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**Virtual Classrooms in Nigeria: Current Challenges in Nigerian Universities**

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**Abstract**

This paper explores virtual classroom as an online teaching and learning environment and seeks to highlight the meaning, features and benefits of using virtual classrooms in education. It also goes ahead to trail both pre-covid19 and post-covid19 challenges of implementing the use of virtual classrooms in Nigerian Universities by highlighting relevant literature. These challenges include lack of acceptance and adoption of virtual learning methods in teaching and learning, lack of internet access and insufficient power supply. The paper also highlights possible solutions to the challenges pointed out and they include; lecturers and students should be trained and re-trained on the use of virtual classrooms by authorized experts to get best outcomes, provision of on-campus and mobile internet access to lecturers and Government and University authority should put in place steady power supply to ensure easy and stable access to virtual classrooms.

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**Introduction**

Before the recent covid-19 pandemic hit the world in 2019, the use of virtual learning in education was not widely adopted in Nigerian schools. The use of modern technology in the teaching and learning process was not perceived to be a necessity and therefore less attention was paid on e-learning technologies like virtual classrooms. The emergence of covid19 reintroduced the need for adopting virtual classrooms in education not just to enhance the teaching and learning process but also to foster physical distancing which is considered a major way to reduce the spread of corona virus. However even with the urgency of the need to foster e-learning in Nigeria during the pandemic, there seems to be no tangible change in the way e-learning has been adopted in the Nigerian educational system. In more developed countries of the world, the use of virtual classrooms in education was evidently used to foster learning even before the emergence of the deadly corona virus and so they rarely experienced the struggles in setting up a zero face-to-face classroom environment. But sadly, the use of virtual classrooms in Nigerian Universities after the shutdown of schools by the Federal on the 19th of March 2020 was not successful as seen in these developed countries. After schools were shut down Federal Universities in Nigeria were not technically ready to continue with virtual learning and some State-owned institutions that tried to continue with online communication

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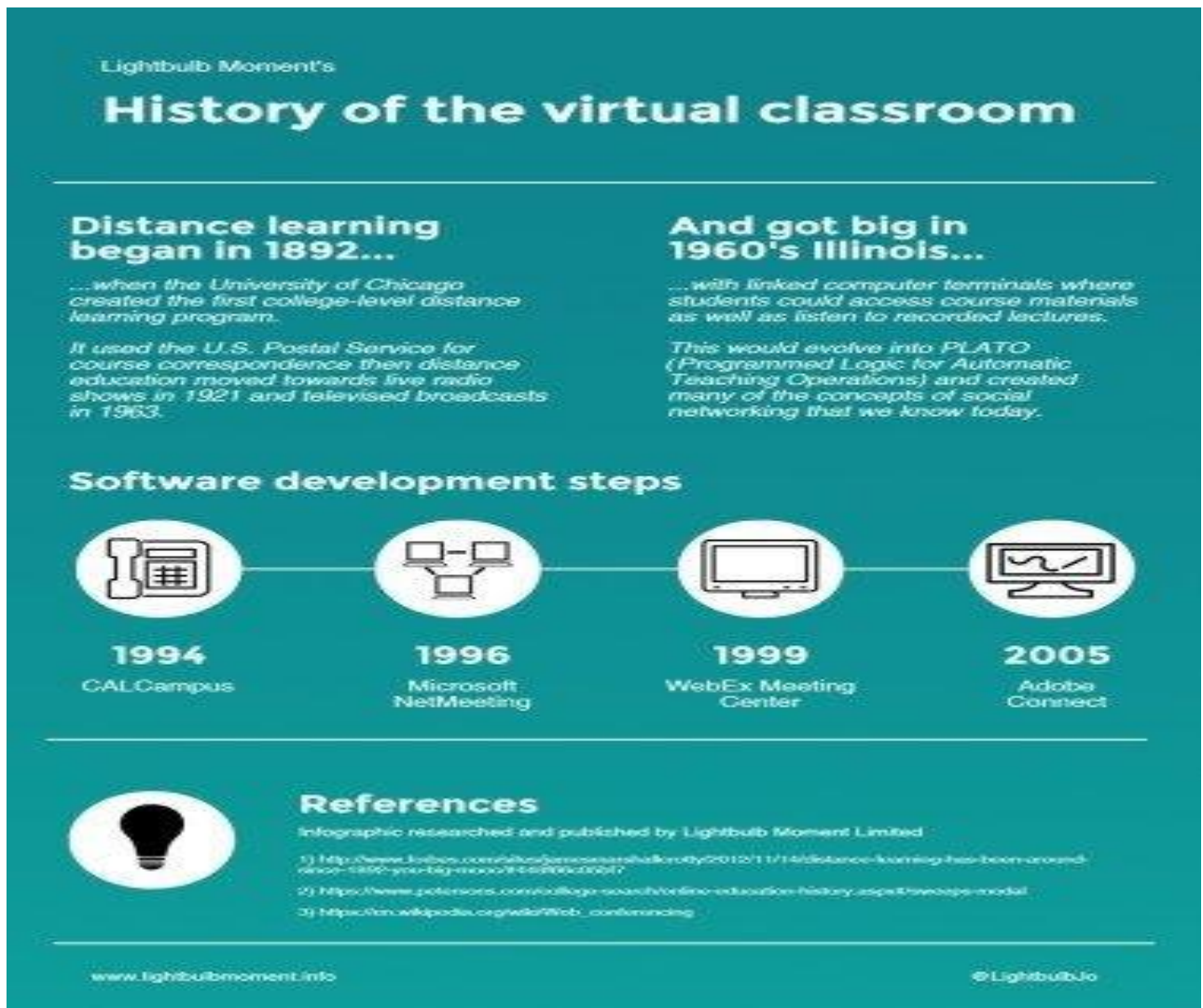
were not so successful. Efforts to continue online using virtual teaching and learning friendly applications like Zoom, Google Meet, Google Classroom etc was reported to be frustrating and yielded undesirable results. The problem of unavailable technology devices, lack of poor internet connections, poor attendance due to lack of data, lack of technical know-how and support were the reasons given by lecturers and students who tried to adopt virtual classrooms. This paper explores virtual classroom as an online teaching and learning environment and seeks to highlight the meaning, features and benefits of using virtual classrooms in education. It also goes ahead to trail both pre-covid19 and post-covid19 challenges of implementing the use of virtual classrooms in Nigerian Universities by highlighting relevant literature.

### **What is Virtual Learning/ Virtual Classroom?**

The use of virtual classrooms was initially driven by necessity, mainly in the context of synchronous distance learning, where a professor had to emulate a typical classroom for distance students. In these early examples, the main goal was to succeed to offer students an experience similar to a face-to-face classroom. (Xenos, 2018). Virtual learning is a learning experience that is enhanced through utilizing computers and/or the internet both outside and inside the facilities of the educational organization. The instruction most commonly takes place in an online environment. The teaching activities are carried out online whereby the teacher and learners are physically separated (in terms of place, time, or both). (Racheva, 2017). A virtual classroom is a digital learning environment that allows teachers and students to connect online in real time. Virtual classrooms utilize video conferencing, online whiteboards and screen sharing to allow educators to hold live lectures, virtual office hours, and discussions with students in an interactive setting. Virtual classrooms are meant to replicate the experience of physical classrooms, with the added benefits of file sharing, instant feedback and interaction and are ideal in distance learning situations. (tophat.com, 2021). In a virtual classroom the teacher interacts with students in real time. Students can ask questions and interact with peers similar to how they would in a regular classroom although over the internet. (Sam, 2020). Racheva, (2018) is of the view that the definition of virtual classroom should be related to synchronous online learning which happens in real time and provides the participants with an experience similar to traditional face-to-face teaching. She therefore defines virtual classroom as an online learning environment that allows for live interaction between the tutor and the learners as they are participating in learning activities.

Much like the smart classroom, it is a notion fixated on teaching and learning the education with help of developing technology but begs to differ by mainly focusing on achieving the digital change in the classroom with help of the Internet. Virtual method makes room for distance education to the students far away by means of internet online learning courses as well as the trainers with modern and creative techniques to teach virtually from anywhere at any time, irrespective of the geographical area, through online classes and courses. A virtual classroom enables students to access quality teachers anywhere on the planet so long as they both have a reliable internet connection (LearnCube, 2021). Michalis Xenos a virtual classroom tutor of over twenty years in tertiary education classified the features of virtual classroom environment into two groups. The first group (common features; Video and sound, chat, Student Feedback, Whiteboard, Slide Presentation and Discussion Administration.) includes features related only to the emulation of a traditional classroom.

The second group (advanced features; Retrospective assignments, Breakout Rooms, Anonymous Polling, Shared Whiteboard, Shared Document and annotating, Application sharing) comprising of features and practices going beyond traditional classroom (Xenos, 2018).



**Figure 1: History of Educational Technology**

### Application

Hiltz & Wellman (1997) as cited in Xenos, (2018) highlighted that the early uses of virtual classrooms focused on practical issues such as sound and video and the use of a “pencil” for the whiteboard, while the main problems reported were related to limited bandwidth and lack of “taking” turn. The use of Virtual classroom is made possible with interactive web pages known as web apps. An e-learning web app is an interactive webpage that allows learners to input their data and get expected results through interactions. Virtual classrooms with advanced e-learning web apps have made students access more educational content from anywhere at any time (Samuel, 2021). The most common tools found in a virtual classroom according to Racheva, (2018) are videoconferencing, online whiteboard for real-time- collaboration, instant messaging tool, participation control and breakout rooms. Smith, (2019), listed the minimum requirements needed to host a virtual class;

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A computer (or a smartphone)  
An Internet Connection  
A microphone and  
Software

Samuel (2021) in his article “15 Top Interactive E-Learning Web Apps for Online Classroom” listed the following e-learning webs as the most interactive in terms of virtual classroom experiences: Google Classroom, Kahoot, Zoom Education, Seesaw, Photomath, Socrative, Edmodo, Scratch, Prezi, Thinglink, Quizlet, ClassDojo, Storybird, Animoto and Educreations.

### **Prospects and Benefits of Virtual Classroom**

Virtual classroom promotes flexible learning and access to instructional facilities and information. It promotes independent and autonomous learning as well as discovery of knowledge and skills (Akpan & Etim, 2016).

Some of the best-known benefits of using virtual classroom according to Drexel University School of Education. (2021) include;

1. **Flexibility:** Virtual classrooms are suitable for people who are pursuing their education while working. In a traditional classroom, lectures will be scheduled at a specific time of day and your schedule will be formed around the availability of classes. But with virtual classrooms learning is mobile and flexible and this means learners can study whenever it is convenient for them. All you need is a digital device and an internet connection, and you have access to the necessary tools to further your education and earn your degree.
2. **Cost Benefits:** Virtual coursework often takes advantage of virtual resources, which translates into less money spent on textbooks. Tuition costs can also differ between online and on-campus programs. Learners do not have to worry about being able to make it to class, or about their classes being unexpectedly canceled. However, if there is a power outage and some learners are unable to access the internet as a result of weather conditions, there may be difficulties with missing a scheduled online class, but it may be easier to make it up
3. **Career Advancement Opportunity:** Just like courses taken in a traditional classroom setting, virtual learning has the ability to present individuals with many career development opportunities. But online students have better opportunities to collaborate with international classmates, and often have more individual contact with other students. Students may also receive more one-on-one time with their lecturer or instructor with virtual learning, which is beneficial for both learning and networking.
4. **Integrating coursework with technology** provides a lot of benefits. Instead of waiting days or weeks after exams, students can often get immediate feedback. Where a traditional lecturing leaves you at the mercy of your best note-taking skills, video presentations can be watched and revisited when needed.

Thornton( 2015) in turn stressed the need for educators to adopt virtual environments that possess the following features when choosing a virtual classroom platform in order to get more effective and efficient results; Archiving, Accessibility, Audio-back-up, Extended backup and Classroom Management tool.

1. Archiving: Having the ability to archive individual learning sessions provides essential back-up for those learners who might not be able to fix any issues they are having during the live session. Archiving also has the added benefit of enabling facilitators to use the session as an evaluative tool, as well as something participants can assess for occasional review.
2. Accessibility: Accessibility is an important component of any learning tool we use. The trainer has the responsibility to ensure that all learners have equal access to content when using an assistive technology. There are other benefits to making sure your virtual classroom is accessible, such as the accommodation of multiple learning styles.
3. Audio Back-Up: Audio is a very important feature of a virtual classroom. The trainer must ensure that there is always an audio back-up in case the current audio in use fails
4. Extended Support: It is very important to have access to live support during live session hours; this will help learners tackle possible technical issues. Learners need to be able to make a phone call and troubleshoot with technical support at any time. The same holds true for the facilitator; the session can't continue without the facilitator, so it's important to have a quick lifeline when needed.

### **Classroom Management Tools**

Classroom management has always been a very important aspect of any learning experience. Be it virtual classroom or an in-person learning experience, classroom management can enhance or obstruct the learning experience. It is therefore necessary to have the capability to restrict access to functionality when needed, prevent everyone talking over one another, and facilitate engagement and activities. Some functions that can help with this are hand-raising and the ability to turn functions on and off for either an individual or the entire class.

### **Challenges of Using Virtual Classrooms in Nigeria**

The Nigerian government has not been short of effort in the integration of ICT into its governance, but such efforts have not been enough to bridge the digital gap in Nigeria. (Pandey & Tiwari, 2014). One of such efforts made by the Nigerian government includes the establishment of The National Information Technology Development Agency in 2001. This agency was established and has the following responsibilities as stated in the NITDA act:

As the Agency of the Federal Government, saddled with the responsibility of developing and regulating Information Technology in Nigeria, the National Information Technology Development Agency is empowered by its enabling Act to create a framework for the planning, research, development, standardization, application, coordination, monitoring, evaluation and regulation of Information Technology practices in Nigeria by developing standards, guidelines and regulations for that purpose. This piece of legislation provides for the establishment of the National Information Technology Development Agency (NITDA) to address the breath of its mandates (NITDA, 2020)

In the face of the COVID-19 pandemic, higher education institutions around the world have closed their physical doors and opened virtual ones in an effort to help students complete their studies. Educators and students alike have had to adapt at a rapid pace, and with mixed results. (TopHat , 2020). Literature reveals that there are indeed great benefits in using virtual classrooms in Nigerian

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Higher Education. However, for years since the introduction and widespread awareness of the use of virtual classrooms there have always been challenges associated with such online classrooms. This was why even before the corona virus pandemic, virtual classrooms in Nigerian Higher Education was not considered to be the most used agent of instruction delivery. Anene & Odumuh, (2014) in a study to determine the availability of e-learning facilities in Nigerian Universities revealed that formidable obstacle to the use of information and communication technology is infrastructure deficiencies. Majority of the students reported that their Universities did not have e-learning library domain, no online seminars and no discussion with lecturers, no online examination, and there was limited bandwidth. The study recommended that the then ongoing strike embarked by Academic Staff Union of Nigerian University (ASUU) should continue until these abnormalities are corrected by the Nigerian government. Findings from Anekwe, 2017 showed that all the respondents from both federal and state universities unanimously agreed that all the listed items like; more computers/laptops, internet connectivity, free accessibility to internet networks and steady power supply were the areas to be improved for effective learning in Virtual Classrooms. These findings are similar with that of Ifeakor & Anekwe in Anekwe, 2017 who found that internet connectivity and access to them were some of the challenges of using virtual classrooms. Pandey and Tiwari, 2014 claim that at Federal level many projects have been approved to bring across quality education to the students at various levels. However, most of them have collapsed with no results what so ever and billions of dollars have moved out of the treasury in this name of ICT in education. They mentioned Microsoft and Intel projects as first hand examples of projects that did not yield desirable results.

The education system in North East Nigeria was already stretched before the corona virus pandemic as a result of multiple crises and population displacements and to worsen this situation on the 27th February 2020 the Federal Ministry of Health announced the confirmation of the first case of Corona virus disease in Lagos State, Nigeria (Nigeria Education Emergency Group, 2020). This news led to the closure of schools in the country on the 19th of March 2020 by the Federal Ministry of Education in Nigeria. Following the closure of all schools in the country the need for introduction and re-introduction of the use of mobile learning arouse and this time it appeared to be the only solution because of the nature and manner of the corona virus pandemic. The Education Partnership Centre (TEP Centre) one of Nigeria's pioneering education partnership organization with a mission to improve the overall design, implementation and evaluation of education initiatives through effective, enduring and scalable partnerships carried out a research during the shutdown and school closure period. The aims of the study were to analyse the responses of key education stakeholders in Nigeria (supply side) and understand the adoption of learning alternatives by students and parents (demand side) in the wake of the COVID-19 pandemic and the subsequent restriction of movement across Nigeria. Major findings from the study indicate that significant activities which support learning continued during the pandemic. Teachers and parents provided ongoing learning support to students through e-learning, social and traditional media platforms. The accessibility and affordability of technological or internet enabled devices, as well as poor electricity supply were also identified as challenges limiting efficient learning (NESG and Hewlett Foundation, 2020). The current president of the Academic Staff Union of Universities (ASUU) Prof Biodun Ogunyemi, as cited in Edema, (2021) in an interview with the PUNCH newspaper also expressed his worries about

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the limitations of virtual classrooms in Nigerian Universities. According to the ASUU president the major challenge of the use of e-learning in Nigeria is unaffordability, in his words:

Students will face the challenge of cost of data when they are not on campus. The access to WiFi provided by the government can assist them to have seamless e-learning. But when it comes to students staying away from campus and they have to fund their data and power supply, where they don't have computer or android phone, you know there could be problem. Some students are already complaining in some of the universities where they are doing the virtual learning. This online teaching/learning that we have been talking about, the major problem here is affordability issue. This issue could come up on the part of students where they don't have the tools, where they can't afford the data access and where they don't have the supporting environment. Imagine an undergraduate that lives in a one-room apartment with two to four children and their parents; I mean you have that kind of scenario in some places. Maybe at best, they have a room and parlor. They may have issue of a conducive environment, continuous data supply. So, affordability would come into picture at individual level and even the university in some cases. Because even where they provide WiFi and others, they need to continue to pay the service providers and so on." (Edema, 2021).

### **Educational Implication**

The use virtual classrooms in education can foster the delivery of instruction without the physical coming together of the learners and the educator or teacher. The educational implications of the use of virtual classrooms in education can be pointed out from its advantages, disadvantages and challenges. In a virtual classroom the teacher interacts with students in real time, students can voice their questions and interact with peers similar to how they do in a regular classroom (Sam, 2020). Another implication was pointed out by Nalliveettil, Sreehari & Al-Rubaat (2019) who are of the view that a disadvantage of eLearning platform is that teachers may not be able to supervise students' learning and so the success of a virtual classroom session depends on students' motivation levels. In the case of Nigeria, the educational implication of the use of virtual classrooms according to literature and personal experiences borders around the problem of unavailability of adequate facility and poor orientation delivery for educators. The issue of limited access to the necessary tools needed to foster the use of virtual classrooms in Universities cannot be overemphasized. Limited data for both the learner and the lecturers is one of such problems. There is no official provision for data and other basic requirements needed for the smooth execution of virtual classroom instruction delivery. Although lecturers most times engage with their students virtually, they do so on their own without financial support from the Government or University authority. This can hinder the effective use virtual classrooms and therefore creates a gap which makes them fall back to the traditional face - to -face classroom setting.

### **Conclusion**

From the literature reviewed it is evident and depressing to say that challenges of using virtual classrooms in Nigerian Higher Education has not changed even after the corona virus pandemic. The good news is that with the right approach, and the right technology, educators can turn their virtual classrooms into places of relevance, vitality and community (TopHat, 2020). In the case of Nigeria,

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the problem is beyond just making the right technology available it also stretches to the key participants of the education process; the learners and the educators. Lecturers struggle a lot when they try to use any form of online teaching method and this has made many of them stay far from any activity related to it. They struggle in the area of lack of facility, lack of data and in one word unaffordability as noted by the ASUU president and same can be said about their students.

In conclusion the challenges of using virtual classrooms in instruction delivery has been in existence since the introduction of e-learning in Nigeria. The challenges revolve around financial and administrative deficiencies. After corona virus struck and the lockdown was lifted, even though the Nigerian government acknowledged the need for Universities to commence using only online communication, provisions were not made by the government to support this process. Students and even their Lecturers still continue to experience both financial and technological struggles in the bid to partake in virtual classrooms.

### **Suggestions**

In order to get the best experiences and results from the use of virtual classrooms in Nigerian Universities the following suggestions should be implemented;

1. Lecturers and students should be trained and re-trained on the use of virtual classrooms by authorized experts to get best outcomes.
2. Government and University authority should officially make provision for on-campus and mobile internet access to Lecturers.
3. Government and University authority should officially provide on campus internet access for students who have paid for tuition.
4. Government and University authority should put in place steady power supply to ensure easy and stable access to virtual classrooms.

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