E-Journal of Humanities, Arts and Social Sciences (EHASS)
ISSN – Online 2720-7722 | Print 2821-8949
Volume 5 Issue 13 October 2024 pp 2099-2112
Available online at: https://noyam.org/journals/ehass/
DOI: https://doi.org/10.38159/ehass.20245137

An Evaluation of the Experience and Challenges Faced in Online Learning by Undergraduate Students at the National Open University of Nigeria

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ABSTRACT

This qualitative study aimed to evaluate the experiences and main obstacles faced by undergraduate students at the National Open University of Nigeria (NOUN) in the current online learning environment. Unstructured in-depth interviews were conducted to gather information from a selected sample of undergraduate students at NOUN. To overcome language barriers and encourage open communication, questions were asked in both Yoruba and English, and responses were accurately recorded in English. The transcription process involved preserving and compiling the recorded audio, while feedback from face-to-face interviews was collected using the "Rev voice recorder" app, which facilitated the direct ordering of interview transcripts. Thematic content analysis was utilized to analyze the responses and address the research questions. The results of the study indicated that despite the numerous benefits, NOUN undergraduate students still have negative views towards online education, which could affect the sustainability of the school. In addition to this, students face challenges such as inadequate power supply, poor internet connectivity, costly ICT resources, insufficient staffing, and low staff motivation in the online learning environment. The study's recommendations for improving the NOUN programme included providing students with access to the university's internet, ensuring good electrification, offering financial assistance for ICT equipment, increasing staff numbers, and providing training or retraining opportunities for current staff members. This study contributes to existing knowledge by highlighting the challenges faced by undergraduate NOUN students in online learning, underscoring potential implications for the institution's future.

Keywords: *Learning experiences, National Open University of Nigeria (NOUN), online learning environment, undergraduate students*

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Publication History
Received: 20th June, 2024
Accepted: 9th September , 2024
Published online:
7th October, 2024

INTRODUCTION

The global trend of online learning and its significance in teaching and learning cannot be overstated. It is laudable that the Nigerian government has embraced and integrated the National Open University into its education system. However, given the poor electrification and other factors in the country, one must ask whether students and staff will face challenges while learning in an online environment. The terms "learning environment" and "learning experience" refer to two interdependent concepts worldwide in the Fourth Industrial Revolution (4IR). The experiences of students or learners are composed of both

occurrences. The setting in which the learning occurred can be used to explain both positive and bad learning experiences. The goal of the 4IR, a new approach to learning, is to displace the conventional in-person style of instruction. Online or virtual learning is referred to as the learning environment in the 4IR. The objective of the NOUN is to operate in an online or off-line learning environment. In Ojo and Olakulehin as cited in Okpala, the aim of open (online) and distance learning, a contemporary trend in education, is to facilitate significant student contact through the use of the Internet and other online technologies.[1] This places more of the burden of learning on the students, who must become more engaged and independent. This is because they are taught to be self-motivated. Graduates from open and remote learning institutions have higher levels of maturity than their counterparts enrolled in traditional universities.[2]

Students should have access to contemporary resources in an online learning environment, such as a computer, laptop, or tablet with a reliable internet connection, email, a microphone, applications for recording voice and video, a camera, a power supply, enough lighting, video editing software, etc. Since most modern technology tools are expensive, some students may not be able to buy them. This factor constitutes the high take-off cost of entry to the NOUN programme. Ultimately, students enrolled in online learning programmes pay less for their education than their colleagues at traditional universities. This is because, in contrast to conventional learners who routinely attend class, students in modern learning environments learn from the comfort of their homes and spend little to nothing on transportation. This is because travel costs have been so high in Nigeria recently, that online learning has eased the load on sponsors and students alike.

In terms of online administration, the NOUN is the pioneer in giving more students access to higher education. The world of education has completely transformed as a result of technical breakthroughs and digital transformation. Students can continue learning at their own pace without being constrained by time or place as online learning is flexible.

Despite the numerous advantages of online education, Nigerians still have a negative view towards it, which could potentially impact its sustainability. For instance, the perception of students inclined toward science differs greatly from those interested in the arts due to the specific requirements and characteristics of science-related courses. The fourth Sustainable Development Goal (SDG4) aims to achieve high-quality education. However, many African nations, including Nigeria, face challenges such as poor electricity supply, poverty (since most students cannot afford computers, laptops, or other basic ICT equipment), and a high rate of illiteracy of ICT. Therefore, this study aimed to evaluate the experiences and challenges faced by NOUN undergraduate students in the online learning environment. Specifically, the research sought to address the following questions:

i. What are the experiences of undergraduate students at NOUN in today's online learning environment?
ii. What are the main challenges encountered by NOUN undergraduate students in their experience in today's online learning environment?

The NOUN undergraduate students share their experiences and difficulties in an online learning environment in this study.

LITERATURE REVIEW

Concept and Advantages of Online Learning

The literature contains numerous definitions of online learning, each of which reflects the variety of related technologies and practices. The terms used most frequently for online learning are e-learning, internet learning, distributed learning, networked learning, tele-learning, virtual learning, computer-assisted learning, web-based learning, and distance learning. There are still far too many terms that have been used for online learning. However, online learning can be defined as using the internet to access educational

[1] Angela Ebele Okpala, "National Open University Of Nigeria (Noun) Students Perception Of Open And Distance Learning," *Information Technologist (The)* 12, no. 2 (2015); David Olugbenga Ojo and Felix Kayode Olakulehin, "Attitudes and Perceptions of Students to Open and Distance Learning in Nigeria," *The International Review of Research in Open and Distributed Learning* 7, no. 1 (June 13, 2006), https://doi.org/10.19173/irrodl.v7i1.313.

[2] Charles Sturt University, "Review of Benefits of Distance Education," 2015.

resources, communicate with instructors and other students, and get support while learning. It can also be used to gain knowledge, create personal meaning, and develop from experience.[3]

There is no denying the many advantages that distance learning provides educators and learners alike. Media diversity is one of the advantages of using online teaching and learning for instructors and students. According to Yuhanna et al., Nguyen, and Alexander et al., neither teachers nor students would make a great effort to dress appropriately because they would be too worried about being stopped in traffic or experiencing any other incident that might occur in in-person classes.[4] Furthermore, instructors and students are at liberty to select the locations that are most comfortable for them to teach and learn. Nguyen underscores that one advantage of online teaching and learning for educators and learners is the reduced cost.[5] This could help students become more comfortable in their studies while reducing the burden of associated fees. Students can better prepare for their final exams by having the opportunity to listen to lectures again through the recording of each lecture.[6] Students can access a wide range of global materials from libraries and databases around the world. In addition, the students will have the opportunity to collaborate in groups or pairs using various websites, software programmes, and applications. There may be more options for students to tangentially expand their knowledge in each of the specialised fields. Convenience is a necessary component of online teaching and learning, for both educators and learners. Investing in online learning has several potential advantages, including improved accessibility, higher-quality education, better preparation of students for a knowledge-based society, the ability for "lifelong" learning, financial gain, and many more.[7]

Challenges with Online Learning

The benefits of online learning that have been found in previous studies appear to be less significant as the drawbacks become more apparent. According to the study by Coman et al. study, the most significant problems are technical ones, which are then followed inadequate technical proficiency of teachers and poorly tailored teaching methods for the online setting.[8] The lack of modern pedagogical knowledge, such as teaching techniques and methods used in technology-based learning, forms of technology-based assessment, and forms of collaboration and communication that help the teacher manage online learning, is another issue that Tartari identified.[9] Amir et al. identified internal and external issues that posed challenges during remote learning, including time management and difficulty maintaining focus when learning online for extended periods.[10] External concerns included inconsistent internet connections and additional financial burdens associated with internet quotas. Additional factors that may be viewed as barriers to student learning when using e-learning platforms include low student motivation, delayed feedback or assistance because teachers are not always available when students need it, or feelings of loneliness caused by the absence of classmates in person.[11] Although the online learning environment offers flexibility in how education is provided and accessed by students, the range and modalities of

[3] Terry Anderson, *Review of the Theory and Practice of Online Learning* (Athabasca University Press, 2008); Abhinava Barthakur et al., "Aligning Objectives with Assessment in Online Courses: Integrating Learning Analytics and Measurement Theory," *Computers & Education* 190 (December 2022): 104603, https://doi.org/10.1016/j.compedu.2022.104603.

[4] Ivan Yuhanna, Arzuni Alexander, and Agemian Kachik, "Advantages and Disadvantages of Online Learning," *Journal Educational Verkenning* 1, no. 2 (2020): 13–19; Thi Hong Nhung Nguyen and Nguyen Thi Thuy Hue, "Use of Google Docs in Teaching and Learning English Online to Improve Students' Writing Performance," *Nguyen, THN, & Nguyen, TTH (2022). Use of Google Docs in Teaching and Learning English Online to Improve Students' Writing Performance. International Journal of TESOL & Education* 2, no. 2 (2022): 186–200;Melody W Alexander, Allen D Truell, and Jensen J Zhao, "Expected Advantages and Disadvantages of Online Learning: Perceptions from College Students Who Have Not Taken Online Courses," *Issues in Information Systems* 13, no. 2 (2012): 193–200.

[5] Subhashni Appana, "A Review of Benefits and Limitations of Online Learning in the Context of the Student, the Instructor and the Tenured Faculty," *International Journal on E-Learning* 7, no. 1 (2008): 5–22.

[6] Zulaikha Mohd Basar et al., "The Effectiveness and Challenges of Online Learning for Secondary School Students–A Case Study," *Asian Journal of University Education* 17, no. 3 (2021): 119–29.

[7] Appana,"A Review of Benefits and Limitations of Online Learning in the Context of the Student, the Instructor and the Tenured Faculty."

[8] Claudiu Coman et al., "Online Teaching and Learning in Higher Education during the Coronavirus Pandemic: Students' Perspective," *Sustainability* 12, no. 24 (December 11, 2020): 10367, https://doi.org/10.3390/su122410367.

[9] Elda Tartari and Ledia Kashahu, "Challenges of Students in Online Learning," *Kultura i Edukacja*, no. 4 (134) (2021): 229–39.

[10] Lisa R. Amir et al., "Student Perspective of Classroom and Distance Learning during COVID-19 Pandemic in the Undergraduate Dental Study Program Universitas Indonesia," *BMC Medical Education* 20, no. 1 (2020): 392, https://doi.org/10.1186/s12909-020-02312-0.

[11] Nadia Yusuf and Nisreen Al-Banawi, "The Impact Of Changing Technology: The Case Of E-Learning," *Contemporary Issues in Education Research (CIER)* 6, no. 2 (March 27, 2013): 173, https://doi.org/10.19030/cier.v6i2.7726.

assessment procedures in the online environment are frequently restricted.[12] However, it does not appear that online group presentation assessments are widely used. This could be because of some of the challenges that academics and students have while using an online delivery platform.[13] Facilitators and students may find it difficult to adjust to the online setting.[14] Online courses should be one of the many opportunities provided by technology in the world today for educators and learners to become more effective(Pham).[15]

Theory of Connectivism in Online Learning

The current study applied Siemens George's connectivism learning theory to a variety of experiences and challenges encountered by the NOUN undergraduate students in today's online learning environment.[16] Siemens' theory has been used by Open and Distance Learning (ODL), including NOUN. Many ODL institutions, cognizant of how people are learning, where they are learning, and what they are interested in learning, have developed websites like NOUN, https://www.nou.edu.ng/, on which anybody can enroll in a course and/or participate in open dialogue on a particular subject.[17]

Connectivism, a philosophy for the digital era proposed by Siemens and Downes, challenges the distinctions between constructivism, cognitivism, and behaviorism.[18] Connectivism, as a learning theory, has its origin in distributed learning.[19] Proponents of the theory contend that it is relevant to digital society and that it takes a different epistemological stance from Driscoll's classification of learning theory as objectivism (linked to behaviourism), pragmatism (linked to cognitivism), and interpretivism (linked to constructivism).[20] According to the theory of constructivism, students are not just empty canisters waiting to be filled with information. Rather, students are making a conscious effort to generate meaning. Constructivist education allows students to choose and direct their own learning.[21] Learning that takes place outside of human interaction, such as learning that is captured and altered by technology and social media platforms, is not covered by these theories of behaviorism, cognitivism, and constructivism. Furthermore, because learning theories focus on the process of learning rather than the significance of what is taught, they are unable to explain how learning takes place inside learning organisations. This is consistent with the theory of Friere, who criticised this type of education and referred to it as "banked" in the pedagogy of the oppressed.[22] Similarly, Downes had a very poor opinion of traditional educational methods and compared them to a "banking" system in his writing.[23] He posited that these educational methods dehumanise the disadvantaged. The Bantu Schooling Act of 1953 of former apartheid regime serves as a prime illustration of this.

Connectivism, according to another proponent of this theory, is "the thesis that knowledge is distributed across a network of connections to its nodes, and therefore learning consists of the ability to construct and traverse those nodes connected to networks."[24] As is well known, a network is made up of numerous connections that link different things, sometimes referred to as nodes, and each node contains information in the form of knowledge. Any entity, including people, groups of people, computers, concepts, and communities, can be considered a node. When the data on one node changes, so do the data on another node. The nodes in a network play a role in exchanging information that, with comprehension,

[12] Karen C Williams, Bruce A Cameron, and Kari Morgan, "Supporting Online Group Projects," *NACTA Journal* 56, no. 2 (2012): 15–20.
[13] Tartari and Kashahu, "Challenges of Students in Online Learning"; David Jaques and Gilly Salmon, *Learning in Groups* (Routledge, 2007), https://doi.org/10.4324/9780203016459.
[14] Adrian Kirkwood and Linda Price, "Technology-Enhanced Learning and Teaching in Higher Education: What Is 'Enhanced'and How Do We Know? A Critical Literature Review," *Learning, Media and Technology* 39, no. 1 (2014): 6–36; Jenna Gillett-Swan, "The Challenges of Online Learning: Supporting and Engaging the Isolated Learner," *Journal of Learning Design* 10, no. 1 (2017): 20–30.
[15] Ngoc Son Pham, "The Effectiveness of Teaching and Learning Online: A Study on HUFI's English-Majored Students," *International Journal of TESOL & Education* 2, no. 3 (2022): 1–12.
[16] George Siemens, "Connectivism: A Learning Theory Fir the Digital Age," 2005.
[17] Jeff Utecht and Doreen Keller, "Becoming Relevant Again: Applying Connectivism Learning Theory to Today's Classrooms.," *Critical Questions in Education* 10, no. 2 (2019): 107–19.
[18] Stephen Downes, "What Connectivism Is," February 3, 2007, http://halfanhour.blogspot.ro/2007/02/what-connectivism-is.html.
[19] George Siemens, "A Learning Theory for the Digital Age," 2004.
[20] Marcy Driscoll, *Review of Psychology of Learning for Instruction* (Allyn & Bacon, 1994).
[21] Utecht and Keller, "Becoming Relevant Again: Applying Connectivism Learning Theory to Today's Classrooms."
[22] Paulo Freire, "Pedagogy of the Oppressed," in *Toward a Sociology of Education* (Routledge, 2020), 374–86.
[23] Stephen Downes, "Learning Networks in Practice," *Emerging Technologies for Learning* 2, no. 4 (2007): 20.
[24] Downes, "Learning Networks in Practice."

can become into true knowledge. Knowledge and understanding are represented by deep relationships. Learning is defined by connectivism as "actionable knowledge" so as to connect to the narrow realm of personal knowledge (which means creating), identify patterns, take advantage of the weak links between nodes, and expand their personal networks. Consequently, connectivism presupposes knowledge sharing between nodes of knowledge, which are people or organisations with some skill in a particular topic, as Dorin demonstrates.[25] This sharing of knowledge can lead to learning. Learners cannot stop learning; they pick up knowledge from every interaction they have with the outside world and the network. Therefore, in some (related) aspects, "the activities that learners undertake when they conduct practices, to learn, are like developing or growing their selves, along with society."[26]

Previous Research on Online Learning Environments

Numerous research studies have been conducted to examine the virtual learning environment and the theory of connectivism. Below are some examples of these past studies.

Anderson[3] investigated the perceptions and acceptance of online facilitation among Business Administration students of NOUN. The study employed quantitative and qualitative methods to gather data and analyse findings, using surveys and statistical analysis for measurement and interviews to gain a deeper understanding. The study results showed, among other things, that most of NOUN business administration students like the accessibility and adaptability that online facilitation provides. Active student engagement and participation are effectively encouraged through online facilitation. However, the emphasis in the online learning environment is on digital literacy, internet access, and self-discipline.

In a similar study, Zamani et al. examined the four types of learning environments introduced by Bransford et al.[27] for online learning, including learner-centred, community-centred, assessment-centred and knowledge-centred to facilitate effective learning among diploma-level students.[28] The study adopted a quantitative method survey using Google Forms, which involved 150 respondents randomly chosen from a major public university in Malaysia. The questionnaire instrument was adopted from a previous study conducted by Hassan et al.[29] The result revealed that the students obtained an ideal learning environment at a public university in Malaysia.

A study conducted by Nasution et al. examined whether online, blended, or in-person-students type of learning was preferred.[30] In this descriptive study, a quantitative technique was applied including one hundred students enrolled in Islamic religious education study programmes. The findings indicated that in-person instruction is the most popular option, followed by blended and online instruction. However, as it will become the norm in future learning environments, online learning is the most crucial to carry out, particularly when it concerns an emergency.

Okpala studied the perception and challenges faced by students in ODL mode.[31] A well-structured and validated questionnaire called the "Students' Perception of Open and Distance Learning Questionnaire (SPODLQ)" was used for data collection. Two statistical methods, Chi-square and simple frequencies, were used for data analysis. The results showed that the NOUN students in the Abuja study centre have a positive perception of the ODL mode of study. A major challenge was however identified by Abuja study centre students in the area of issuance of printed versions of the course materials. It was suggested that NOUN should maintain what they already have while improvingn quality.

[25] Dorin Herlo, "Connectivism, A New Learning Theory?," 2017, 330–37, https://doi.org/10.15405/epsbs.2017.05.02.41.
[26] Downes, "What Connectivism Is."
[27] Bransford John D., Brown Ann L., and Cocking Rodney R. 2000. *Review of how People Learn: Brain, Mind, Experience, and School*. Washington DC: National Academy Press. 2000.
[28] N. D. Zamani et al., "Exploring Learning Environment in Online Learning," *International Journal of Academic Research in Business and Social Sciences* 12, no. 10 (2022): 585–600;John D Bransford, Ann L Brown, and Rodney R Cocking, *How People Learn*, vol. 11 (Washington, DC: National academy press, 2000).
[29] Hassan Nurulhuda Md, Norliza Abdul Majid, and Nur Khairunnasuha Abu Hassan, "Validation of Learning Environment Inventory for Secondary School Contexts.," *International Journal of Evaluation and Research in Education* 9, no. 2 (2020): 379–84.
[30] Awal Kurnia Putra Nasution et al., "Face to Face Learning vs Blended Learning vs Online Learning (Student Perception of Learning)," *Journal of Physics: Conference Series* 1783, no. 1 (February 1, 2021): 012112, https://doi.org/10.1088/1742-6596/1783/1/012112.
[31] Okpala, "National Open University Of Nigeria (NOUN) Students Perception Of Open And Distance Learning."

The study by Akuratiya and Meddage looked at how students of Information and Technology (IT) perceive online learning through a quantitative case study.[32] Using SPSS powered descriptive statistical analysis, data was gathered from 130 students who switched from traditional classroom instruction to online learning. The findings showed that students' opinions on online learning are more positive despite its drawbacks, including social isolation concerns, technological difficulties, and a decrease in teacher-student connection.

Another study was conducted by Gavin which focused on connectivism as a learning theory and its relation to open distance education at the University of South Africa (UNISA).[33] With connectivism, learning is defined by connections to a network of knowledge that can include any form of interaction. Gavin concluded that connectivism destroys the false ideological perceptions of learning that belong to a privileged group of people.[34] It opens a new sense of freedom in a virtual classroom context like UNISA for those who were previously excluded from learning, connecting the poor and oppressed to a remarkable world of learning in a digital age.

However, students also face various challenges in online learning environments. For instance, a study conducted by Aboagye focused on the viewpoints of the students on e-learning.[35] The authors determined that the main obstacles that the students faced were to be accessibility, connectivity, inadequate devices, and social concerns that were exemplified by the students' lack of engagement and communication between peers and teachers. Al-Hujran et al. also discovered that there are several obstacles standing in the way of successful e-learning, such as raising awareness and comprehension of e-learning, overcoming reluctance to try new learning techniques, ensuring the e-learning system is always available, and paying more attention to the role that educators and institutions play in encouraging students to use e-learning.[36] Other issues include students' lack of engagement and motivation in relation to the social issue of the decline in interpersonal relationships between students and teachers, as well as among students themselves.[37] Although most studies show favourable attitudes toward e-learning, comparable studies found that students believed that courses taught in-person were more valuable than those offered online; and that they preferred blended learning—a mix of in-person and online instruction to take only online courses.[38]

METHODOLOGY

This research study adopted a qualitative research design and is based on an interpretive paradigm.[39] In qualitative research, the data collected can be audio, visual, or audio-visual and thereafter, transcribed into texts or words.[40] Additionally, qualitative research can involve analysing the content of the collected data.[41] The qualitative interpretive paradigm research design is appropriate in this study because it is concerned with understanding the world through personal experience, and allows a researcher to use a small sample size for case studies to represent a particular population. They use qualitative

[32] D A Akuratiya and D N Meddage, "Students' Perception of Online Learning during COVID-19 Pandemic: A Survey Study of IT Students," *International Journal of Research and Innovation in Social Science (IJRISS)* 57, no. 48 (2020): 23.
[33] Gavin Peter Hendricks, "Connectivism as a Learning Theory and Its Relation to Open Distance Education," *Progressio* 41, no. 1 (December 20, 2019), https://doi.org/10.25159/2663-5895/4773.
[34] Hendricks, "Connectivism as a Learning Theory and Its Relation to Open Distance Education."
[35] Emmanuel Aboagye, Joseph Anthony Yawson, and Kofi Nyantakyi Appiah, "COVID-19 and E-Learning: The Challenges of Students in Tertiary Institutions," *Social Education Research*, June 30, 2020, 1–8, https://doi.org/10.37256/ser.212021422.
[36] Omar Al-Hujran et al., "Challenges to E-Learning Success:The Student Perspective," in *Proceedings of the 2013 International Conference on Information, Business and Education Technology (ICIBET-2013)* (Paris, France: Atlantis Press, 2013), https://doi.org/10.2991/icibet.2013.226.
[37] Fernando Ferri, Patrizia Grifoni, and Tiziana Guzzo, "Online Learning and Emergency Remote Teaching: Opportunities and Challenges in Emergency Situations," *Societies* 10, no. 4 (November 13, 2020): 86, https://doi.org/10.3390/soc10040086.
[38] Edith Galy, Clara Downey, and Jennie Johnson, "The Effect of Using E-Learning Tools in Online and Campus-Based Classrooms on Student Performance," *Journal of Information Technology Education: Research* 10, no. 1 (2011): 209–30; Michael Tagoe, "Students' Perceptions on Incorporating e-Learning into Teaching and Learning at the University of Ghana," *International Journal of Education and Development Using ICT* 8, no. 1 (2012): 91–103.
[39] J.H. McMillan and S. Schumacher, *Research in Education: Evidence-Based Inquiry*, 7th ed. (Upper Saddle River, NJ: Pearson, 2010).
[40] Naupess K Kibiswa, "Directed Qualitative Content Analysis (DQlCA): A Tool for Conflict Analysis," *The Qualitative Report* 24, no. 8 (2019): 2059–79.
[41] A.J. Kleinheksel et al., "Demystifying Content Analysis," *American Journal of Pharmaceutical Education* 84, no. 1 (January 2020): 7113, https://doi.org/10.5688/ajpe7113.

methods, such as interviews or participant observation that are based researcher-subject relationships.[42] The study population included only 106,874 undergraduate students from the NOUN, Southwestern Nigeria, in the 2023/2024 academic session.[43] The sample consisted of 15 undergraduate students from three NOUN study centres in Southwestern Nigeria. A multistage sampling technique was adopted for the study. In stage 1, only Southwestern Nigeria was selected from the six geopolitical zones in the country using a purposive sampling technique. The reason for using purposive sampling is because the Southwest was a proxy to the researcher. At stage 2, of the twenty-one (21) NOUN study centres in Southwestern Nigeria, only three centres were randomly selected. Using the simple random sampling technique, all study centres had an equal chance of being selected, resulting in the sample being unbiased. Thereafter, at stage three, out of the eight faculties (Arts, Education, Agriculture, Health Science, Management Science, Sciences, Social Sciences, and Law) of the NOUN only one (Faculty of Education) was randomly selected. More so, at stage four, from each of the three study centres, only one Department (Computer Science) was purposively selected from the Faculty of Education, totaling three departments. The rationale for choosing the Computer Science Department is that the department is directly involved in online learning, as such, it enabled the researcher to gain a deep understanding of students' learning experiences in an online learning environment. Lastly, at stage five, five "part three" undergraduate students were randomly chosen from each of the three departments in the three study centres making a total of 15 undergraduate students that formed the sample.

An in-depth unstructured interview was scheduled to collect data from the selected students. Questions were asked in English and Yoruba to overcome language barriers and allow free expression. Subsequently, the responses were transcribed verbatim into the English words. The transcription followed the following procedure; feedback for in-person interviews was collected through the voice recorder app using "rev voice recorder" which allowed the researcher to order transcripts of the interview directly from the app; and the recorded audio (responses) was saved and compiled. The responses were analysed using thematic content analysis to answer the research questions.

PRESENTATION OF RESULTS/FINDINGS

The research findings in this section are based on the research questions that were addressed. Each finding is discussed in relation to the responses provided by the 15 undergraduate study participants.

Research Question One: What are the experiences of undergraduate students of NOUN in today's online learning environment? Each of the fifteen participants gave an answer that addressed the research question. They stated that self-directed or individualised learning is supported by online learning. Since the school's motto is "learn at any place at your pace," students are free to learn at their own pace. The initiative provides access to international study materials through the NOUN's eCourware library, according to the participants. They claim that because the curriculum is ODL, they can work from any location as long as it is convenient for them.

For example, Study Centre 2 Participant 8 said, "As a working-class student, I study and work at my own pace. Except for the days I receive ICT training or practical, which includes software and hardware, algorithm design and mathematical modeling, system application and development, as well as system maintenance, among other things, I don't need to attend school to learn. My online learning experience has been self-motivating because the programme encouraged me to study theory independently."

Respondent Number 5 of the Study Centre One claims that their experience in an online learning environment has been quite difficult. "Nigeria is a hot country, and studying there without artificial air is impossible. Because I would constantly have to deal with low electricity in my study centre, I find that I am not always motivated to go there as a student to read. I have benefited from the NOUN curriculum in terms of self-learning. Houses, workplaces, and study centres using generators produce too much noise is produced, making reading difficult. Thank heavens for the widespread use of solar energy, but more needs to be done by the government to ensure that it is affordable and easily accessible."

[42] Patricia R Owen, "Portrayals of Schizophrenia by Entertainment Media: A Content Analysis of Contemporary Movies," *Psychiatric Services* 63, no. 7 (2012): 655–59.
[43] DAP NOUN, "Directorate of Academic Planning (DAP)," 2024, https://nou.edu.ng/directorate-of-academic-planning/.

Afterwards, participant 11 in Study Centre 3, disclosed that his NOUN experience has been highly lasting. He said, "The curriculum is long-lasting even though it promotes self-learning at low cost, and allows us to collaborate with our peers across the globe. Unlike our peers in traditional institutions, I have free access to electronic study materials through NOUN. There is no Wi-Fi available for students to access the internet. To access the internet, I subscribe to data. Even though my study centre is conveniently close to my home, I do not find it motivating to get there because it is a waste of time. I continue to subscribe to data while I am there in order to do my schoolwork. More has to be done by the government."

Respondent 2 (study Centre 1) stated, "I have found the online learning environment to be very tolerable. I am older than fifty. My enthusiasm for the course has led me to pursue a degree in computer science. My generation is not into this ICT complaint per se. I already have a job; all I need is the certification to get promoted. The NOUN programme is intended for people who are comfortable using ICT. I do not have a lot of information and technology experience. It is really having an impact on me. Nevertheless, the platform promotes self-learning, and allows us to obtain course materials online and work globally with our mates."

Respondent 6 at Study Centre 2 nevertheless talked about his time at NOUN. The participant said that they learn manually, as NOUN does not offer online education. He stated, "The majority of the facilitators, in my opinion, are not ICT compliant. Online learning environment allows me to collaborate globally with my peers, download the course materials electronically, and study on my own at a reduced cost."

Furthermore, Participant 15 (Study Centre 3) thought that online learning was an interesting way to learn. "Everything is operating without a hitch. Both at my house and at business, we use solar power. We are not dependent on the government for our power supply. I can work and study without any problems. Thanks to online learning, however, the cost of ICT instruments is prohibitive. ICT tools such as projectors, computers, fast-browsing phones, data subscriptions, and so on are too expensive. For instance, my computer is beyond repair due to a malfunction. It seems that the programme has been grounded for now until I find another option."

According to Participant 9 (Study Centre 2), "Poor ICT literacy is an experience in an online learning environment that should not be quickly forgotten. It dealt with me. I am getting over it, bit by bit. All because of open-distance education. I can now work and study for less money, whenever it suits me."

However, the first respondent in the Research Centre One mentioned how fascinating it was to learn in an online setting. "I have no regrets about that. Through the programme, I am conveniently learning at a cheap cost while working, interacting with peers abroad, and accessing the NOUN e-library for reading materials.

Lastly, Participant 9 at Research Centre 2 noted that his time at NOUN is focused on in-person interactions with their facilitators rather than virtual learning. He stated, "The lectures at my study centre are conducted offline, but we complete and turn in our assignments online and download our digital course materials from the NOUN's e-Courseware library. We write tests (examinations) on paper using the pencil. Since most of the teaching and learning activities take place in person rather than virtually, the programme is not open to distance learners."

Research Question Two: What are the major challenges that NOUN undergraduate students encounter in their experience in today's online learning environment? The participants' answers to the above question revealed that the main obstacles to today's online learning at NOUN study centres are inadequate or poor electricity supplies, unfriendly or noisy learning environments, inadequate ICT facilities, poor internet connections, insufficient manpower or human resource supply, high costs for ICT tools and data subscriptions, poverty, a lack of knowledge about the use of ICT tools, and a lack of motivation of manpower in the areas of payments, training, and/or retraining. Additionally, the students confirmed that practice does not lead to learning in an online learning environment. Laboratory-based science courses are ineffective and provide students with a subpar education.

According to Study Centre One, Participant Three, "Noise, poor lighting, and improper temperature are the main obstacles in an online learning environment. Often there is no supply of electricity. The fans are not working. The noise produced by generators makes it difficult to learn. Our students use mobile phones to access online study materials and receive learning from our instructors

because most of us do not have dependable laptops. The government and businesses need to provide the students with subsidies for these ICT tools."

Additionally, Participant 8 at Study Centre 2 stated that their Study Centre's ICT facilities are inadequate, making the learning process at NOUN very difficult. "The students cannot access the internet via Wi-Fi. There are also instances of inadequate power supply and problems with internet connectivity. I can confirm that learning does not occur through practice in an online learning environment. Students who take science courses that call for the use of laboratories receive subpar instruction and are ineffective. Although many students do not attend classes, I believe that it will make more sense to receive 50% of their lectures online and the remaining 50% offline. The Nigerian government and corporate organisations should come to our aid."

Furthermore, Respondent 13 at Study Centre 3 confirmed that the learning experience at the NOUN study centre is tough. "I am quite skilled in ICT. I am passionate about information and communication technology. It was the reason I enrolled in the programme. Unfortunately, the ICT facilities at my study centre are poor. We require Wi-Fi, more ICT rooms, an adequate supply of electricity, competent software and hardware engineers, and reliable internet service. The internet service is consistently awful here. Also, many of our students do not have reliable computers, they rely on their phones to acquire study materials online and receive directions from our facilitators."

During the same time, Participant 12 (Study Centre 3) mentioned that some of the problems they face in online learning include, unpredictable energy, unreliable internet access, rising costs of ICT instruments, and poverty. "Also, ICT tools and infrastructure must be sufficiently funded, with students receiving a subsidy. To me, in an online learning environment, students do not learn through practice. Science classes that necessitate the use of laboratories are not effective, and students receive a poor-quality education."

Nonetheless, according to Respondent 7 at Study Centre 2, the main problem of online learning at NOUN is the lack of experience in ICT use, particularly among elderly students. For example, from year one to year three, about 30% of the members of my class have dropped out of the programme. According to the students who had departed, they lack a thorough comprehension of some of the things we do on the internet. In contrast, ICT is here to stay, and there is nothing anyone can do about it other than adapt. Again, most of us do not have good computers, instead, we use our phones for sourcing study materials online and receiving instructions from our instructors. Although many students do not attend classes, it will make more sense if 50% of our lectures are received online, and another 50% offline."

Finally, Participant One at Study Centre One complained that one of the difficulties he has encountered with online learning at the NOUN study centre is that the facilitators and administrative members of staff are unmotivated. "The issue here is a lack of manpower motivation. For example, they are not being trained or retrained following current ICT practices. Instead, they are expected to train themselves with the peanuts they make from selling handouts. It is wrong. Most of these software applications are obsolete while others are updated over time. As I previously stated, their salary should be increased, and potentially harmonised. The government, NUC, and other stakeholders in tertiary education should look into it."

DISCUSSION

The majority of participants confirmed that even though their experience at NOUN was long-lasting, it had inspired them to learn independently at their own speed and comfort level. Almost all participants said that online learning is more affordable than traditional schooling, where students frequently incur higher commute costs. Additionally, the majority of participants said that the NOUN programme gives them access to electronically download study materials, and enables them to learn in collaboration with their friends. A small percentage of participants, particularly the elderly, bemoaned the lack of friendliness they are experiencing when using ICT technologies. They claim that all they need to advance in their jobs is the NOUN certificate. Once again, a small percentage of participants stated that some of their facilitators still arrange to educate them in person due to inadequate energy supplies and inadequate understanding of how to use ICT tools. According to the students, there are parts of Nigeria where there is no electricity for months at a time, and even when it does come back on, it only lasts a short while. This prevents distance and open learning from being implemented effectively. They suggested that government provide help.

This result is consistent with the views of Barthakur et al. and Yuhanna et al., who argued that knowledge may be acquired, personal meaning can be created, and experience can be developed through online learning.[44] This study also supports Coman et al.'s findings, which stated that there are many potential benefits to investing in online learning, such as improved accessibility, higher-quality education, preparing students for a knowledge-based society, the opportunity for "lifelong" learning, financial gain, and many more.[45] This study's finding is further consistent with Gavin's claim that connectivism creates a new sense of freedom in the context of a virtual classroom by dismantling false ideological views of learning that belong to a privileged group of people.[46] Furthermore, Dorin's theory of connectivism in online learning asserts that connectivism requires information exchange between nodes of knowledge, or individuals or institutions with some level of expertise in a given subject.[47] Zamani et al. assert that "the activities that learners undertake when they conduct practices, to learn, are like developing or growing their selves, along with the society" in certain (connected) aspects, which this supports.[48] According to Okpala, online facilitation is an efficient way to promote active student engagement and participation.[49] According to Bransford et al., students at a Malaysian public university receive an excellent online learning environment; NOUN is a public university.[50]

More so, based on the responses, every undergraduate student at NOUN concurred and identified the main challenges that prevent them from fully using the online learning environment of today. To summarise, the challenges of the study participant included low or inadequate power supplies, unpleasant or noisy learning environment, inadequate ICT facilities, poor internet connections, a shortage of labour or human resources, expensive ICT tools and data subscription fees, poverty, a lack of knowledge about how to use ICT tools, and a lack of motivation from manpower to train, and/or retraining. The students also agreed that in an online learning environment, they do not learn through practice. Lab-based science courses are poorly taught as students receive a low-quality education. The students recommended that they receive 50% of their lectures online and the remaining 50% offline, even though many of them do not attend lessons. The students also complained that most of them do not have good laptops, so they use their phones to find study materials online and receive instructions from their facilitators. Several earlier investigations, such as those by Gillet-Swan, Pham, and Siemens support this conclusion.[51] Similar to this, Tartari identified several reasons, including technological issues.[52] These are followed by the weak technical competency of teachers and the poorly adapted instructional strategies for the online environment. Furthermore, as demonstrated by additional relevant research, it appears that online group presentation evaluations are not commonly used.[53] This might be a result of some of the difficulties facilitators and students have when using an online learning environment. Crucially, Pham and Gillet-Swan noted that facilitators and students can find it challenging to become used to the online environment.[54] Most importantly, Okpala said that students who are more inclined toward science may perceive things differently from those who are more interested in the arts due to the particular demands and characteristics of science-related courses.[55] Furthermore, Nasution et al. claimed that online and blended learning are the most popular options, with in-person instruction coming in second.[56] The results of the current study, which show that students' evaluations of online learning are more positive despite its

[44] Barthakur et al., "Aligning Objectives with Assessment in Online Courses: Integrating Learning Analytics and Measurement Theory"; Yuhanna, Alexander, and Kachik, "Advantages and Disadvantages of Online Learning."
[45] Coman et al., "Online Teaching and Learning in Higher Education during the Coronavirus Pandemic: Students' Perspective."
[46] Hendricks, "Connectivism as a Learning Theory and Its Relation to Open Distance Education."
[47] Herlo, "Connectivism, A New Learning Theory?"
[48] Zamani et al., "Exploring Learning Environment in Online Learning."
[49] Okpala, "National Open University Of Nigeria (NOUN) Students Perception Of Open And Distance Learning."
[50] Bransford, Brown, and Cocking, *How People Learn*.
[51] Gillett-Swan, "The Challenges of Online Learning: Supporting and Engaging the Isolated Learner"; Pham, "The Effectiveness of Teaching and Learning Online: A Study on HUFI's English-Majored Students"; George Siemens, "Connectivism," *Foundations of Learning and Instructional Design Technology*, 2017.
[52] Tartari and Kashahu, "Challenges of Students in Online Learning."
[53] Kirkwood and Price, "Technology-Enhanced Learning and Teaching in Higher Education: What Is 'Enhanced'and How Do We Know? A Critical Literature Review."
[54] Pham, "The Effectiveness of Teaching and Learning Online: A Study on HUFI's English-Majored Students"; Gillett-Swan, "The Challenges of Online Learning: Supporting and Engaging the Isolated Learner."
[55] Okpala, "National Open University Of Nigeria (NOUN) Students Perception Of Open And Distance Learning."
[56] Nasution et al., "Face to Face Learning vs Blended Learning vs Online Learning (Student Perception of Learning)."

downsides, including social isolation worries, technological challenges, and a decline in teacher-student connection, are consistent with the findings of Akuratiya.[57] However, additional related research has shown that the main challenges faced by students in an online learning environment are inadequate ICT devices, a bad internet connection, and social concerns, which are demonstrated by the students' lack of participation and communication with teachers and peers.[58]

RECOMMENDATIONS

It is recommended that the Nigerian government should work with the Power Holding Company of Nigeria (PHCN) to provide energy to the nation's rural and urban areas of the country according to the findings of the study. Additionally, it is recommended that students have access to institutional Wi-Fi from their home base rather than only while on campus. This will lower the cost of student data subscriptions and improve internet connectivity. Furthermore, it is recommended that the government, corporations, academic institutions, and private citizens all contribute to the cost-sharing of laptops for students. However, those involved in education should encourage ODL facilitators by increasing their salary and providing them with ongoing training in the use of modern ICT tools and applications. Therefore, the government ought to assign additional facilitators to each of the National Open Universities of Nigeria's (NOUN) centres. Lastly, to provide students with the necessary information to solve practical problems, online learning for science-related courses should incorporate a 50% practical component.

CONCLUSION

The main objective of the study the has been to assess experiences and difficulties in an online learning environment by undergraduate NOUN students'. The study has shown that, in spite of its many benefits, online education is still seen negatively by undergraduate students of the NOUN, which could have an effect on the institution's ability to remain open. According to their answers, students pursuing practical scientific courses report a greater disadvantage than those pursuing arts and humanities courses. Additionally, the students stated that Nigeria's approach to implementing online learning is in conflict with achieving the SDG 4 of "quality education" by 2030. This is because, according to their responses, there are several issues that the online environment in Nigeria faces, including inadequate power supply, poor internet connection, low ICT tool knowledge among students and their facilitators, inadequate ICT facilities, high ICT facilities costs (such as computers, laptops, data subscriptions, and the like), a shortage of physical and human resources, a lack of training and/or retraining of labour, and a lack of manpower motivation, among other issues.

BIBLIOGRAPHY

Aboagye, Emmanuel, Joseph Anthony Yawson, and Kofi Nyantakyi Appiah. "COVID-19 and E-Learning: The Challenges of Students in Tertiary Institutions." *Social Education Research*, June 30, 2020, 1–8. https://doi.org/10.37256/ser.212021422.

Akuratiya, D A, and D N Meddage. "Students' Perception of Online Learning during COVID-19 Pandemic: A Survey Study of IT Students." *International Journal of Research and Innovation in Social Science (IJRISS)* 57, no. 48 (2020): 23.

Al-Hujran, Omar, Anas Aloudat, Hanin Al-Hennawi, and Hanaa Nabeel Ismail. "Challenges to E-Learning Success:The Student Perspective." In *Proceedings of the 2013 International Conference on Information, Business and Education Technology (ICIBET-2013)*. Paris, France: Atlantis Press, 2013. https://doi.org/10.2991/icibet.2013.226.

Alexander, Melody W, Allen D Truell, and Jensen J Zhao. "Expected Advantages and Disadvantages of Online Learning: Perceptions from College Students Who Have Not Taken Online Courses." *Issues in Information Systems* 13, no. 2 (2012): 193–200.

Amir, Lisa R., Ira Tanti, Diah Ayu Maharani, Yuniardini Septorini Wimardhani, Vera Julia, Benso Sulijaya, and Ria Puspitawati. "Student Perspective of Classroom and Distance Learning during

[57] Akuratiya and Meddage, "Students' Perception of Online Learning during COVID-19 Pandemic: A Survey Study of IT Students."
[58] Aboagye, Yawson, and Appiah, "COVID-19 and E-Learning: The Challenges of Students in Tertiary Institutions"; Ferri, Grifoni, and Guzzo, "Online Learning and Emergency Remote Teaching: Opportunities and Challenges in Emergency Situations"; Al-Hujran et al., "Challenges to E-Learning Success:The Student Perspective."

COVID-19 Pandemic in the Undergraduate Dental Study Program Universitas Indonesia." *BMC Medical Education* 20, no. 1 (December 29, 2020): 392. https://doi.org/10.1186/s12909-020-02312-0.

Anderson, Terry. *Review of the Theory and Practice of Online Learning*. Athabasca University Press, 2008.

Appana, Subhashni. "A Review of Benefits and Limitations of Online Learning in the Context of the Student, the Instructor and the Tenured Faculty." *International Journal on E-Learning* 7, no. 1 (2008): 5–22.

Barthakur, Abhinava, Srecko Joksimovic, Vitomir Kovanovic, Michael Richey, and Abelardo Pardo. "Aligning Objectives with Assessment in Online Courses: Integrating Learning Analytics and Measurement Theory." *Computers & Education* 190 (December 2022): 104603. https://doi.org/10.1016/j.compedu.2022.104603.

Basar, Zulaikha Mohd, Azlin Norhaini Mansor, Khairul Azhar Jamaludin, and Bity Salwana Alias. "The Effectiveness and Challenges of Online Learning for Secondary School Students–A Case Study." *Asian Journal of University Education* 17, no. 3 (2021): 119–29.

Bransford, John D, Ann L Brown, and Rodney R Cocking. *How People Learn*. Vol. 11. Washington, DC: National academy press, 2000.

Charles Sturt University. "Review of Benefits of Distance Education," 2015.

Coman, Claudiu, Laurențiu Gabriel Țîru, Luiza Meseșan-Schmitz, Carmen Stanciu, and Maria Cristina Bularca. "Online Teaching and Learning in Higher Education during the Coronavirus Pandemic: Students' Perspective." *Sustainability* 12, no. 24 (December 11, 2020): 10367. https://doi.org/10.3390/su122410367.

DAP NOUN. "Directorate of Academic Planning (DAP)," 2024. https://nou.edu.ng/directorate-of-academic-planning/.

Downes, Stephen. "Learning Networks in Practice." *Emerging Technologies for Learning* 2, no. 4 (2007): 20.

———. "What Connectivism Is," February 3, 2007. http://halfanhour.blogspot.ro/2007/02/what-connectivism-is.html.

Driscoll, Marcy. *Review of Psychology of Learning for Instruction*. Allyn & Bacon, 1994.

Ferri, Fernando, Patrizia Grifoni, and Tiziana Guzzo. "Online Learning and Emergency Remote Teaching: Opportunities and Challenges in Emergency Situations." *Societies* 10, no. 4 (November 13, 2020): 86. https://doi.org/10.3390/soc10040086.

Freire, Paulo. "Pedagogy of the Oppressed." In *Toward a Sociology of Education*, 374–86. Routledge, 2020.

Galy, Edith, Clara Downey, and Jennie Johnson. "The Effect of Using E-Learning Tools in Online and Campus-Based Classrooms on Student Performance." *Journal of Information Technology Education: Research* 10, no. 1 (2011): 209–30.

Gillett-Swan, Jenna. "The Challenges of Online Learning: Supporting and Engaging the Isolated Learner." *Journal of Learning Design* 10, no. 1 (2017): 20–30.

Hendricks, Gavin Peter. "Connectivism as a Learning Theory and Its Relation to Open Distance Education." *Progressio* 41, no. 1 (December 20, 2019). https://doi.org/10.25159/2663-5895/4773.

Herlo, Dorin. "Connectivism, A New Learning Theory?," 330–37, 2017. https://doi.org/10.15405/epsbs.2017.05.02.41.

Jaques, David, and Gilly Salmon. *Learning in Groups*. Routledge, 2007. https://doi.org/10.4324/9780203016459.

Kibiswa, Naupess K. "Directed Qualitative Content Analysis (DQlCA): A Tool for Conflict Analysis." *The Qualitative Report* 24, no. 8 (2019): 2059–79.

Kirkwood, Adrian, and Linda Price. "Technology-Enhanced Learning and Teaching in Higher Education: What Is 'Enhanced'and How Do We Know? A Critical Literature Review." *Learning, Media and Technology* 39, no. 1 (2014): 6–36.

Kleinheksel, A.J., Nicole Rockich-Winston, Huda Tawfik, and Tasha R. Wyatt. "Demystifying Content Analysis." *American Journal of Pharmaceutical Education* 84, no. 1 (January 2020): 7113. https://doi.org/10.5688/ajpe7113.

McMillan, J.H., and S. Schumacher. *Research in Education: Evidence-Based Inquiry*. 7th ed. Upper Saddle River, NJ: Pearson, 2010.

Md, Hassan Nurulhuda, Norliza Abdul Majid, and Nur Khairunnasuha Abu Hassan. "Validation of Learning Environment Inventory for Secondary School Contexts." *International Journal of Evaluation and Research in Education* 9, no. 2 (2020): 379–84.

Nasution, Awal Kurnia Putra, Andika Hariyanto Surbakti, Rahmanita Zakaria, Sungkawati Kardi Wahyuningsih, and Leni Agustina Daulay. "Face to Face Learning vs Blended Learning vs Online Learning (Student Perception of Learning)." *Journal of Physics: Conference Series* 1783, no. 1 (February 1, 2021): 012112. https://doi.org/10.1088/1742-6596/1783/1/012112.

Nguyen, Thi Hong Nhung, and Nguyen Thi Thuy Hue. "Use of Google Docs in Teaching and Learning English Online to Improve Students' Writing Performance." *Nguyen, THN, & Nguyen, TTH (2022). Use of Google Docs in Teaching and Learning English Online to Improve Students' Writing Performance. International Journal of TESOL & Education* 2, no. 2 (2022): 186–200.

Ojo, David Olugbenga, and Felix Kayode Olakulehin. "Attitudes and Perceptions of Students to Open and Distance Learning in Nigeria." *The International Review of Research in Open and Distributed Learning* 7, no. 1 (June 13, 2006). https://doi.org/10.19173/irrodl.v7i1.313.

Okpala, Angela Ebele. "National Open University Of Nigeria (NOUN) Students Perception Of Open And Distance Learning." *Information Technologist (The)* 12, no. 2 (2015).

Owen, Patricia R. "Portrayals of Schizophrenia by Entertainment Media: A Content Analysis of Contemporary Movies." *Psychiatric Services* 63, no. 7 (2012): 655–59.

Pham, Ngoc Son. "The Effectiveness of Teaching and Learning Online: A Study on HUFI's English-Majored Students." *International Journal of TESOL & Education* 2, no. 3 (2022): 1–12.

Siemens, George. "A Learning Theory for the Digital Age," 2004.

———. "Connectivism: A Learning Theory Fir the Digital Age," 2005.

———. "Connectivism." *Foundations of Learning and Instructional Design Technology*, 2017.

Tagoe, Michael. "Students' Perceptions on Incorporating e-Learning into Teaching and Learning at the University of Ghana." *International Journal of Education and Development Using ICT* 8, no. 1 (2012): 91–103.

Tartari, Elda, and Ledia Kashahu. "Challenges of Students in Online Learning." *Kultura i Edukacja*, no. 4 (134) (2021): 229–39.

Utecht, Jeff, and Doreen Keller. "Becoming Relevant Again: Applying Connectivism Learning Theory to Today's Classrooms." *Critical Questions in Education* 10, no. 2 (2019): 107–19.

Williams, Karen C, Bruce A Cameron, and Kari Morgan. "Supporting Online Group Projects." *NACTA Journal* 56, no. 2 (2012): 15–20.

Yuhanna, Ivan, Arzuni Alexander, and Agemian Kachik. "Advantages and Disadvantages of Online Learning." *Journal Educational Verkenning* 1, no. 2 (2020): 13–19.

Yusuf, Nadia, and Nisreen Al-Banawi. "The Impact Of Changing Technology: The Case Of E-Learning." *Contemporary Issues in Education Research (CIER)* 6, no. 2 (March 27, 2013): 173. https://doi.org/10.19030/cier.v6i2.7726.

Zamani, N D, R Mohamad Khalid, P Shamala, N Abdl Aziz, D Othman, and W Whanchit. "Exploring Learning Environment in Online Learning." *International Journal of Academic Research in Business and Social Sciences* 12, no. 10 (2022): 585–600.

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