This is the use of television video and sound technology as well as computer networks (including the internet) to enable people in different locations to see, hear and talk with one another (Okoye, 2019).

The development and application of e-learning for persons with special educational needs education into higher institutions especially in Nigeria cannot be overemphasized by UNESCO as a major area of educational focus. The application of e-learning into all levels is expected to be of vital tool in making educational outcomes for persons with special educational needs. The application of e-learning involves taking learning beyond classroom not only to "normal" students but also persons with special needs. Today, many nations of the world have felt the impact of e-learning in one way or the other. Countries like United States, United Kingdom, China and India have established e-learning programmes and even offer online Degrees in their Universities Clark & Mayer, (2016). According to findings, the growth of e-learning enrollment has increased tremendously in United State with online enrollment higher than taking face to face classes Isaac & Hollow, (2012).

In Nigeria, the case is different. This is vividly portrayed in what happened at the onsets of the covid-19 pandemic. Schools were closed down to avoid massive transmission of the disease, with no provision for learning to continue. Whereas western parts of the world continued their education online. In Nigeria during the covid-19 pandemic all schools were closed down and students especially with special needs could not learn. Why? There was no provision for e-learning. This was confirmed by the former ASUU President. Prof. Ogunyemi on the claim by some Private Universities that they were learning online. In his words, what is defined as e-learning in Nigeria today is shallow, it does not reflect the state of infrastructure, it does not reflect the demand of e-learning. Similarly, Ajadi, Salawu and Adeoye, (2008) stated that the e-learning adopted in Nigeria is in form of lecture note on CD-Rom which can be played as at when the learner desires. It is quite evident that true e-learning is more than lecture note on CD-Room.

Therefore, the application of e-learning for persons with special needs experts have called for the adoption and inclusion of e-learning in the teaching and learning to persons with special needs speaking at the opening of the 34th National conference of the Nigeria Association of Special Education Teachers, Fakolade (2023) stated that, the information of e-learning make it possible for persons with special needs to surmount problems associated with traditional learning. Fakolade at the conference theme: "Application of e-learning in teaching and learning for learners with special needs in Nigeria" said e-learning support inclusion of children with disabilities by enabling them to overcome some of the barriers causing their exclusion. It complements other face-to-face method and tools, such as teacher training and inclusive pedagogy.

Dada (2023) stressed the importance of adapting e-learning in teaching students with special needs. The use of ICT in the education of persons with special needs is possible in Nigeria when concerted efforts are made by the Government and professionals. Atteng (2023) stressed that e-learning is a global trend. "It's a globalized world and everybody is deploying technology. We can't deprive persons with special needs the opportunity to be at par with their counterparts across the world.

The Relevance of E-Learning to Persons with Special Needs

The relevance of E-learning to persons with special needs education especially in higher institutions in Nigeria with high level of uneducated people is worrisome. According to the former Minister of Education, Adamu Adamu stated that 30% of Nigerian population cannot read or write and thus can hamper Nigerian's aspiration to National development.

One of the reasons for this level of illiteracy may be attributed to low socio-economic status of Nigerian citizens. Hence, e-learning can be introduced as a means of meeting the needs of millions of Nigerians who cannot go to a face-to-face school. Also, those whose occupation could not allow them to enroll in a normal schools, those whom early marriage prevented them from going to school and those with different forms of disability that hinders them attending either regular or special schools (Akupe and Iyendo, (2017).

Benefits of E-Learning to Persons with Special Needs Education

Actually, E-learning has series of benefits, one of such benefits is that it was developed for global level learning and was designed to support both teaching and learning to diverse learners including persons with special needs. Gadner, (2006). Besides, e-learning enables learners with special needs the opportunity to learn through diversified teaching methods which means E-learning encourages teaching method for instance in explaining concept of a baby from fertilization to maturity, the teacher will use virtual animation. Students with special needs may likely benefit from E-learning because it accommodates

slow learners by providing a data-base from which learners can revisit lesson in their spare time and achieve greater learning outcome.

E-learning can beneficial to persons with special needs because it encourages learning from the comfort of the home there by reducing stress especially to students with physical disabilities when their mobility is restricted. Also, Li and Lalani (2020) stated that the benefit of e-learning as students normally memorize 25-60% of assign materials when learning online whereas they memorize only 8-10% of these materials in the traditional classroom. This mean that persons with special needs education can learn through e-learning because it enhances inclusive education since everybody learn lesson from unified curriculum without regard to impairment, disability, race, religion or creed. Finally, e-learning is cheap and easily accessible form of teaching and learning because it reduces cost of transportation, writing materials and it ensures quick delivery of lesson and feedback.

Barriers of E-Learning to Persons with Special Needs

Educating persons with special needs through e-learning platform may appear to be a herculean task especially for learners with severe condition of learning difficulties. The paper discussed some of the barriers which includes the shortage of E-learning technologies for teaching and learning in tertiary education programe, high cost of maintenance of E-learning equipment and facilities, shortage of E-learning experts, lack of adequate electricity supply for the use of E-learning technologies and inadequate funding for e-learning technologies for teaching and learning in tertiary education program are the constraints to the application of e-learning technologies.

According to Penalvo *et al*, (2020) include: the lack of technical infrastructure, such as reliable internet access and computer equipment. This hinders the ability of students with special neat and teachers to access and use digital resources and tools, which restricts their learning opportunities.

Conclusion

All learners can benefit from E-learning platform. In other parts of the world, the learning process has become more effective and convent with the help of E-learning. Since E-learning is a globalized world and every country is deploying this technology, "we can't deprive persons with special needs the opportunity to learn along their counter parts across the world".

Recommendations

1. The Federal Ministry of Education should as a matter of urgency made available E-learning gadgets like computers, lap tops and provide free WIFI within all higher institutions of learning in Nigeria to enable all persons with special needs have easy access to e-learning researches, learning, assignment or projects.
2. Persons with special educational needs should be properly oriented on how to use the e-learning resources and its services to their own advantage in their academic domain.
3. Web designer, E-learning technicians or developers should make educational sites free and accessible to students with special needs to enable them carrying out researches and other academic task easily.
4. Teachers of persons with special needs should develop more positive attitude toward the incorporation of e-learning teaching and learning.
5. e-learning facilities should be made user friendly and disability specific.

References

Adaji, T. Salawu, O. & Adeoye, F. (2008). E-learning and distant Education in Nigeria.*Turkish On-line Journal of Educational Technology*, 7(4), 1-10.

Adeniran, A.A. (2002). New trend in access to information and communication technology. Its implication to the continent of Africa. STAN (2002) Proceedings of the 43 Annual Conference inaugural conference of CASTME Africa. Heinemann Education Books (Nigeria) Plc, pp. 331-853.

Akupe, O. D. & Iyendo, T. O. (2017). Two sides of coin. Revisiting the impact of social networking site on students performance in selected higher educational setting in Nigeria. *Journal of Science International*,29(6), 1265-1275.

Albernatay, D. J. (2020). What is E-learning? https://e-student.org/what is E-learning? And publisher. Asynchronous e-learning system in High Tech Companies. Information and management, 14,795-804. http://dx.doi.org/10.1016/j.m.2003,08.012.

Atteng, C. O. (2023).Application of E-Learning in teaching and learning for Learners for with Special Need in Nigeria. Opening speech. Speech delivered at 34th National Annual conference of Nigeria Association of special Education Teachers. University of Ibadan. 12th to 14tth June,

Clark, R. C.& Mayer, R. E. (2016). E-learning and the science of institution (4th ed).

Dada, C. (2023). Application of E-learning for Children with Special Needs in Nigeria. Lead paper presenter. Speech delivered at 34th National Annual conference of

Nigeria Association of special Education Teachers. University of Ibadan. 12th to 14tth June..

Ekwueme, U. H. & Umeano, E.C. (2020). *Teaching and Learning in emergency situations. Changing landscape in educational practices*: Enugu: Tri max publishing company.

Fakolade, O. (2023). Application of E-learning in teaching and learning for learners with Special Needs. Speech delivered at 34th National Annual Conference of Nigeria Association of Special Education Teachers. University of Ibadan. 12th to 14tth June.

Federal Republic of Nigeria (2008). National Policy on Education. Federal Press

Garuba, A. (2016). Principle and practice of special needs education. Yola: Education Management System.

Gooden, A .R. (1996). Computer in the classroom: How teachers and students are using. Hershey PA: Idea group Publishing.

Hussain, I. (2012). A study to evaluate the social media trends among University students. International Educational Technology Conference IETC 2012. Procedia - Social and Behavioral Sciences, 64, 639 – 645.

Isaac, S. & Hollow, D. (2012). The e-learning Africa 2012 report. ICWE, Germany.

Khasar, J.I. (1999). Vocational Technical Education and vision 2010 in Nigeria challenges and prospects. Katsina- Ala: Sendo Publication Co.

Kolo, I. A. (2023). Special learning needs, Special Education and Exceptional Persons. Special Needs Education from the Lens of Interdisciplinary Dialogue (vol.one) A Festschrift in Honour of Prof. Emeka D. Ozoji: *Owerri: Publisher, Citihall*

Lan, L. K. (2000). Distance learning Technologies: issues, trend and opportunities:

Li, C. & Lalani, F. (2020). The covid-19 Pandemic has changed education forever. Wiley: Hoboken, NJ, USA. World Economic Forum, 29th April 2020 retrieved from:weforum.org/agenda/2020/04/coronavirus-education-global-covid-19-online-digital-learning.

Lorette, N. O. (2021). Management and policy. *Journal of Qualitative Education*, 14(1), 1-10.

Obadiaru, I. (2020). The Role of new Technology in learning process. Changing Landscape in Educational practices Enugu: Timex printing and Publishing Company.

Ohakwu, S. N. (2008). Assessment of strategies for optimizing sub-skills required by undergraduates to reform the delivery system. Tertiary education journal, 6 (2), 96-11.

Okiki, C. O. (2011). Information and communication technology support for an e-learning environment at the University of Lagos, Nigeria. *Journal of Library philosophy and practice*, 610.

Ong, C. S; Lai, J. Y, and Lang, Y. S. (2004).Factors Affecting Engineers. Acceptance of P.A: Idea group publishing.

Rogers, R. L. (2002). Designing Instruction for technology enhanced Learning. Hershey, Special needs in Nigeria. Technology to transform learning. San Francisco: Jossey Bass. *Turkish on-line journal of educational Technology*, 7(4), 1-287

Ugbo, E. K. (2017). Understanding special needs Education. Abeokuta: Pee and Gee press.

UNESCO (1994). The Salamanca statement and framework for action on special needs education. Adopted by world conference on special needs education Access and quality Salamanca Spain.

Vandeh, C. & Tor-Ikpa, M. (2007). Empowering Persons with Special needs through Appropriate education. *Journal of Advocacy and Rehabilitation in Special education,* 15(1), 136-39

Williams P. A. (2007). Voicing diversity: How can I integrate web quests and model into religions education at school level? A thesis submitted for the Masters Degree in Education.

Wilki educator (2011) Computer in education Retrieved on May 30th 2012 from http://www.wikieduator.org./comuter in education.