IMPROVING OPEN AND DISTANCE LEARNING IN ENUGU STATE USING INTERACTIVE VIDEO TECHNOLOGY

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Abstract
The study focused on the extent of improvement of Open and Distance Learning in Enugu State using through the use of interactive video technology. A sample size of 300 students were obtained using simple random sampling technique. An instrument titled Interactive Video Technology in Open and Distance Learning (IVTODL) was used to collect data for the study. Overall reliability co-efficient of 0.78 was generated using Cronbach Alpha Statistical Tool. SPSS was used for data analyses to derive Mean and Standard deviation. The findings revealed that: the extent to which interactive video technology improves teaching and learning in Open and Distance Learning was high. Based on the finding, some recommendations were made, among which was that: National Open University of Nigeria administrators should endeavour to increase the varieties of interactive video technologies used in the programme, they should introduce the use of interactive technologies such as Smartzer, Cinema8, GoEssential, Mindstamp Pageflow, and TouchCast. These interactive video technologies will help to enhance teaching and learning in NOUN. Again, National Open University of Nigeria curriculum planners should devise mechanism of assessing extent interactive video technology improves teaching and learning this will help to provide learners and instructors with a satisfactory degree of interactivity, boast learners' retention, and provide learners the opportunity to study at their own pace and convenience.

Keywords:Interactive video technology, Interactivity, Open and Distance Learning

Introduction

Open and distance learning is an educational arrangement which seeks to remove all barriers or restrictions to learning such as aptitude test or other strict screening procedures. It is synonymous with distance education and can be used inter-changeably. Timothy (2019) define open and distance learning (ODL) as an educational system characterized by the physical separation between educators and learners. This approach involves delivering instruction through a diverse range of media, including print materials and various information communication technologies (ICT). ODL primarily serves individuals who may have missed educational opportunities earlier in life or have been unable to access traditional face-to-face formal education due to socioeconomic, career, family, or other factors. In agreement with this perspective, Wilson (2017) emphasize that distance education aims to provide valuable learning opportunities that are conveniently accessible to learners, regardless of the educational institution offering these opportunities. The focus is on delivering education at locations and times that suit the learners' needs and circumstances. Moreover, United Nations Educational, Scientific and Cultural Organization (UNESCO) (2018) recognizes open and distance learning as one of the rapidly expanding domains within the field of education. This growth has been significantly amplified by the advancements in Internet-based information technologies, including the World Wide Web. These technologies have introduced innovative approaches that prioritize widening access to education and training, liberating learners from the constraints of time and place, and offering flexible learning opportunities to both individuals and groups of learners.

Open and distance learning is a well-designed programme packaged to fill the vacuum created by regular face to face education. Supporting the above, John and Ethelbert (2012) see distance learning as a programme which supports the idea that time and space should not be a constraint to learning. It is basically the type of education without restrictions where the facilitator is often not physically present with the learners, which makes the learning dependent on other types of communication between the learner and the teacher, other than the regular face-to-face experienced in

the regular and children type of education. In fact, this type of learning has enabled individuals who for reasons of social, economic, academic or other hindrances could not utilize the earlier educational opportunities available to them as youngsters, but now have another chance to amend their situations by studying for and obtaining the desired degrees and qualifications mainly on part-time basis using different kinds of technology as aids to learning. These technologies enhance interactivity in teaching and learning.

Interactivity is a two-way communication between the learner and the tutor or the education service providers and the receivers. Interactivity within the realm of education has evolved significantly in recent years. Tomei (2015) provides a contemporary perspective, describing interactivity as the critical, inner dialogue within a student's mind, fostered and nurtured by the learning environment. This dynamic process serves as the cornerstone for effective learning experiences. Interactive learning, as conceptualized in the modern context, involves the exchange and sharing of knowledge resources among innovators, suppliers, and clients, which cultivates an environment conducive to innovation (Smith, 2018). This collaborative approach transcends traditional boundaries and encourages the co-creation of knowledge. The advent of interactive video technology, as elucidated by Yiğit (2016), revolutionizes communication by enabling synchronous, face-to-face interviews among individuals or groups separated by geographical distances. This technology leverages cameras, microphones, and telecommunication networks to facilitate real-time interactions, thus redefining the learning landscape. Interactive video technology finds its purpose within teaching and learning, serving as a versatile tool in education (Wang, 2020). Through the integration of video and audio-visual aids, educators harness its potential to engage learners, making complex concepts more accessible and comprehensible. In the realm of open and distance learning, various forms of interactive video technology are harnessed to achieve diverse learning objectives. Stewart (2017) emphasize its ubiquitous presence in e-learning applications across educational institutions. It not only fosters social connections but also recreates an environment closely resembling the traditional classroom setting, bridging geographical gaps.

Furthermore, Chris (2019) elaborate on the rich array of technologies that enhance interactivity in contemporary learning environments. These include cable television, satellite transmissions, audio and video teleconferencing, digital whiteboards, chat-room applications, fax, educational CD-ROMs, video-films, audio tapes, compressed video, courses supported by the World Wide Web, online bulletin boards, and electronic mail (e-mail). These technologies collectively amplify engagement and interactivity, making learning a dynamic and collaborative process. Furthermore, Knerl and Hayes (2020) listed other interactive video technologies used in open and distance learning, thus: Google Classroom, Pear Deck, Blackboard, Coursera, Canvas, Edpuzzle, Khan Academy, Edmodo, Socrative, Loom. These interactive video technologies enhance academic achievement in open and distance learning.

Interactive video technology has positive effect on open and distant learners. Buljan (2017) identified the effect of using interactive video technology in ODL to include high impact, high learner engagement, meeting the required cognition level, appealing to varied learner profiles, leverage on the currenttrends, and enhancing mobile learning. This means that interactive video technology enables one to be fully engaged in the learning process. Also, Sam (2018) outlined four effects of interactive video technology in ODL thus: It allows learners to access it through multiple devices, including desktop and laptop computers, smartphones, and tablets; It allows learners to direct their own learning based on the type of content that they need to learn; Well-designed interactive video engages viewers through the overall narrative and the character development, it also allows them to drive their own experience through the decisions that they make; and It encourages speed and flexibility. Interactive video technology also encourages micro learning, and allows a learner to learn at his own pace.

In addition, Centre for Teaching Support and Innovation (2018) stated that interactive video technology can help students to: learn new digital literacy skills; improve knowledge retention and understanding; increase class participation and motivate students; build community; connect students to each and the global community; become an effective member of an online community; improve student writing (through writing for peers, feedback); learn a different style of writing; go beyond text, e.g., images, video, design. Interactive video technology also has many advantages. In education, interactive video technology has taken on a transformative role, offering individuals the invaluable chance to engage with peers and subject matter experts situated in diverse locations through video conferencing (Gillies, 2017). This powerful medium transcends geographical boundaries, facilitating real-time, face-to-face communication and collaboration, thereby enriching the learning experience. Furthermore, interactive video technology plays an important role in mitigating the sense of isolation experienced by individuals participating in courses from disparate locations, as highlighted by Symth

(2019). This technology fosters a sense of connectedness and community among learners, effectively combating the loneliness that distance education can sometimes entail. Learners find solace and camaraderie in the virtual presence of their peers, fostering a supportive and inclusive learning environment. However, there is no clear knowledge of the effects of interactive video technology in Enugu State.

Furthermore, the effect of interactive video technology may be hampered by several factors. Yozwiak et al. (2010) stated that despite the use of interactive video technology, with its synchronous visually and auditory, in distance learning, it is seen that it cannot adequately meet the expectations of the students. Being unable to have eye contact with instructor in activities such as brainstorming, question-answer and discussion; hinders the students to establish an intimate relationship with the instructor by not feeling that the instructor is beside them(Karal et al., 2011). Hence, courses conducted through interactive video technology often perceive by students as akin to televised programs (Bozkaya, 2017). This perspective highlights the need for more interactive and engaging approaches in online education to bridge the gap between passive viewing and active learning. Moreover, the occurrence of link breaks within interactive video sessions can elicit frustration among students. Such interruptions can create a perception that they are not genuine participants in the learning process (Gillies, 2019). As a result, addressing these technical challenges is crucial to maintaining a positive and effective online learning experience.

To address the obstacles hindering the effective use of interactive video technology in open and distance learning (ODL), various strategies and solutions have emerged in recent years (Smith, 2020). These encompass advancements in technology infrastructure, instructional design, and user support to ensure a seamless and engaging online education environment. Yiğit and Karal (2014) identified the following as the solutions to the problems hindering the use of interactive video technology in ODL thus; the instructor should have an approach which is supportive for students to participate to the interaction and should choose teaching methods and techniques that serve this purpose; precautions should be taken to minimize technical problems during the course as possible; using cameras that focuses on faces and high bandwidth, more advanced technologies can be used on behalf of providing visual clues and eye contact; and giving minor assignments on behalf of being active in the course, students can be asked to present them. The extent to which interactive video technology have impacted the open distant learners in Enugu State is not known.

Interactive video technologies enhance academic achievement in open and distance learning. In NOUN Enugu State, there is the provision of e-courseware. E-courseware is a repository of digital courses. Only distance education students can have access to it. However, many distance education students in Enugu State do not have the necessary gadgets to enable them explore the available online resources. NOUN (2013) stated that the management of NOUN prohibits the use of its e-Courseware for; commercial, financial purposes other than educational. The e-Courseware is a repository of available digital course material of the National Open University that will help students in their course of studies. Also, NOUN stated that, to be able to read any of the course materials in this library, the student must have Adobe acrobat reader installed on their computer. The courseware has a feature which allows it to be filtered according to Faculty, Semester and Level. However, the availability, usage and effect of interactive video technology in open and distance learning centres in Enugu State is not known. The extent to which students access learning materials through interactive video technology is not known. Also, there is no clear knowledge of the extent interactive video technology has impacted ODL, hence, the researcher examined interactive video technology in teaching and learning in open and distant learning in Enugu State.

Statement of the problem

Open and distance learning is an educational arrangement which seeks to remove all barriers or restrictions to learning such as aptitude test or other strict screening procedures. It is synonymous with distance education and can be used inter-changeably. Interactive video technologies should be used to enhance academic achievement in open and distance learning. However, the availability, usage and effect of interactive video technology in open and distance learning centres in Enugu State is not known. The extent to which students access learning materials through interactive video technology is not known. Also, there is no clear knowledge of the effects or the extent interactive video technology has impacted ODL. Hence, the researcher is set to study interactive video technology in open and distant learning in Enugu State.

Research Question

The study was guided by two research questions

1. To what extent does interactive video technology improve teaching and learning in distance learning in Enugu State?
2. What are the challenges to the provision of interactive video technology in open and distance learning in Enugu State?

Method

The study adopted descriptive survey research design. Descriptive survey aims at collecting data on, and describing in a systematic manner the characteristics, features or facts about a given population (Nworgu, 2015). The study was conducted at National Open University of Nigeria (NOUN) Enugu study centre. The choice of the area was because NOUN has its study center there, and the fact that the researchers are conversant with the area. The population of the study comprised 3,000 students of the National Open University of Nigeria, Enugu study centre. The sample size adopted for this study is 300 students which is 10% of the entire population. Simple random sampling technique was adopted for this study. Here, the researcher randomly selected 10% of the students. A questionnaire instrument titled the Interactive Video Technology in Open and Distance Learning (IVTODL) was used to collect data relevant for this study. To determine the validity of the instrument the questionnaire was face validated by three experts. Two from the Department of Adult Education and Extra-Mural Studies and one from Measurement and Evaluation unit of the Department of Science Education, all from University of Nigeria, Nsukka, to ascertain the relevance of the instrument and its appropriateness to the study. After thorough assessment, the validators recommended that some items should be removed or replaced with other items. The corrections made was used to draft the final copy of the instrument.

The reliability of the instrument was tested by administering copies of the questionnaire to 20 students of National Open University Nigeria Opi study centre who are different from the study area but have the same characteristics and shares the same experience in terms of mode of study. Overall reliability co-efficient of 0.78 was generated using Cronbach Alpha Statistical Tool. The data was analyzed using SPSS to generate the Mean and Standard Deviation.

Results

Research Question One: To what extent does interactive video technology improve teaching and learning in distance learning in Enugu State?

Table 1: Mean and standard deviation ratings of the respondents on the extent interactive video technology improves Open and Distance learning in Enugu State, n= 300

S/N	Item Statement	Mean	Std.	Decision
1	Technological innovations provide learners and instructors with a satisfactory degree of interactivity.	2.69	.69	Accepted
2	Interactive video technology is essential for effective teaching and learning of all courses.	2.57	.90	Accepted
3	Interactive video technology boast learners' retention.	2.75	.58	Accepted
4	Interactive video technology gives learners the opportunity to study at their own pace and convenience.	2.81	.89	Accepted
5	Interactive video technology offers flexibility to instructional delivery.	3.11	.93	Accepted
6	Interactive video technology makes lesson appealing and interesting	3.18	.65	Accepted
7	The major selling point of Interactive video technology is that it is engaging and compelling.	2.56	.57	Accepted
8	Interactive video technology increases learners' participation	2.62	.58	Accepted
9	Interactive video technology facilitates personalized learning since they allow learners to act independently	2.81	1.06	Accepted
	Grand Mean	**2.78**	**0.76**	**Accepted**

The above table revealed that the mean ratings of the respondents range from 2.56-3.18, with a grand mean of 2.78 and standard deviation of 0.76. This therefore, show that the respondents

accepted all the items in this cluster as the extent interactive video technology improves teaching and learning in Open and Distance learning Enugu State

Research Question Two: What are the challenges hindering the provision of interactive videotechnology in open and distance learning Enugu State?

Table 2: Mean and standard deviation responses of the respondents on the challenges hindering the provision of interactive video technology in open and distance learning Enugu State

S/N	Item Statement	Mean	Std.	Decision
10	The cost of purchasing interactive video technology gadgets is high	2.67	.75	Agreed
11	The cost of training teachers and administrators to operate interactive video technologies is time consuming and very expensive.	3.15	.64	Agreed
12	Inadequate trained facilitators.	2.78	.49	Agreed
13	Lack of steady power supply for the smooth running of the programme.	3.33	.71	Agreed
14	Lack of technical know-how	2.95	.67	Agreed
15	Inability to access the internet and other telecommunication facilities affects the use of interactive video technology.	3.10	.90	Agreed
16	Lack of proper management.	3.31	.59	Agreed
17	Lack of orientation and proper guide on the use of instructional technologies.	3.18	. 85	Agreed
	Grand Mean	**3.05**	**0.70**	**Agreed**

Table 2 above show the mean and standard deviation responses of the respondents. From the table, the mean responses of the respondents range from 2.67-3.33, with a grand mean of 3.05 and standard deviation of 0.70. This shows that the respondents accepted all the items in this cluster as the challenges hindering the provision of interactive video technology in open and distance learning Enugu State

Discussion of Finding

The finding show that the extent interactive video technology improves teaching and learning in NOUN Enugu State study centre was high. This is because the respondents agreed that technological innovations provide learners and instructors with a satisfactory degree of interactivity; Interactive video technology is essential for effective teaching and learning of all courses; Interactive video technology can boast learners' retention, supporting the above, Papadopoulou and George (2016) stated that interactive video presents knowledge in an attractive and consistent manner, it improve the teaching methods and increase the learning outcome. Furthermore, Interactive video technology gives learners the opportunity to study at their own pace and convenience; Interactive video technology offers flexibility to instructional delivery; Interactive video technology makes lesson appealing and interesting; The major selling point of Interactive video technology is that it is engaging and compelling. Hence Interactive videos facilitate differentiated and personalized learning since they allow learners to act independently, follow their path and maintain their pace (Schoeffmann et al., 2015). Interactive video technology increases learners' participation; Interactive video technology facilitates personalized learning since they allow learners to act independently. Therefore, interactive video technology is a great tool for open and distance learning.

Findings from research question two revealed that the challenges hindering the provision of interactive video technology in open and distance learning Enugu State include high cost of purchasing interactive video technology gadgets, and high cost of training teachers and administrators to operate interactive video technologies. Recent research conducted in the field of open and distance learning (ODL) has identified a range of challenges that educators and institutions face in effectively integrating information and communication technology (ICT) into their programs. Sife (2018) have emphasized several key challenges, including issues related to awareness and attitudes towards ICT, inadequate funding for staff development and infrastructure improvement, a shortage of qualified personnel, and the absence of a systematic approach to ICT implementation within existing

infrastructures. Additionally, challenges related to the capacity of facilitators and instructors have emerged as significant concerns in recent studies. Inadequately trained facilitators have been identified as a barrier to the successful implementation of ICT in ODL programs (Martin, 2016). Chapman (2017) have pointed out that educators often lack both the technical skills required to effectively use technology in instruction and the andragogical skills necessary for adult education, even when they have internet access.

Furthermore, researchers have highlighted the issue of inappropriate internet content and its potential negative impact on local cultures and ideologies in ODL contexts. Concerns about the influence of Western content on local values and beliefs have been expressed as a factor that affects the adoption and integration of ICT in open and distance learning (Gonzalez et al., 2019).Again, lack of steady power supply for the smooth running of the programme, lack of technical know-how, inability to access the internet and other telecommunication facilities, lack of proper management, lack of orientation and proper guide on the use of instructional technologies affects the use of interactive video technology.

Conclusion

Open and distance learning is a well-designed programme packaged to fill the vacuum created by regular face to face education. Open and distance learning cannot achieve its objectives without media. Interactive video technology which is a form of media enhances a two-way communication between the learner and the tutor or the education service providers and the receivers. Based on the findings of the study, it was concluded that interactive video technology improve teaching and learning in distance learning in Enugu State; and that the challenges hindering the provision of interactive video technology in open and distance learning Enugu State include high cost of purchasing interactive video technology gadgets, and high cost of training teachers and administrators to operate interactive video technologies.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. National Open University of Nigeria administrators should endeavour to increase the varieties of interactive video technologies used in the programme, they should introduce the use of Smartzer, Cinema8, GoEssential, Mindstamp Pageflow, TouchCast and projector. These interactive video technologies will help to enhance teaching and learning in NOUN.
2. National Open University of Nigeria curriculum planners should devise mechanism of assessing extent interactive video technology improves teaching and learning this will help to provide learners and instructors with a satisfactory degree of interactivity, boast learners' retention, and provide learners the opportunity to study at their own pace and convenience.
3. Government at all levels should make effort to handle the challenges hindering the provision of interactive video technology in open and distance learning. This is necessary because it will make teaching and learning enjoyable
4. Government and NOUN administrators should devise measures for improving the provision of interactive video technology in open and distance learning by providing adequate manpower services, qualified facilitators, and functional technical know-how.

References

Bozkaya, M. (2017). Enhancing interaction in online learning: moving beyond the television program model. *Journal of Online Learning and Teaching, 13(*4), 150-162.

Buljan M. (2017). 6 benefits of using interactive videos in corporate training. Retrieved on November 22, 2021from https://elearningindustry.com/interactive-videos-in-corporate-training-6-benefits.

Centre for Teaching Support & Innovation (2018). Benefits and challenges of using social media in the class room. centre for teaching support & innovation 130 St. George Street, Robarts Library, 4th floor, University of Toronto.

Chris, A., (2019). Technologies enhancing interactivity in learning. *Journal of Educational Technology, 42*(3), 276-291.

Chapman, D. D., (2017). Distance education at degree-granting postsecondary, institutions: 2000-2001. National Center for Education Statistics, Institute of Education Sciences.

Gillies, A. (2017). Interactive video technology in education: new directions for learning. *Educational Media International, 54*(3), 157-171.

Gillies, A. (2019). Mitigating link breaks: fostering student engagement in interactive video learning. *International Journal of Educational Technology in Higher Education, 16*(1), 1-15.

Gonzalez, A. P., (2019). Globalization and the Reconceptualization of Indigenous Knowledge: Perspectives from Indigenous Communities. *Comparative Education Review, 63*(4), 531-558.

John, C. I & Ethelbert, C. O (2012). Adult education and development of man power resources in Nigeria; *3(3). Retrieved on November 21th, 2021 from www.journals.savap.org.pk*

Karal, H., Çebi, A., & Turgut, Y.E. (2011). Perceptions of students who take synchronous courses through video conferencing about distance education, *The Turkish Online Journal of Educational Technology, 10*(4), 276- 293. Retrieved from http://www.tojet.net/

Knerl L. & Hayes J. (2020). 10 best distance learning tools for teachers. Retrieved on November 22, 2021 from https://www.hp.com/us-en/shop/tech-takes/best-distance-learning-tools-for-teachers.

Martin, F., (2016). Examining online instructor presence via threaded discussion participation and learner perceptions. *International Review of Research in Open and Distributed Learning, 17*(5), 18-37.

National Open University of Nigeria (NOUN). (2013). NOUN e-Courseware Usage Policy. https://nou.edu.ng/noun/sites/default/files/NOUN_e-Courseware_Usage_Policy.pdf

Nworgu, B.G (2015). Educational Research, Basic Issues and Methodology, University Trust Publishers, Nsukka, Nigeria.

Papadopoulou A. & Palaigeorgiou G. (2016). Interactive video, tablets and self-paced learning in the classroom: preservice teachers' perceptions. *13th International Conference on Cognition and Exploratory Learning in Digital Age (CELDA 2016).*

Sam M. (2018). Four advantages of using interactive video as a training tool. Retrieved on November 19th 2021, from https://thenextscoop.com/advantages-of-using-interactive-video-as-a-training-tool/

Schoeffmann, K., Hudelist, M. A., & Huber, J. (2015). Video interaction tools: a survey of recent work. *ACM Computing Surveys (CSUR), 48(1), 14*

Smith, J., (2018). Interactive Learning: Fostering Innovation Through Knowledge Exchange. *Innovations in Education and Teaching International, 55*(4), 470-481.

Smith, J., (2020). Strategies for Enhancing Interactive Video Learning in Open and Distance Education. *Innovations in Education and Teaching International, 57*(3), 338-350.

Sife, A. S., (2018). Challenges and Opportunities for ICT Integration in Higher Education in Tanzania." International *Journal of Education and Development using Information and Communication Technology, 14*(2), 65-84.

Stewart, L., (2017). The ubiquity of interactive video technology in e-learning applications. *Journal of Online Learning and Teaching, 13*(3), 145-156.

Symth, R. (2015). Enhancing interaction in crowded classrooms: the impact of interactive video technology. *Journal of Educational Technology, 38*(4), 513-527.

Symth, R. (2019). Fostering connection in online learning: the role of interactive video technology. *Distance Education, 40*(2), 223-237.

Tomei, L. A. (2015). The dynamics of interactivity in modern education. *Contemporary educational technology, 6(*2), 91-101.

Timothy, A., (2019). Defining Open and Distance Learning (ODL): a modern educational system. *Journal of Distance Education, 33*(2), 47-63.

UNESCO. (2018). Open and Distance Learning: Rapid growth and potential impact." UNESCO Education Sector. Paris.

Wang, S., (2020). Harnessing the Potential of Interactive Video Technology in Education. *Computers & Education, 146*(2), 103-113

Wilson, B., (2017). Distance Education: Expanding Learning Opportunities. *Educational Technology & Society, 20*(4), 246-258.

Yiğit E. T & Karal H. (2014). Factors affecting interaction in a distance education via video conferencing. *Journal of Instructional Technologies & Teacher Education 4(3); 1-12*

Yiğit, C., (2016). Interactive Video Technology: Redefining Learning and Communication. *Educational Technology Research and Development, 64*(3), 645-660.

Yozwiak, A.J., Robiner, N.W., Victor, M.A., & Durmusoğlu, G. (2010). Videoconferencing at psychology internships: interns' perceptions of interactive television experiences and prospects. *Journal of Clinical Psychology in Medical Settings, 17, 238-248. doi: 10.1007/s10880-010-9206-3*