

Full Length Research

Zoom Applications: History and Use, Challenges & Recommendations for Nigerian Academics

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The COVID-19 pandemic brought about the most significant change in the way Nigerian scholars teach, learn, collaborate and carry out research, compelling a sudden and, to a large extent, unplanned shift towards virtual, as opposed to face-to-face, forms of academic interactions. Of the digital platforms implemented in this transition, Zoom Video Communications became the global video conferencing system of choice, with a growth rate exploding since December 2019 (10 million daily meeting participants) to April 2020 (300 million). The present paper will study the Zoom application, its idea, history, usage by Nigerian scholars, its challenges and strategic suggestions in the context of using technology in higher education in Nigeria. Using empirical research on Nigerian library schools and Rivers State University, Obafemi Awolowo University, and comparative international studies, the paper has provided evidence that Zoom adoption among the Nigerian academics has been high but limited by structural barriers such as poor internet infrastructure, high data charges, lack of sufficient device ownership, and unreliable power supply. These problems are augmented by Zoom-related factors such as the so-called Zoom fatigue, privacy, and the lack of capacity to integrate pedagogy. University administrators, educators, and policymakers are urged forward to employ strategic suggestions on maximizing the academic value of Zoom and reducing its pitfalls.

Keywords: Zoom, Video Conferencing, Nigerian Academics, E-learning, COVID-19, Higher Education, ICT, Virtual Learning

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INTRODUCTION

The international COVID-19 pandemic, which caused the spread of the virus in Nigeria in February 2020 and lockdowns in the country since March 2020, led to the most massive and disruptive experiment in digital education that Nigeria has ever witnessed. When the Nigeria Centre for Disease Control (NCDC) and the National Universities Commission (NUC) advised universities to switch to online teaching and research platforms, Nigerian scholars found themselves forced to access online platforms without proper preparation, training, or infrastructure support. The video conferencing applications, spearheaded by Zoom all around the world, became the focal points where this virtual academic life was being held.

The popularity of Zoom during the pandemic was meteoric. Established in 2011 and commercially released in January 2013, Zoom Video Communications was a niche enterprise communication tool until 2020, when it became a household name and had 300 million daily meeting participants in April 2020 (IJEAIS, 2024). In Nigeria, where universities have more than 2.2 million students, the use of Zoom to teach, present research, and participate in conferences, and hold administrative meetings was a revolutionary, yet disruptive, change in the academic culture. Awareness and experience

of using Zoom to present research were reported by the studies of Nigerian library schools (ICTeSSH, 2021), whereas the surveys of postgraduates at Rivers State University of Science and Technology reported that knowledge of Zoom usage and usage patterns are significant, yet the barriers to successful usage are also high (IJEAIS, 2024).

CONCEPT OF THE ZOOM APPLICATION

Zoom is a video conferencing and communications service that offers real-time audio, video, and chat services, allowing users to engage in collaborative interactions on a whiteboard, share files, and interact via a screen sharing platform, all powered by the cloud. Zoom is a software-as-a-service (SaaS) service that can operate on Windows, Mac, Linux, iOS and Android, and can be accessed through a downloaded application or a web browser and only needs internet access to operate, unlike conventional video conferencing systems, which require specialized hardware and specific purpose networks.

Zoom can handle various formats of meetings: one-on-one, group meetings up to 1,000 participants (with the right licences), webinars up to 50,000 people, and permanent virtual rooms. The main functions that can be used in academia are screen sharing and annotation, virtual background, small-group activities in breakout rooms, polling and Q&A features, chat, recording (local and cloud), closed captions, and integration with learning management systems (LMS) (Moodle and Canvas). The free (basic) Zoom plan has unlimited one-on-one sessions and up to 40-minute group sessions of up to 100 participants- plenty in most academic teaching and research situations (ICTeSSH, 2021; IJEAIS, 2024).

VIDEO CONFERENCING AS AN ACADEMIC TECHNOLOGY

Video conferencing technology in higher education is the term describing the technology that allows real-time, two-way (or more) audio-visual communication between the participants that are geographically separated. Before the COVID-19 pandemic, the use of video conferencing in higher education was mainly limited to distance education programmes, guest lectures, global research collaboration and academic conferences. The pandemic changed video conferencing as an addition to the tool to the core of academic activity of universities across the globe.

Salha et al. (2023) carried out a systematic literature review of videoconferencing technologies in higher education according to the PACT Framework and found four main dimensions of effective videoconferencing usage: People (user characteristics and digital literacy), Activities (pedagogical design), Context (institutional and infrastructure conditions), and Technology (platform capabilities and reliability). This framework emphasises that the efficacy of Zoom and similar video conferencing platforms in academic environments is contingent not solely on the technology, but on the intricate interplay of human, pedagogical, contextual, and technological elements, a distinction particularly pertinent to the Nigerian higher education landscape.

The videoconferencing software market was expected to have a global market share of about 66% by 2024. Zoom was the leading platform with more than 55% market share, followed by Microsoft Teams, WebEx, GoToMeeting, and Google Meet (IJEAIS, 2024).

Table 1: Comparison of Major Video Conferencing Platforms for Academic Use

Platform	Market Share (2024)	Free Tier Limit	Max Participants	Key Academic Feature
Zoom	>55%	40-min group meeting	1,000 (paid)	Breakout rooms; whiteboard; LMS integration
MS Teams	~20%	60-min group (some plans)	1,000	Office 365 integration; persistent channels
Google Meet	~10%	60-min group (some plans)	500	Google Workspace integration; live captions
WebEx	~7%	40-min meetings	1,000	AI-powered transcription; enterprise security
GoToMeeting	~3%	No free tier	3,000 (enterprise)	Strong enterprise features; HD video

Table 1: Adapted from IJEAIS (2024); Salha et al. (2023)

HISTORY OF THE ZOOM APPLICATION

Zoom Video Communications was established by Eric Yuan in the year 2011, after Yuan left Cisco WebEx division as the Vice President of engineering. Yuan was not happy with the user experience of the currently available video conferencing solutions and decided to create a more streamlined, more reliable and user-friendly platform. It was incorporated in 2011 and its commercial product was rolled out in January 2013. In the initial year, Zoom gained 1 million users. As of 2014, it was the site of its one-billionth meeting minute (ICTeSSH, 2021; IJEAIS, 2024).

The COVID-19 pandemic caused Zoom to experience an unprecedented growth rate. Increasing attendance at meetings in daily growth: 10 million in December 2019 to 200 million in March 2020 and 300 million in April 2020, a 3,000% rise in four months. Zoom's stock price increased by approximately 400% during 2020. As of 2021, Zoom was the most downloaded app in the world in various categories, and has been turned into a ubiquitous educational, healthcare, social, and government platform rather than a means of business communication (IJEAIS, 2024; IntechOpen, 2021).

The use of Zoom in academic institutions in Nigeria increased in 2020. Scholars at Nigerian library schools embraced Zoom to deliver research talks (ICTeSSH, 2021); lecturers at such institutions like Covenant University, University of Lagos and Obafemi Awolowo University used Zoom to teach; and the NUC guidelines on online education recommended Zoom and other such tools as valid delivery platforms. The analysis of Zoom use in business administration education in Nigeria by Okoro (2024) validated its heavy usage and popularity among faculty.

USE OF ZOOM BY NIGERIAN ACADEMICS FOR VIDEO CONFERENCING

Use of Zoom by Nigerian scholars cuts across several roles including teaching and course delivery; research presentation and seminars; academic conference attendance; PhD/postgraduate examination vivas; staff meetings and committees; and international research collaboration. In a study of lecturers in Nigerian library schools, the ICTeSSH (2021) researchers discovered that awareness and experience with Zoom as a virtual research presentation method was high, with a high proportion of respondents having used Zoom to undertake research activities during the pandemic period.

A survey of postgraduate students at Rivers State University of Science and Technology by IJEAIS (2024) has revealed that Zoom had the highest usage rate within videoconferencing tools among the Nigerian academics, in line with its market share of over 55% worldwide. The effective utilisation however, differed greatly based on the institutional type, geographical location, age group and the subject discipline. One example of this is the Covenant University, a private university, whose student population is tech-savvy, and its campus infrastructure supports Zoom usage (reliable internet, etc.) better than many state colleges, because the infrastructure limits Zoom use to simple basic audio-video streaming with frequent interruptions.

Anyanwu et al. (2023) reported a great diversity of knowledge of inclusive virtual learning platforms by lecturers in Nigerian tertiary institutions, with a large proportion of lecturers having not received training in online pedagogy despite having technical access to Zoom, which suggests a large gap between the availability of platforms and their pedagogical efficiency.

CHALLENGES OF ZOOM USE BY NIGERIAN ACADEMICS

Poor Internet Connectivity and High Data Costs

Poor and costly internet connection is the most widespread problem to successful Zoom use among Nigerian scholars. The HD quality of Zoom video conferencing requires about 1.8 GB of data per hour and even the standard-quality video requires 540 MB per hour. A two-hour Zoom lecture can eat up much of the weekly data allowance of a student or academic at Nigerian mobile data prices, which, although differing depending on the provider, can be ₦1,000 to ₦3,000 per GB (0.60 to 1.80). One of the greatest barriers to online learning as determined by Adeyeye et al. (2022) in Nigerian universities is the high cost of data and poor internet services.

Erratic Power Supply

The chronic electricity supply problems in Nigeria, where Zoom sessions last 8-16 hours per day due to power cuts in most university campuses, have a significant adverse impact on the continuity of Zoom sessions. Students and academics joining Zoom meeting in homes not backed by generators experience frequent disconnection. Power outages can even disrupt collaborative efforts, interrupt shared presentations and even cut recording on university campuses. Such disruptions cause considerable learning gaps and cause frustration to both teachers and students (Adeyeye et al., 2022; IJEAIS, 2024).

Zoom Fatigue

The so-called zoom fatigue, a set of mental, physical, and emotional exhaustion caused by prolonged use of video conferencing, has been declared as one of the critical academic wellbeing issues worldwide. According to Bailenson (2021), Zoom fatigue has four main causes: too much close-up eye contact, cognitive load in the presence of faces, lack of mobility as compared to face-to-face meetings, and psychological pressure in the form of constantly having to look at your own face. According to Cartis (2023), the pandemic-related high exposure to videoconference platforms resulted in numerous dimensions of fatigue among university students and academics—the results that are especially relevant to the Nigerian academics who used Zoom extensively during periods of the extended school closure.

Privacy and Security Concerns

At the height of the pandemic in 2020, Zoom had come under heavy scrutiny regarding privacy and security, including the practice of so-called Zoom bombing (unauthorised access to Zoom meetings by malicious individuals), doubts about end-to-end encryption, and the possibility that its data was being routed through Chinese servers. Although the security capabilities of Zoom have now been greatly enhanced, academics working in a low-digital-literacy setting in Nigeria might continue to be vulnerable to privacy violations unless they consistently enable security options (waiting rooms, meeting passwords, host controls) when using Zoom.

Table 2: Challenges to Zoom Use among Nigerian Academics and Their Impact Levels

Challenge	Impact Level	Affected Group(s)	Source
High data costs / poor internet	CRITICAL	Students, lecturers—esp. public universities	Adeyeye et al. (2022); IJEAIS (2024)
Erratic power supply	CRITICAL	All users without generator/solar backup	NCC (2021); Abu & Okafor (2023)
Zoom fatigue	HIGH	Academics, students—prolonged use	Bailenson (2021); Cartis (2023)
Device inadequacy	HIGH	Students from low-income backgrounds	Adeyeye et al. (2022)
Low digital/pedagogical literacy	MODERATE	Lecturers without e-learning training	Anyanwu et al. (2023); ICTeSSH (2021)
Privacy and security concerns	MODERATE	All users	Andrew et al. (2021); IJEAIS (2024)
40-min free tier limitation	LOW-MOD	Institutions without Zoom licences	ICTeSSH (2021)

Table 2: Author's Synthesis (2024)

CONCLUSION

Zoom Video Communications is a revolutionary and yet not perfect means of Nigerian academic interaction. The fact that it has been adopted explosively in the COVID-19 pandemic showed not only that there is a latent need of digital academic collaboration in Nigerian universities but also that the structural factors such as the lack of infrastructure, the cost factor, the lack of pedagogical preparation, and the risk of wellbeing limit its successful use. Video conferencing tools, like Zoom, will continue to be significant to the post-pandemic environment of Nigerian universities, becoming part of a hybrid academic ecosystem combining physical and virtual methods of learning, teaching, research, and collaboration. Nigerian academia needs to overcome the barrier of just adopting video conferencing technology as a strategy to maximise learning outcomes without strategic and pedagogical informed integration of the technology, at the same time controlling its costs and risks.

RECOMMENDATIONS

- The NUC ought to create an e-Learning Infrastructure Fund, in which universities will get comparable grants to cover Zoom/video conferencing licences, internet bandwidth upgrades and the acquisition of devices by students and staff.
- Universities should talk to each other about getting institutional Zoom Pro/Business licences. This would get rid of the

- 40-minute free tier limit and let all staff have full-length, recorded academic sessions.
- All professors at universities should take mandatory online pedagogy training that covers how to plan effective Zoom meetings, run breakout rooms, get students involved, and keep them safe.
 - Universities should put in place policies to help with "Zoom fatigue," such as setting maximum session lengths, requiring breaks in online teaching schedules, and offering asynchronous learning options.
 - NUC should set up digital equity programs to make sure that all enrolled students can get data stipends, Wi-Fi on campus, and device lending libraries. This will get rid of barriers to access based on devices and connectivity.
 - University ICT centres should offer Zoom security training that is specific to their needs. This will make sure that all staff members regularly use waiting rooms, meeting passwords, and host controls to stop Zoombombing and privacy breaches.
 - LIS schools should teach their students how to use Zoom and give virtual research presentations as part of their research methods classes. This will get the next generation of Nigerian library and information professionals ready for digital academic engagement.

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