Afrocentric Legal Review (ALR)

https://doi.org/10.68928/ALR-2026-2-1-01

|Print ISSN: 3156-7207|e-ISSN: 3156-7193|

Received: 26th January, 2026
Revised: 20th April, 2026
Accepted: 17th May, 2026

Legal Regulation and Educational Impact of Massive Open Online Courses (MOOCs): A Pre, During- and Post-COVID-19 Analysis

Emmanuel Omoarebu Lawani[1]*, Adamu Yusufa[2], Israel Abayomi Olasunkanmi[3], and Ifeoluwa Oluwaseyi Ijiyera[4]

[1]School of Digital, Distance and eLearning, Kampala International University Kampala, Uganda, Email: emmanuel.lawani@kiu.ac.ug

[2]Faculty of Law and Political Science, University of Garoua - Cameroon Email: fsjp@univ-garoua.cm

[3]Department of Science and Technology Education, University of Ibadan, Nigeria, Email: ia.olasunkanmi@gmail.com

[4]Department of Educational Technology and Library Science, Obafemi Awolowo University, Ile-Ife, Nigeria, Edo State, Nigeria Email: Ifeoluwaijiyera@gmail.com

** Correspondence: emmanuel.lawani@kiu.ac.u*

Abstract: This research evaluates the legal regulation of MOOCs and the participation behavior among Nigerian undergraduate students before, during, and after the outbreak of the Coronavirus Disease (COVID-19). Through survey results of 144 participants, it analyzes variations in participation and completion behaviors as well as challenges associated with poor internet connectivity, power outage, cost of courses, and improper learning structure. Results show that although participation in MOOCs has increased during the pandemic period and decreased post-COVID-19, completion rates have slightly improved post-pandemic period. However, despite increasing learning opportunities and opportunities to gain temporary employment through MOOCs, participants have been faced with financial constraints and improper course design as barriers to effective participation and completion of MOOC courses. In addition, the research shows that current legal regulations do not properly address the regulation of MOOCs resulting in learners' rights protection, quality assurance, and personal data protection. The study therefore suggests that governments need to come up with legally binding frameworks for MOOCs, backed up by better internet access, reliable power supply, inexpensive classes, and learner-centered instruction design. This will ensure that education remains accessible, accountable, and high-quality, while at the same time protecting the rights of the learners. This research contributes to ongoing discussions about educational technology by focusing on the African continent.

Keywords: Online learning, MOOCs, Undergraduate Education, Perception, Legal, Nigeria

This is an open-access article under the CC–BY 4.0 license

1. INTRODUCTION

The learning ecosystem of the 21st century is one in which technologically enhanced learning spaces cannot be overemphasised. COVID-19 has opened the learning ecosystem to see its lack of preparedness to face the challenges of a widespread pandemic that has led to the shutdown of the entire human race out of its open ecosystem to be enclosed for safety and

survival[1]. This has opened the learning space to numerous opportunities that aid remote and online learning systems, particularly Massive Open Online Courses known as MOOCs[2]. This has increased the number of participants who can access learning content at their own time and desired place of learning, which is not restricted to traditional schooling systems[3]. Hence, the pandemic came with its restricted challenges to human collaboration and opened opportunities within the education sector[4], where technology quickly filled gaps in a restricted learning zone through remote and online learning. The term MOOCs were first used in 2008 for courses offered by the extension division of the University of Manitoba, although historically with opposing views as to its origin[5]. However, in March 2012, a platform for MOOCs called edX was developed as an open-source platform by the Massachusetts Institute of Technology (MIT) and Harvard University. edX was later sold to a nonprofit online course provider called 2U[6] . These MOOC platforms, such as Coursera, Udacity, and edX, have advanced to partner with universities to host degree-based courses and micro-credentials[7]. By 2021, evidence revealed that approximately 70 MOOC-based degrees and over 1,670 MOOC-based micro-credentials had existed, while seven universities had already launched 15 degrees as of 2017. As of 2021, the various MOOC platforms were attributed to 220 million course-takers globally, with over 19,000 certification courses developed[8]. While 24 Chinese MOOC platforms offered about 69,000 courses, with XuetangX, a MOOC platform having about 80 million learners as of 2021. The essential features of MOOCs across many platforms include and may differ from one platform to another but have typical architecture, such as a login prompt, registration page, user guide, video lectures, computer-marked assignments, peer grading assessment, supporting materials, quizzes, shared comments or discussion spaces, non-moderation discussions, badges or certificates, and learning analytics. However, the classification of resources other than MOOCs, including open textbooks and Open Educational Resources (OER), is often made available in ways that make them more accessible for reuse in varied ways, even among resources considered by MOOC platforms during the instruction learning experience design, which sometimes could be void of learners' pain points. It is essential to consider a theoretical framework before commencing instructional development[9].

[1] Anthony William Bates, Teaching in a Digital Age: Guidelines for Designing Teaching and Learning, 3rd ed. (Tony Bates Associates Ltd., 2022), https://pressbooks.bccampus.ca/teachinginadigitalagev3m/.

[2] Neil Cowie and Keiko Sakui, "Micro-Credentials: Common Features and Challenges," *Pacific Journal of Technology Enhanced Learning* 3, no. 1 (2021), https://doi.org/10.24135/pjtel.v3i1.97.

[3] Stephen Downes, "An Introduction to Connective Knowledge," Stephen's Web, 2005, http://www.downes.ca/cgi-bin/page.cgi?post=33034.

[4] Manuel Duran, "Learning Technologies in Higher Education," in Learning Technologies: Research, Trends, and Issues in the US Education System (Cham: Springer International Publishing, 2022), 161–84.

[5] Paul Atagamen Aidonojie, Obieshi Eregbuonye, Hassan Ismaila , and Faith Kelechi Ekwe, "Legal Accountability for Human Responsibility for Artificial Intelligence-Initiated Automated Financial Transactions in Nigeria," *Africa Frontier Law Review* 1, no. 1 (2026): 1–16.

[6] Thomas Forster, "What Connectivism Is?" Online Connectivism Conference, University of Manitoba, 2007, http://ltc.umanitoba.ca/moodle/mod/forum/discuss.php?d=12.

[7] Masayuki Furukawa, Hiroshi Itsumura, and Kazutsuna Yamaji, "Estimation of Test Scores Based on Questionnaire and Video Viewing Behavior in the Programming MOOC Course," *International Journal of Learning Technologies and Learning Environments* 5, no. 1 (2022).

[8] Praditha Dewa Gede Edi, Rahayu Mella Ismelia Farma, I Ketut Sukewati Lanang Putra Perbawa, Paul Atagamen Aidonojie, and Adelowo Stephen Asonibare, "The Future of Bali's Kerauhan Tradition: Legal Pluralism, Reforms, and Conflict Adjudication Challenges," *Journal of Sustainable Development and Regulatory Issues* 4, no. 1 (2026): 118–37.

[9] Sheila Muheki and Arunchi Rachael Worlu-Azubuike, "Balancing Innovation and Culture: The Future of Customary Administration of Justice in the Era of Digital Transformation in Kenya and Uganda," *Africa Frontier Law Review* 1, no. 1 (2026): 66.

Print ISSN: 3156-7207
e-ISSN: 3156-7193

The theory of the connected age is grounded in connectivism, which emphasises the importance of communication and information sharing in learning[10]. Connectionism represents global collaboration within the learning process and the interconnected world facilitated by the internet[11]. This theory reflects the skills and tasks necessary for learners to thrive in the digital era, who focused on connectedness in learning design or pedagogy. We can call this approach "connected learning", which is perceived as a process of building connections. Such networks and connections between people, ideas, and resources lead to competencies driven by connections rather than direct experience[12]. Despite the benefits of a global learning ecosystem and collaborative tools, studies have highlighted concerns about the limitations of the theory of connected age, which might have neglected the cognitive burden due to digital overload and tech-dependence, potentially overlooking those without access, as experienced in underdeveloped and developing regions in Africa with an eclectic power supply and damaged internet cables as a result of vandalism[13] . Learners can move to a self-directed learning environment where they take charge of learning, information, and knowledge creation through informal network interactions. Effective technology use, collaboration, and resource access for communication and peer-to-peer interactions are crucial for learning design based on pedagogical principles and science. Learners must organise information according to their needs and participate in community building to foster innovation and learning support in networked environments[14].

Furthermore, intentional design cannot overemphasise the importance of designing learning experiences in MOOCs or online distance learning programs to promote collaboration, contributions among learners, and community building[15] . MOOC systems have been increasingly emphasising the validation of micro-credentials to authenticate informal educational systems while considering work-life balances and the required skills needed to succeed within a required field in a connected learning experience design, the exploration of computers to create lifelong learning experiences is not limited by space or regulated by a school system, instead of an individual's collective efforts to learn within a shared experience[16]. The connected age is about creating learning pathways that are not limited to learning race, region, background, or ideology but promote effective participation in learning[17]. However, specific gaps have been a significant concern in certain African countries, mainly developing

[10] Erma Rusdiana, Paul Atagamen Aidonojie, Muwaffiq Jufri, Hassan Ismaila, and Nathan Ibrahim, "Augment Legal Efforts through Artificial Intelligence in Curtailing Economic Fraud in Nigeria: Issues and Challenges," *Indonesian Journal of Criminal Law Studies* 10, no. 1 (2025): 115–48.

[11] James Emokhai Uzualu and Ken-saro Chukwu, "Advancing Labour Laws in Addressing Casualisation Practices in Nigeria," Africa Frontier Law Review 1, no. 1 (2026): 17–65.

[12] Chris Impey and Martin Formánek, "MOOCs and 100 Days of COVID: Enrolment Surges in Massive Open Online Astronomy Classes during the Coronavirus Pandemic," *Social Sciences & Humanities Open* 4, no. 1 (2021): 100177, https://doi.org/10.1016/j.ssaho.2021.100177.

[13] Maryann Haffenden and Caroline Steel, "Using Participatory Co-Design to Identify Industries' Specific Employability Needs for Targeted Micro-Credentials," ASCILITE Publications (2022), https://doi.org/10.14742/apubs.2022.202.

[14] Francisco Iniesto, Rebecca Ferguson, Martin Weller, Robert Farrow, and R. Pitt, "Introducing a Reflective Framework for the Assessment and Recognition of Microcredentials," *Open Technology in Education, Society, and Scholarship Association (OTESSA) Journal* 2, no. 2 (2022): 1–24.

[15] Roland Klemke, Marina Eradze, and Alessandro Antonaci, "The Flipped MOOC: Using Gamification and Learning Analytics in MOOC Design A Conceptual Approach," *Education Sciences* 8, no. 1 (2018): 25, https://doi.org/10.3390/educsci8010025.

[16] Nikos Koukis and Athanassios Jimoyiannis, "MOOCs for Teacher Professional Development: Exploring Teachers' Perceptions and Achievements," Interactive Technology and Smart Education 16, no. 1 (2019): 74–91, https://doi.org/10.1108/itse-10-2018-0081.

[17] Paul Atagamen Aidonojie, Obi Eregbuonye, Adesoji Kolawole Adebayo, Shedrack Ekpa, and Ketut Sukewati Lanang Putra Perbawa, "Nigeria's Adoption of Robotic Lawyers: Legal and Socio-Economic Challenges," *Bestuur* 12, no. 1 (2024).

Print ISSN: 3156-7207
e-ISSN: 3156-7193

countries, such as Nigeria. Massive open online courses are becoming increasingly integrated into educational systems, with schools offering elective courses to many learners through learning management systems such as Moodle and CANVAS by Instructure[18]. This trend is not limited to formal institutions, as business schools and private organisations like ALX, Utiva, and Learntor in Nigeria and selected African countries are also embracing technology-based training for young adults aged 16–26.

Regulation of MOOCs by law is important to ensure that online education is regulated according to the known human rights laws and national education standards[19]. Article 26 of the Universal Declaration of Human Rights (1948) provides for the right to education, whereas Article 13 of the International Covenant on Economic, Social and Cultural Rights (1966) provides for the promotion of accessible and non-discriminatory education. In Uganda, the Constitution of the Republic of Uganda (1995) provides in Article 30 for the right to education. The Data Protection and Privacy Act 2019 provides for protections for the processing of personal data through digital learning platforms[20] . Moreover, the Universities and Other Tertiary Institutions Act 2001 (as amended) provides for regulation of higher education institutions and qualifications. However, these legal instruments together do not provide for a sufficient regulatory regime for MOOCs. The COVID-19 pandemic revealed a number of problems regarding access, learner privacy, accreditation, copyright infringement and qualification recognition in MOOCs. Therefore, critical evaluation of MOOCs in the pre-, during and post-COVID-19 period will give an opportunity to consider whether there is a need for a better protection of MOOC users.

Although MOOCs have been extensively studied by institutions offering commercial services, platforms such as Coursera and Udacity have not significantly contributed to research efforts owing to their possession of substantial data[21]. The founding partners of edX, MIT, and Harvard have primarily conducted research on their courses for commercial gain. Therefore, this study aimed to explore the impact of MOOCs on undergraduate student participation and completion rates in Nigeria pre-, during, and post-Covid-19[22]. Specifically, this study compares the surge in participation levels during the pandemic with that during the previous period. The main objective was to investigate the increase in undergraduate participation, assess the impact of continued participation, identify potential barriers to effectiveness, evaluate completion rates in MOOCs, and explore the connection between participation in these courses and temporary job placements. Additionally, this study intends to investigate the types of certification courses that undergraduate students pursue while taking massive open online

[18] Zhen Liu, Ning Zhang, Xue Peng, Shuang Liu, Zhen Yang, Jing Peng, et al., "Exploring the Relationship between Social Interaction, Cognitive Processing and Learning Achievements in a MOOC Discussion Forum," *Journal of Educational Computing Research* 60, no. 1 (2021): 132–69, https://doi.org/10.1177/07356331211027300.

[19] Rita Kop and Adrian Hill, "Connectivism: Learning Theory of the Future or Vestige of the Past?" *International Review of Research in Open and Distributed Learning* 9, no. 3 (2008): 1–13; Y. Wang, C. Liu, Y. Zhao, W. Huang,
B. You, and J. Lin, "The New Theory of Learning in the Era of Educational Information 2.0: Connected Constructivism," in Intelligent Computing and Block Chain, ed. W. Gao et al., Communications in Computer and Information Science 1385 (Singapore: Springer, 2021), https://doi.org/10.1007/978-981-16-1160-5_33.

[20] Katarzyna Nesterowicz, Uliana Bayramova, Sara Fereshtehnejad, Anca Scarlat, Ashley Ash, Anna Augustyn, et al., "Gamification Increases Completion Rates in Massive Open Online Courses," *International Journal of Information and Communication Technology Education* 18, no. 1 (2022): 1–12, https://doi.org/10.4018/IJICTE.294447.

[21] Léa Lachaud and Charles Tijus, "Massive Online Open Courses: Features for Understanding and Learning" (2022), https://doi.org/10.35745/eiet2022v02.02.0001.

[22] Faten Miladi, Daniel Lemire, and Viviane Psyché, "Learning Engagement and Peer Learning in MOOC: *A Selective Systematic Review*" (2023), 324–32, https://doi.org/10.1007/978-3-031-32883-1_29.

Print ISSN: 3156-7207
e-ISSN: 3156-7193

courses (MOOCs), examine their opinions on these courses, and assess the success rate of course completion.

2. METHOD

This study utilised a survey approach to collect data from university students in Nigeria based on established objectives. The surveys were administered online to students who had taken courses in their academic careers in Nigerian universities. The questionnaire was reviewed by experts and comprised of three categories: demographic information, dichotomous items, and multiple response types. It was composed of a five-point Likert scale and completed by 144 participants. The survey had six sections, the first of which gathered demographic information, such as age, gender, educational level, and school name and location. The second section measured the respondents' online course engagement using eight items. The third section collected data on respondents' participation in MOOCs, using six items. The fourth section gathered the participants' perceptions of MOOCs using 14 items. The fifth section identified constraints and contained eight items categorised as pre-, during-, and post-COVID-19.

3. RESULT AND DISCUSSION

3.1. Legal Regulation on Massive Open Online Courses (MOOCs)

MOOCs predated the coronavirus as platforms providing education opportunities online beyond traditional classrooms[23]. The issue was that their emergence presented several problems of law relating to accreditation, copyright, data protection, and educational quality and recognition of online credentials. Article 26 of the Universal Declaration of Human Rights states that the right to education must be provided, and higher education must be equally accessible based on merit. Moreover, Article 13(2)(c) of the International Covenant on Economic, Social and Cultural Rights (1966) obliges higher education to be equally accessible using appropriate means. Therefore, such articles set up normative principles of MOOCs even though they do not regulate online courses specifically[24]. Pre-coronavirus regulation mostly consisted of already existing legislation in areas of education, copyright, telecommunication, and consumer protection. Such fragmentation of the regulation caused problems for the providers of the services regarding their rights to give accredited certificates and obligations towards the users of the platform. Crucially, educational openness does not mean anything about accreditation, assessment, and remedies from misrepresenting certifications.

COVID-19-related school closures turned MOOCs and other digital platforms into tools of educational continuity. Article 13(2)(c) of the International Covenant on Economic, Social and Cultural Rights[25] is applicable in this regard, while Article 2(2) forbids any discrimination in the exercise of the rights provided in the Covenant. In Uganda, Article 30 of the Constitution recognises the right to education, while Article 27 addresses privacy issues. The Data Protection and Privacy Act 2019[26] provides for regulations of processing of personal data and Sections 7-9 deal with obligations concerning collecting, processing and securing personal data. These

[23] Muhammad Romadhon, Betty Purwandari, Indra Eitiveni, and Meinarni Purwaningsih, "Analysis of Factors Influencing the Successful Use of Massive Open Online Courses (MOOCs) to Prepare Digital Talent," *Journal of Educational Science and Technology* 9, no. 2 (2023): 128, https://doi.org/10.26858/est.v9i1.44936.

[24] J. Setho, Mokhets'engoane, and Lehlohonolo Kurata, "Connectivism Theory: Exploring Its Relevance in Informing Lesotho's Integrated Curriculum for Effective Learning in the Digital Age," *European Journal of Education and Pedagogy* 4, no. 4 (2023), https://doi.org/10.24018/ejedu.2023.4.4.705.; George Siemens, "Connectivism: Learning as Network Creation," e-Learning Space.org, 2005, http://www.elearnspace.org/Articles/networks.htm.; George Siemens, "Connectivism: Learning as Network Creation," e-Learning Space.org, 2014, http://www.elearnspace.org/Articles/networks.htm.

[25] International Covenant on Economic, Social and Cultural Rights

[26] Data Protection and Privacy Act 2019

Print ISSN: 3156-7207
e-ISSN: 3156-7193

requirements are important due to the fact that online learning implies creating identity, test results, participation, and data. It is especially important to mention that implementation of the technology was faster than the process of assessing whether the institution adhered to consent, data minimization, cybersecurity and cross-border transfers[27]. The learner might not be aware about how the data is collected, stored and used for commercial purposes by the platform. In addition, unequal access to devices, internet connection, accessible materials and digital literacy implied that having online courses does not necessarily mean equal educational opportunities.

Following the COVID-19 outbreak, regulation of MOOC credentials will increasingly focus on their recognition, quality, and portability. According to section 73 of the Universities and Other Tertiary Institutions Act 2001 (as amended), there is an established legal framework for regulation of universities and other tertiary institutions[28]. However, the provision of online content is not necessarily the same as granting the right to award a recognised degree or professional qualification. It is crucial to disclose any accreditation, assessment criteria, certification process, and the policy for refunds. As regards copyright, Section 14 of the Copyright and Neighbouring Rights Act 2006 (as amended)[29] outlines the provisions regarding the fair use of copyright and neighbouring rights for the purposes of teaching and learning in educational institutions. Although MOOCs are able to reproduce lectures, articles, pictures, and recordings, the educational purpose is not always sufficient to justify the copying and distribution of the copyrighted material. The conditions under which this is allowed should be carefully considered. Importantly, non-uniform recognition of micro-credentials may lead to confusion about how employers, universities, or professional organisations would recognise them. Another challenge related to online learning is the issue of online testing and identity verification.

Relative to each other, the three eras represent a move from fragmentation in rule-making prior to COVID-19, to emergency continuity and privacy issues during the pandemic, to sustainability in rule-making thereafter. Both Article 26 of the Universal Declaration of Human Rights[30] and Article 13 of the International Covenant on Economic, Social and Cultural Rights[31] serve as frameworks, but do not lay out a set of rules with which to regulate MOOCs. In addition, UNESCO's 2023 Global Education Monitoring Report Technology in Education: A Tool on Whose Terms[32]? raises concerns regarding risks including inequality, privacy and commercial interest. The critical factor, however, is that an overly regulated environment may inhibit innovation at a low cost while insufficient regulation may allow misleading credentials, poor data handling and discrimination. Thus, regulators need to develop standards regarding accreditation disclosures, course quality, data handling, copyright, accessibility and complaints. Ugandan institutions need to conduct a platform evaluation, provide explanations for their data handling processes, and have appeal processes in place for students regarding assessments[33].

[27] Muwaffiq Jufri, Paul Atagamen Aidonojie, Erma Rusdiana, Godswill Owoche, and Eregbuonye Obieshi Antai, "The Legal Issues Concerning Nigerian's Student Education Loan Act: A Lesson from Uganda Perspective," *Jurnal Hukum Novelty* 16, no. 1 (2025): 101–16.

[28] Alsobhi Hada, Rayed Alakhtar, Ayesha Ubaid, Omar Khadeer Hussain, and Farookh Khadeer Hussain, "Blockchain-Based Micro-Credentialing System in Higher Education Institutions: Systematic Literature Review," *Knowledge-Based Systems* (2023), https://doi.org/10.1016/j.knosys.2022.110238.; José Marques, "A Short History of MOOCs and Distance Learning," MOOC News and Reviews (2013).; Dhawal Shah, Laurie Pickard, and
R. Ma, "Massive List of MOOC Platforms around the World in 2022" (Class Central, 2022).

[29] Copyright and Neighbouring Rights Act 2006 (as amended)

[30] Universal Declaration of Human Rights

[31] International Covenant on Economic, Social and Cultural Rights

[32] UNESCO's 2023 Global Education Monitoring Report Technology in Education: A Tool on Whose Terms

[33] Mukhlis Mukhlis, Raphael D. Jackson-Ortiz, Muwaffiq Jufri, Evis Garunja, and Paul Atagamen Aidonojie, "Rejection of Former Shia Community in Sampang Perspective on Human Rights Law:

Print ISSN: 3156-7207
e-ISSN: 3156-7193

Regulatory measures need to address the needs of persons with disabilities and alternative options when there are connectivity issues. Overall, MOOCs need to be considered as educational services with corresponding regulatory requirements.

Results

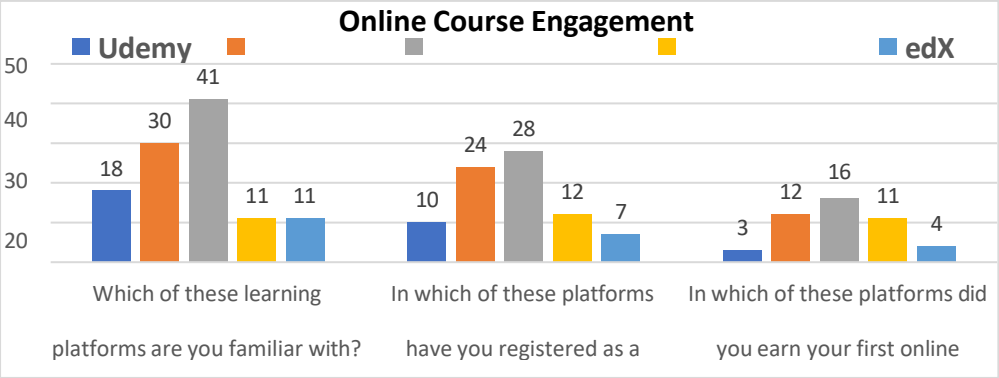

Figure 1. Which MOOCs do university students take online courses?

A clustered chart indicates that 144 tertiary students responded to the questionnaire. Alison Courses had the highest familiarity with 41 respondents, followed by Coursera with 30 respondents, Udemy with 18 respondents, and FutureLearn and edX with 11 respondents each. Among those who were familiar with the Alison Courses, 28 had a registered account, and 16 earned a certificate. For Coursera, 24 had a registered account and 12 earned a certificate. For Udemy, 10 had a registered account and three had earned a certificate. For FutureLearn, 12 had a registered account and one had an error response. For edX, seven had a registered account and four earned a certificate.

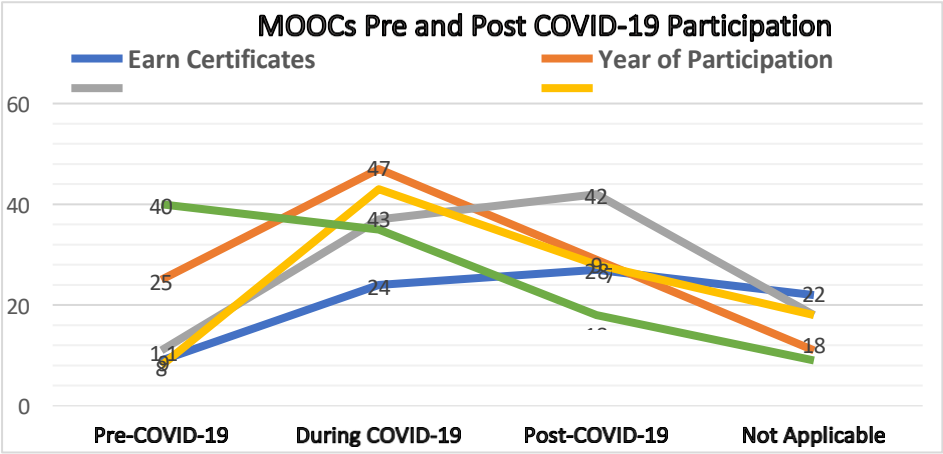

Figure 2. Is there an increase in tertiary students' participation in MOOCs Pre and Post COVID-19?

The chart shows that nine respondents earned a certificate pre-COVID-19 compared to the 25 who participated, while 11 indicated they increased participation and only nine could complete a course, while 40 of the respondents stated that they had participated in intuitional online courses. The year of involvement showed that pre-COVID-19, only 25 of the 144 respondents participated in MOOCs related tasks. At the same time, the participation level increased to 47 during-COVID-19 and the participation dropped to 29 post-COVID-19; 11 respondents indicated that it did not apply to them. The Increase in participation showed that the respondents had more MOOC courses to register for. Pre-COVID-19, 11 indicated that they had participated in MOOC course taking, while during COVID-19, participation increased to 37 participants, and the surge continued post-COVID-19 with a participation increase of 42,

Discourse of Religious Rights and Freedom in Indonesia," *Lex Scientia Law Review 7, no. 2 (2023): 959–94.*

Print ISSN: 3156-7207
e-ISSN: 3156-7193

while 18 declared not applicable to 144 respondents. Increased completion showed that pre-COVID-19, only eight out of the 144 respondents had a completion rating; the surge was felt during COVID-19 to 43 completion ratings, which later dropped post-COVID-19 to 28 out of the 144 respondents, while 18 indicated not applicable. The institution MOOCs' participation pre-COVID-19 revealed higher participation of 40 of the 144 respondents, which later dropped to 35 participants during-COVID-19 and a continued downward slope to 18 respondents post-COVID-19, while nine respondents indicated not applicable.

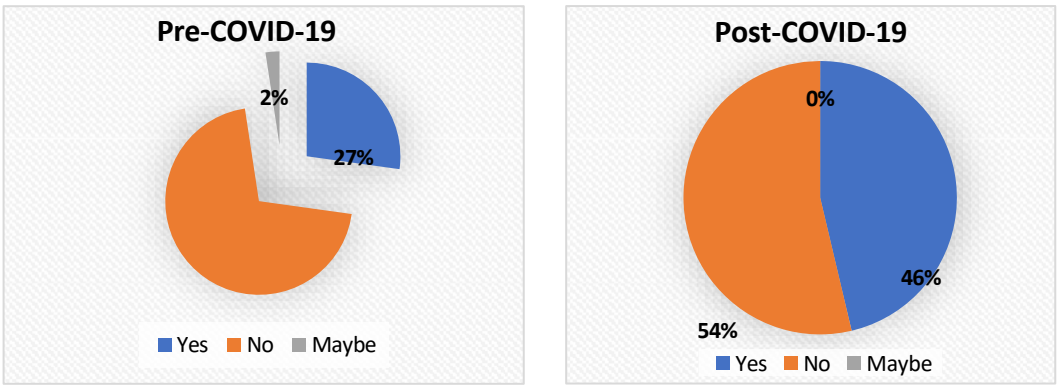

Figure 3. What is tertiary students' completion rate of courses enrolled in MOOCs pre- and post-COVID-19?

The broad overview from the pie chart above shows the 144 undergraduate respondents' reports on the course completion rate; they responded to the question: before the COVID-19 pandemic outbreak, did you participate in taking an online course? If yes, were you able to complete the courses?' The results revealed that only 27% of the respondents reported having completed online courses during the pre-COVID-19 period, while the percentage increased to 46% post-COVID-19 and only 2% were uncertain. The 71% of those who did not complete online courses before pre-COVID-19 dropped to 54%, showing some progress in online course participation after post-COVID-19.

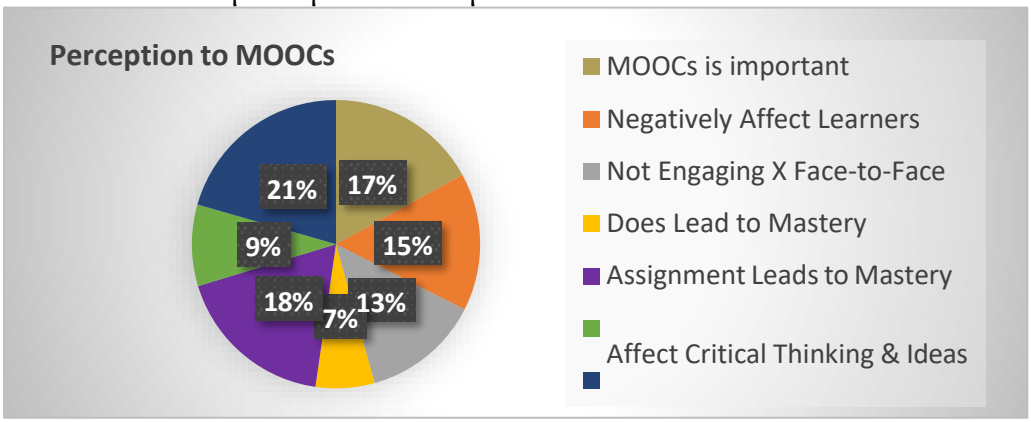

Figure 4. What are tertiary students' perceptions of MOOCs during and after COVID-19

The pie chart shows that MOOCs were important to undergraduate students 17% of the time because of the COVID-19 outbreak, based on 144 respondents. In comparison, 15% perceived that it negatively influenced their ability to effectively learn. Although 17% perceived MOOCs as essential to their learning, only 7% attested to attaining a mastery of content knowledge. In comparison, 18% agreed that assignment activities helped them demonstrate their mastery of MOOCs more, and only 9% believed that they could improve their critical thinking skills.

Print ISSN: 3156-7207
e-ISSN: 3156-7193

Table 1. What are the significant constraints faced by tertiary students while participating in MOOC courses pre-COVID-19 and post-COVID-19?

Constraint	Pre-COVID-19 (%)	Post-COVID-19 (%)
Lack of Quality Smartphone	36.8%	31%
Poor Electricity Supply	52.8%	51.4%
Poor/Slow Internet	49.3%	48.6%
Cost of Internet	49.3%	45.8%
Effective Time Management	34.7%	30.6%
Course Engagement	9.7%	11.1%
Clear Learning Objectives	13.2%	10.4%
Hard to Comprehend Courses	22.2%	18.27%

The chart shows the significant challenges encountered by undergraduate students before pre-COVID-19:36.8% lacked quality, while after post-COVID-19, the number dropped to 31%. Poor electricity supply to charge devices and gadgets pre-COVID-19 was 52.8%, which was the highest in terms of constraints, while it later decreased to 51.4% post-COVID-19, and poor/slow Internet came next to the highest at 49.3% pre-COVID-19, while post-COVID-19 respondents reported it at 48.6%, followed by the Internet at 49.3% pre-COVID-19, while post-COVID-19 reduced it to 45.8%. However, 34.7% of the respondents reported effective time management before pre-COVID-19, while the post-COVID-19 report accounted for 30.6%. It was also reported that online courses were not engaged in pre-COVID-19 at 9.7%, whereas post-COVID-19, the number increased to 11.1%. The respondents also reported a lack of clear learning objectives in courses registered pre-COVID-19 13.2%) and post-COVID-19 (10.4%). However, before COVID-19, 22.2% found the MOOCs course hard to comprehend/understand, while after COVID-19, 18.27% reported lower ratings, and 9.8% and 9.1% reported that the questions were not applicable, respectively.

The chart shows the significant challenges encountered by undergraduate students before pre-COVID-19:36.8% lacked quality, while after post-COVID-19, the number dropped to 31%. Poor electricity supply to charge devices and gadgets pre-COVID-19 was 52.8%, which was the highest in terms of constraints, while it later decreased to 51.4% post-COVID-19, and poor/slow Internet came next to the highest at 49.3% pre-COVID-19, while post-COVID-19 respondents reported it at 48.6%, followed by the Internet at 49.3% pre-COVID-19, while post-COVID-19 reduced it to 45.8%. However, 34.7% of the respondents reported effective time management before pre-COVID-19, while the post-COVID-19 report accounted for 30.6%. It was also reported that online courses were not engaged in pre-COVID-19 at 9.7%, whereas post-COVID-19, the number increased to 11.1%. The respondents also reported a lack of clear learning objectives in courses registered pre-COVID-19 13.2%) and post-COVID-19 (10.4%). However, before COVID-19, 22.2% found the MOOCs course hard to comprehend/understand, while after COVID-19, 18.27% reported lower ratings, and 9.8% and 9.1% reported that the questions were not applicable, respectively.

3.2. Discussion of Finding

The impact of MOOCs on Nigerian undergraduate students' educational participation, particularly during the COVID-19 pandemic, is both significant and multifaceted. The pandemic catalysed a notable increase in MOOC enrolment, paralleling global trends where traditional learning was disrupted, prompting learners to seek alternative educational pathways online[34].

[34] Mahdi Badali, Javad Hatami, Seyed Mohammad Banihashem, Ehsan Rahimi, Omid Noroozi, and Zahra Eslami, "The Role of Motivation in MOOCs' Retention Rates: A Systematic Literature Review," *Research and Practice in Technology Enhanced Learning* 17, no. 1 (2022), https://doi.org/10.1186/s41039-

Print ISSN: 3156-7207
e-ISSN: 3156-7193

This surge aligns with findings that highlight a dramatic rise in MOOC enrollments during the pandemic, as evidenced by a study indicating an extraordinary increase in enrolment rates as students sought to continue their education amid lockdowns and restrictions. Despite this increased participation, it is noteworthy that MOOC completion rates tend to hover around a mere 10%, underscoring the challenges of maintaining learner engagement beyond initial interest. Such statistics resonate with broader research suggesting low completion rates universally, with estimates varying between 2% and 11%, dynamically influenced by various factors, such as course design and learner demographics. Addressing these issues necessitates a deeper investigation of the factors that contribute to student dropout rates, particularly within the unique context of Nigerian students[35]. Research has consistently highlighted the importance of effective course design and incorporation of collaborative elements that enhance learners' experiences.

In terms of curriculum design, incorporating the principles of connectivism, highlighting the significance of social interaction and community building, emerges as a crucial strategy for enhancing the MOOC experience. Effective communication and networking not only enrich the learning environment, but also motivate learners by creating a supportive community. This is especially pertinent to Nigerian undergraduates, who face barriers such as inconsistent Internet access and inadequate technological infrastructure, which have been identified as significant factors impacting their ability to fully engage with MOOC offerings. These infrastructural challenges further accentuate the need for intentional course design that integrates robust support systems aimed at fostering collaboration and peer engagement as well as facilitating a sense of belonging among learners. Moreover, educational consultants have suggested that MOOC designers should emphasise collaborative assignments and peer interactions as immediate measures to mitigate dropout rates[36]. This recommendation is critical, given that many learners benefit from structured interactions that encourage active participation and community learning. The integration of gamification and other motivational strategies has also shown promise in improving engagement and completion rates, reinforcing the need for multifaceted approaches to MOOC design tailored to the specific needs of diverse learner populations.

4. CONCLUSION

From the findings, although the increase in MOOC participation among Nigerian undergraduates is encouraging, challenges related to infrastructure, effective curriculum design, and fostering collaborative learning environments persist. Addressing these issues requires a systematic approach that prioritises technological access, community support, and motivation-enhancing strategies to substantially improve MOOC engagement and completion rates. Only through such comprehensive measures can we hope to transform initial interests into sustained learner commitment and success.

Furthermore, this research shows that MOOCs have been regulated legally in an evolving process which went from fragmented systems of educational and technological governance before the coronavirus outbreak, to greater focus on privacy, equity and educational continuity issues related to MOOCs during the pandemic, and finally to more emphasis on accreditation, copyright and accountability issues following the pandemic. Yet, there is still an insufficiency in the harmonization of the existing international and national legal

022-00181-3.; Dhawal Shah, "Massive List of MOOC Providers around the World," in Where to Find MOOCs: The Definitive Guide to MOOC Providers (Class Central, 2017); Justin M. Weinhardt and Tina Sitzmann, "Revolutionizing Training and Education? Three Questions Regarding Massive Open Online Courses (MOOCs)," *Human Resource Management Review* 29, no. 2 (2019): 218–25.

[35] Hanan Aldowah, Hamed Al-Samarraie, Abdullah Alzahrani, and Nora Alalwan, "Factors Affecting Student Dropout in MOOCs: A Cause and Effect Decision-Making Model," *Journal of Computing in Higher Education* 32, no. 2 (2020): 429–54, https://doi.org/10.1007/s12528-019-09241-y.

[36] Ibid

Print ISSN: 3156-7207
e-ISSN: 3156-7193

frameworks to deal with all of the challenges of global online education. Hence, the research proposes that governments develop harmonized and enforceable legal framework controlling MOOCs in order to ensure learners' rights, accreditation and quality assurance, protection of personal data and equitable digital learning.

Refrences

Adebadali, Mahdi, Javad Hatami, Seyed Mohammad Banihashem, Ehsan Rahimi, Omid Noroozi, and Zahra Eslami. "The Role of Motivation in MOOCs' Retention Rates: A Systematic Literature Review." Research and Practice in Technology Enhanced Learning 17, no. 1 (2022). https://doi.org/10.1186/s41039-022-00181-3.

Aduran, Manuel. "Learning Technologies in Higher Education." In Learning Technologies: Research, Trends, and Issues in the US Education System, 161–84. Cham: Springer International Publishing, 2022.

Aidonojie, Paul Atagamen, Obi Eregbuonye, Adesoji Kolawole Adebayo, Shedrack Ekpa, and Ketut Sukewati Lanang Putra Perbawa. "Nigeria's Adoption of Robotic Lawyers: Legal and Socio-Economic Challenges." Bestuur 12, no. 1 (2024).

Aidonojie, Paul Atagamen, Obieshi Eregbuonye, Hassan Ismaila, and Faith Kelechi Ekwe. "Legal Accountability for Human Responsibility for Artificial Intelligence-Initiated Automated Financial Transactions in Nigeria." Africa Frontier Law Review 1, no. 1 (2026): 1–16.

Aldowah, Hanan, Hamed Al-Samarraie, Abdullah Alzahrani, and Nora Alalwan. "Factors Affecting Student Dropout in MOOCs: A Cause and Effect Decision-Making Model." Journal of Computing in Higher Education 32, no. 2 (2020): 429–54. https://doi.org/10.1007/s12528-019-09241-y.

Bates, Anthony William. Teaching in a Digital Age: Guidelines for Designing Teaching and Learning. 3rd ed. Tony Bates Associates Ltd., 2022. https://pressbooks.bccampus.ca/teachinginadigitalagev3m/. Cilliers, Liezel, Hossana Twinomurinzi, and Olebogeng Murire. "Motivational Factors That Influence the Course Completion Rate of Massive Open Online Courses in South Africa." International Journal

of Learning, Teaching and Educational Research 22, no. 6 (2023): 195–211. https://doi.org/10.26803/ijlter.22.6.12.

Cowie, Neil, and Keiko Sakui. "Micro-Credentials: Common Features and Challenges." Pacific Journal of Technology Enhanced Learning 3, no. 1 (2021). https://doi.org/10.24135/pjtel.v3i1.97.

Downes, Stephen. "An Introduction to Connective Knowledge." Stephen's Web, 2005. http://www.downes.ca/cgi-bin/page.cgi?post=33034.

Forster, Thomas. "What Connectivism Is?" Online Connectivism Conference, University of Manitoba, 2007. http://ltc.umanitoba.ca/moodle/mod/forum/discuss.php?d=12.

Furukawa, Masayuki, Hiroshi Itsumura, and Kazutsuna Yamaji. "Estimation of Test Scores Based on Questionnaire and Video Viewing Behavior in the Programming MOOC Course." International Journal of Learning Technologies and Learning Environments 5, no. 1 (2022).

Gede Edi, Praditha Dewa, Rahayu Mella Ismelia Farma, I Ketut Sukewati Lanang Putra Perbawa, Paul Atagamen Aidonojie, and Adelowo Stephen Asonibare. "The Future of Bali's Kerauhan Tradition: Legal Pluralism, Reforms, and Conflict Adjudication Challenges." Journal of Sustainable Development and Regulatory Issues 4, no. 1 (2026): 118–37.

Hada, Alsobhi, Rayed Alakhtar, Ayesha Ubaid, Omar Khadeer Hussain, and Farookh Khadeer Hussain. "Blockchain-Based Micro-Credentialing System in Higher Education Institutions: Systematic Literature Review." Knowledge-Based Systems (2023). https://doi.org/10.1016/j.knosys.2022.110238.

Haffenden, Maryann, and Caroline Steel. "Using Participatory Co-Design to Identify Industries' Specific Employability Needs for Targeted Micro-Credentials." ASCILITE Publications (2022). https://doi.org/10.14742/apubs.2022.202.

Impey, Chris, and Martin Formánek. "MOOCs and 100 Days of COVID: Enrolment Surges in Massive Open Online Astronomy Classes during the Coronavirus Pandemic." Social Sciences & Humanities Open 4, no. 1 (2021): 100177. https://doi.org/10.1016/j.ssaho.2021.100177.

Iniesto, Francisco, Rebecca Ferguson, Martin Weller, Robert Farrow, and R. Pitt. "Introducing a Reflective Framework for the Assessment and Recognition of Microcredentials." Open Technology in Education, Society, and Scholarship Association (OTESSA) Journal 2, no. 2 (2022): 1–24.

James Emokhai Uzualu and Ken-saro Chukwu. "Advancing Labour Laws in Addressing Casualisation Practices in Nigeria." Africa Frontier Law Review 1, no. 1 (2026): 17–65.

Jufri, Muwaffiq, Paul Atagamen Aidonojie, Erma Rusdiana, Godswill Owoche, and Eregbuonye Obieshi Antai. "The Legal Issues Concerning Nigerian's Student Education Loan Act: A Lesson from Uganda Perspective." Jurnal Hukum Novelty 16, no. 1 (2025): 101–16.

Klemke, Roland, Marina Eradze, and Alessandro Antonaci. "The Flipped MOOC: Using Gamification and Learning Analytics in MOOC Design—A Conceptual Approach." Education Sciences 8, no. 1 (2018): 25. https://doi.org/10.3390/educsci8010025.

Kop, Rita, and Adrian Hill. "Connectivism: Learning Theory of the Future or Vestige of the Past?" International Review of Research in Open and Distributed Learning 9, no. 3 (2008): 1–13.

Koukis, Nikos, and Athanassios Jimoyiannis. "MOOCs for Teacher Professional Development: Exploring Teachers' Perceptions and Achievements." Interactive Technology and Smart Education 16, no. 1 (2019): 74–91. https://doi.org/10.1108/itse-10-2018-0081.

Lachaud, Léa, and Charles Tijus. "Massive Online Open Courses: Features for Understanding and Learning." 2022. https://doi.org/10.35745/eiet2022v02.02.0001.

Liu, Zhen, Ning Zhang, Xue Peng, Shuang Liu, Zhen Yang, Jing Peng, and others. "Exploring the Relationship between Social Interaction, Cognitive Processing and Learning Achievements in a MOOC Discussion Forum." Journal of Educational Computing Research 60, no. 1 (2021): 132–69. https://doi.org/10.1177/07356331211027300.

Marques, José. "A Short History of MOOCs and Distance Learning." MOOC News and Reviews, 2013.

Miladi, Faten, Daniel Lemire, and Viviane Psyché. "Learning Engagement and Peer Learning in MOOC: A Selective Systematic Review." 2023, 324–32. https://doi.org/10.1007/978-3-031-32883-1_29.

Muheki, Sheila, and Arunchi Rachael Worlu-Azubuike. "Balancing Innovation and Culture: The Future of Customary Administration of Justice in the Era of Digital Transformation in Kenya and Uganda." Africa Frontier Law Review 1, no. 1 (2026): 66–?.

Mukhlis, Mukhlis, Raphael D. Jackson-Ortiz, Muwaffiq Jufri, Evis Garunja, and Paul Atagamen Aidonojie. "Rejection of Former Shia Community in Sampang Perspective on Human Rights Law: Discourse of Religious Rights and Freedom in Indonesia." Lex Scientia Law Review 7, no. 2 (2023): 959–94.

Nesterowicz, Katarzyna, Uliana Bayramova, Sara Fereshtehnejad, Anca Scarlat, Ashley Ash, Anna Augustyn, and others. "Gamification Increases Completion Rates in Massive Open Online Courses." International Journal of Information and Communication Technology Education 18, no. 1 (2022): 1–12. https://doi.org/10.4018/IJICTE.294447.

Romadhon, Muhammad, Betty Purwandari, Indra Eitiveni, and Meinarni Purwaningsih. "Analysis of Factors Influencing the Successful Use of Massive Open Online Courses (MOOCs) to Prepare Digital Talent." Journal of Educational Science and Technology 9, no. 2 (2023): 128. https://doi.org/10.26858/est.v9i1.44936.

Rusdiana, Erma, Paul Atagamen Aidonojie, Muwaffiq Jufri, Hassan Ismaila, and Nathan Ibrahim. "Augment Legal Efforts through Artificial Intelligence in Curtailing Economic Fraud in Nigeria: Issues and Challenges." Indonesian Journal of Criminal Law Studies 10, no. 1 (2025): 115–48.

Setho, J., Mokhets'engoane, and Lehlohonolo Kurata. "Connectivism Theory: Exploring Its Relevance in Informing Lesotho's Integrated Curriculum for Effective Learning in the Digital Age." European Journal of Education and Pedagogy 4, no. 4 (2023). https://doi.org/10.24018/ejedu.2023.4.4.705.

Shah, Dhawal, Laurie Pickard, and R. Ma. "Massive List of MOOC Platforms around the World in 2022." Class Central, 2022.

Shah, Dhawal. "Massive List of MOOC Providers around the World." In Where to Find MOOCs: The Definitive Guide to MOOC Providers. Class Central, 2017.

Siemens, George. "Connectivism: Learning as Network Creation." e-Learning Space.org, 2005. http://www.elearnspace.org/Articles/networks.htm.

Siemens, George. "Connectivism: Learning as Network Creation." e-Learning Space.org, 2014. http://www.elearnspace.org/Articles/networks.htm.

Wang, Y., C. Liu, Y. Zhao, W. Huang, B. You, and J. Lin. "The New Theory of Learning in the Era of Educational Information 2.0: Connected Constructivism." In Intelligent Computing and Block Chain, edited by W. Gao et al. Communications in Computer and Information Science 1385. Singapore: Springer, 2021. https://doi.org/10.1007/978-981-16-1160-5_33.

Weinhardt, Justin M., and Tina Sitzmann. "Revolutionizing Training and Education? Three Questions Regarding Massive Open Online Courses (MOOCs)." Human Resource Management Review 29, no. 2 (2019): 218–25.

Print ISSN: 3156-7207
e-ISSN: 3156-7193