



Virtual classroom learning: A boon during insecurity among university undergraduates

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Abstract

A virtual classroom replicates many features of a traditional classroom in an online environment, enabling real-time interaction, collaborative activities, and digital learning experiences. This study investigates undergraduate students' awareness and usage of virtual classrooms, addressing the limited empirical evidence on their adoption in higher education. Using a descriptive survey design, data were collected from 250 undergraduates selected through cluster and simple random sampling. A researcher-developed questionnaire was validated for content and face validity, with acceptable reliability coefficients for awareness, impact, and challenges. Data analysis involved descriptive statistics for research questions and Pearson Product-Moment Correlation for hypothesis testing. Findings revealed that students were aware of the benefits of virtual classroom learning but faced challenges that hindered consistent use. A strong positive correlation was found between the perceived impact and actual usage of virtual classrooms. The study recommends the provision of adequate virtual classroom facilities and regular capacity-building initiatives for students and lecturers to enhance adoption and effective utilization.

Keywords: Higher education; online learning; student awareness; virtual classroom.

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1. INTRODUCTION

Advancements in computing technology, software development, and online applications have significantly facilitated the integration of the latest technological tools into teaching and learning processes. Modern technological resources such as desktop computers, laptops, tablets, iPhones, Android devices, and a wide range of mobile phones, equipped with specialized software programs, have rendered education more efficient and engaging for both educators and learners (Babalola et al., 2019). Anekwe (2017) defined the virtual classroom as a web-based environment that enables individuals to participate in live training sessions without the necessity of physical travel. This form of online learning is facilitated through specialized video conferencing software. A virtual classroom can be conceptualized as an instructional setting that can partially or fully replicate the pedagogical, evaluative, and administrative functions of a traditional classroom by incorporating advanced computer and ICT technologies such as the internet, electronic mail, online chat, the World Wide Web, CD-ROMs, DVDs, teleconferencing, and video conferencing (Anekwe, 2017).

In Nigeria, the persistence of insecurity and deliberate acts of violence, which have resulted in significant loss of life and property, constitutes a major national challenge in the twenty-first century. Insecurity may be defined as a condition in which individuals are vulnerable to harm or danger, often accompanied by a state of anxiety arising from perceived threats (Udosen & Ekpo, 2016). Akhigbe and Ogunlade (2022) characterized insecurity as a heightened state of conflict, threat to human security, and violence, often resulting in injury or loss of life. Institutions of higher learning in Nigeria have been particularly affected, with numerous documented cases of the killing of professors, lecturers, and students in universities, polytechnics, and colleges of education over the past two decades. The prevalence of suicide bombings, rocket-propelled grenade attacks, targeted assassinations, abductions, kidnappings, disguises, and hijackings has disrupted academic calendars and compromised the safety of educational environments. Consequently, during periods of heightened insecurity, many institutions have adopted virtual classroom instruction as an alternative mode of delivery.

Awareness, in this context, refers to an individual's knowledge and comprehension of the purpose, structure, and functionalities of new technologies such as the internet (Olibie et al., 2014). It also encompasses familiarity with the rapid expansion in the use of technology (Dai & Kang, 2025). Such awareness enables individuals to utilize modern technologies effectively, contribute to technological innovation, and play a pivotal role in societal development. This conceptual foundation supports investigations into the adoption of virtual classrooms during periods of insecurity among university undergraduates.

Research by Olibie et al. (2014) demonstrated that both male and female students in two Nigerian universities were aware of the role of virtual classrooms in teaching and learning. Fabunmi (2017) found that a significant proportion of students at Ekiti State University were knowledgeable about e-learning. Fini (2008) reported that students perceived virtual learning as advantageous during periods of insecurity. Similarly, Wells et al. (2008) found no statistically significant gender differences in virtual classroom usage, as both male and female students recognized its benefits for the learning process. Conversely, Boulton (2008) observed that female students identified more advantages in virtual learning compared to their male counterparts. A more recent study by Nwadi et al. (2023) revealed that students in Vocational and Technical Education (VTE) programme demonstrated high levels of awareness and utilization of e-learning technologies, with reported rates of 84.8 percent for e-learning websites, 75.6 percent for Google Classroom, and 60.6 percent for smart boards and video conferencing tools.

In recent years, governments have recognized the necessity of developing smart schools to mitigate challenges in instructional delivery caused by insecurity and other constraints (Muhamad et al., 2025). Virtual classrooms can be applied to subjects or courses where traditional instruction may be environmentally hazardous or financially burdensome (Bi et al., 2025). Advanced virtual classroom interfaces can replace the limitations of standard computer monitors with expanded interactive screens that occupy entire walls or halls, projecting immersive three-dimensional sensory experiences that integrate sight,

hearing, and tactile feedback beyond conventional game, simulation, and video conferencing platforms (Taangahar et al., 2022).

Virtual classrooms provide opportunities for immersive, multisensory communication and experiential learning, making them an effective pedagogical tool (Karp & McGowan, 2020). They can be employed alongside other teaching methods to facilitate active participation. For example, when integrated with demonstration-based instruction, virtual classrooms can simulate real-life laboratories where learners engage with instructional materials under the guidance of a virtual instructor. Similarly, in guided discovery learning environments, students can follow logical steps and perform inquiries comparable to those undertaken in physical classrooms (Habib et al., 2021).

However, the implementation of virtual classrooms is not without challenges. Obstacles may arise internally, from the perspectives of both teachers and students, or externally, due to infrastructural and administrative factors. Internal challenges include a lack of motivation among educators to acquire and apply ICT skills, reluctance to transition from traditional teaching methods, time demands in preparing digital lecture materials, language barriers, difficulty in producing suitable instructional materials, concerns over students' access to inappropriate online content, low student motivation, and diminished interpersonal connection in the absence of face-to-face interaction (Biswas & Nandi, 2020; Li et al., 2024; Álvarez et al., 2024; Daoayan Biaddang & Caroy, 2024). External challenges include insufficient institutional commitment to providing adequate infrastructure, limited understanding of the value of virtual learning, and the inability to provide hands-on experience in certain subject areas (Biswas & Nandi, 2020). Singh and Meena (2022) further identified barriers such as poor internet connectivity, lack of appropriate digital devices, inadequate home learning environments, and insufficient ICT proficiency among both students and educators, all of which reduce active participation in virtual learning.

Over recent years, Nigerian higher education institutions have faced multiple challenges, most notably threats stemming from insecurity, kidnappings, and cultural factors that have adversely affected educational standards. Militant activities by Boko Haram and other terrorist groups have resulted in numerous bombings and kidnappings of both students and academic staff, often culminating in fatalities. These circumstances have compelled governmental authorities to close certain institutions temporarily in an effort to safeguard lives.

In this context, virtual learning has emerged as a transformative form of distance education in developing nations such as Nigeria. Over the past several years, it has played a vital role in sustaining teaching and learning during periods of heightened insecurity through the utilization of computers, internet connectivity, and mobile technologies. Given its capacity to provide educational continuity during episodes of insecurity, abduction, and attacks on educational institutions, the relevance of virtual classroom learning remains indisputable.

1.1. Purpose of study

This study investigated the use of virtual learning during insecurity among undergraduates in Ondo State, Nigeria.

In order to achieve the objectives of the study, the following research questions were raised and answered.

- (1) What is the awareness level of undergraduates on the usage of virtual classrooms during insecurity?
- (2) Do virtual classrooms have an impact on the teaching and learning of undergraduates during insecurity?
- (3) What are the challenges faced in using a virtual classroom by undergraduates in security?

2. METHOD AND MATERIALS

2.1. Research design

This study adopted a quantitative research design based on a descriptive survey method. The survey approach was selected because it allows for efficient collection of standardized data from a large number of

respondents, enabling the researcher to describe and examine patterns of virtual classroom usage among undergraduates during periods of insecurity.

2.2. Participants

The target population comprised all undergraduate students enrolled in government-owned universities in Ogun State, Nigeria. A combination of cluster sampling and simple random sampling techniques was employed.

First, cluster sampling was used to select three universities from the state:

- Federal University of Agriculture, Abeokuta (FUNAAB)
- Olabisi Onabanjo University, Ago-Iwoye (OOUA)
- Tai Solarin University of Education (TASUED)

Next, simple random sampling was applied to select a total of 250 respondents, distributed as follows:

- FUNAAB – 100 respondents
- OOUA – 80 respondents
- TASUED – 70 respondents

2.3. Data collection instrument

The main instrument for data collection was a researcher-designed questionnaire titled Virtual Classrooms Usage during Insecurity among Undergraduates Questionnaire (VCUIUQ). The questionnaire comprised two sections:

- Section A – Demographic information of respondents
- Section B – Items measuring the usage of virtual classrooms during periods of insecurity

2.3.1. Validity and reliability

The instrument underwent face and content validity checks to ensure appropriateness and adequacy. Three lecturers from the Department of Educational Technology, Adeyemi Federal University of Education, Ondo State, reviewed the questionnaire. Their expert feedback and recommendations were incorporated into the final draft.

For reliability testing, the questionnaire was administered to 50 randomly selected undergraduates from the University of Ilorin, Kwara State, who were not part of the main study. Internal consistency was assessed using Cronbach's Alpha, yielding values of 0.75 for the usage scale and 0.82 for the impact scale, indicating high reliability.

2.5. Data collection procedure

The researcher, with assistance from designated research aides in each university, administered the e-questionnaire via social media platforms accessible to the selected respondents. Upon completion of the data collection phase, 250 valid responses were retrieved and used for analysis.

2.6 Data analysis technique

Descriptive statistics, mean, and standard deviation were used to summarize and interpret the responses. Pearson Product-Moment Correlation (PPMC) was applied to address the research questions and to test the study's hypothesis regarding the relationship between virtual classroom usage and its impact during periods of insecurity.

3. RESULTS

3.1. Research Question 1: What is the awareness level of undergraduates on the usage of virtual classrooms during insecurity?

Table 1

Undergraduates' awareness of the virtual classroom

Item	SA	A	D	SD	Mean	Std.D	Remarks
I have not been taught in a virtual classroom before	88	68	94	0	2.98	.85	Accepted
I have not attended lectures on a virtual classroom	0	134	116	0	2.54	.49	Accepted
My lecturers have never used virtual classroom for lectures	66	89	95	0	2.88	.79	Accepted
I am aware of virtual classrooms, but There are no adequate resources to effectively participate in virtual classes	22	182	46	0	2.90	.51	Accepted
I am not aware of virtual classroom	0	46	204	0	2.18	.39	Not Accepted

Note: SD = Strongly Disagree, D = Disagree, A = Agree, SA = Strongly Agree

Decision Value for Remark: Not Accepted = 0.00-2.44, Accepted = 2.45-4.00

Table 1 shows the awareness of undergraduates on the usage of virtual classrooms during insecurity. The table shows that the undergraduates agreed to all the items except the last item, "I am not aware of virtual classroom," having a mean score of ($X = 2.18$), which led to the remark of Not Accepted". Based on the result from this table and the mean score acceptance by the decision rule, the awareness of undergraduates on the usage of virtual classroom are: they have not been taught in a virtual classroom, they have not attended lectures in virtual classroom for lectures never make use of virtual classroom for lectures, and they are aware of virtual classroom but there are no adequate resources to effectively participate in virtual classroom.

3.2. Research Question 2: Does a virtual classroom have an impact on the academic performance of undergraduates during insecurity?

Table 2

Impacts of virtual classroom on undergraduates

Item	SA	A	D	SD	Mean	Std.D	Remarks
I gain more in a virtual classroom than in a physical classroom	25	80	145	0	2.52	.67	Accepted
Virtual Classroom makes learning easier for me than physical classroom	58	25	167	0	2.56	.84	Accepted
Saved online classes are easier to access at any time for learning	25	206	19	0	3.02	.42	Accepted
The lack of noise from other students in a virtual classroom makes it easier for me to assimilate lectures faster.	58	151	41	0	3.07	.63	Accepted
I get to learn more about virtual Classroom	3	115	110	22	2.39	.66	Not Accepted

Note: SD = Strongly Disagree, D = Disagree, A = Agree, SA = Strongly Agree

Decision Value for Remark: Not Accepted = 0.00-2.44, Accepted = 2.45-4.00

Table 2 shows the impacts of virtual classrooms on undergraduates in tertiary institutions. The table shows that the undergraduates agreed to all the items except the last item, "I get to learn more about Virtual Classroom," receiving a mean ($x = 2.39$), which to the remark "Not Accepted". Based on the result from this table and the mean score acceptance by the decision rule, the impacted virtual classroom among undergraduates in tertiary institutions makes learning easier for me than a physical classroom, saved virtual classes are easier to access at any time for learning and lack of noise from other students in a virtual classroom make it easier for me to assimilate lectures faster.

3.3. Research Question 3: What are the challenges faced in using a virtual classroom during insecurity?

Table 3

Challenges faced in using a virtual classroom.

Item	SA	A	D	SD	Mean	Std.D	Remarks
Inadequate electricity supply does not allow me to participate actively in a virtual classroom	36	195	19	0	3.06	4.7	Accepted
Inadequate/lack of internet facilities does not allow me to participate effectively in a virtual classroom.	127	104	19	0	3.43	.63	Accepted
Insufficient technical connection and software issues make it difficult to participate in a virtual classroom	25	104	121	0	2.62	.66	Accepted
Lack of concentration during A virtual classroom can affect learning for me	0	210	40	0	2.84	.37	Accepted

Note: *SD* = Strongly Disagree, *D* = Disagree, *A* = Agree, *SA* = Strongly Agree

Decision Value for Remark: *Not Accepted* = 0.00-2.44, *Accepted* = 2.45-4.00

Table 3 shows the challenges faced in virtual classroom learning among undergraduates in Ondo State Universities. The table shows that undergraduates agreed to all the items as follows: inadequate electricity supply does not allow me to participate actively in the virtual classroom ($x = 3.06$). Inadequate/lack of internet facilities does not allow me to participate effectively in virtual classroom ($x = 3.43$), insufficient technical connection and software issues makes it difficult to participate actively in the virtual classroom ($x = 3.33$) inadequate knowledge or lack of awareness on virtual classroom makes it difficult to participate in a virtual classroom makes it difficult to participate in a virtual classroom ($x = 2.62$) and lack of concentration during virtual classroom can affect my learning for ($x = 2.84$). Based on the result from this table and mean score acceptance by the decision rule, the challenges faced in virtual classroom learning among undergraduates in the universities are: Inadequate electricity supply, inadequate internet facilities, insufficient/lack of technical connection and software, inadequate knowledge or lack of awareness on virtual classroom, and lack of concentration during virtual classroom.

3.4. Hypotheses testing

H_{01} : There is no significant relationship between the impact and usage of virtual classrooms for learning during insecurity.

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Table 4

Summary of Pearson product-moment correlation showing the relationship between the impact and usage of virtual classroom for learning.

Variable	Mean	Std. D	N	R	Sig(P)	Remark
Impact in learning	13.57	2.22	250	.376	.000	Significant
Usage of Virtual Classroom	43.86	16.86				

Table 4 shows the relationship between impact and usage of the virtual classroom for learning. The table shows that there is a strong positive relationship between the impact and usage of virtual classroom among the undergraduates, which was statistically significant ($N = 250$; $r = 0.376$; $p < 0.05$). Hence, hypothesis 1 is accepted.

4. DISCUSSION

The study examined the use of virtual classrooms during insecurity by undergraduates. It was revealed that the awareness level of undergraduates on the usage of virtual classrooms during insecurity was high. This finding is aligned with results of previous studies of (Olibie, et. al. 2014, Fabunmi, 2012, Boulton, 2008 & Nwadi et. Al., 2023) who revealed that undergraduates were aware of the usage of virtual classroom because they saw the benefits of virtual classroom.

Research question two (2) of this study revealed that the virtual classroom has an impact on academic performance. This agrees with the finding of Taangahar et. al., (2022) who found that virtual classrooms can be used along with other methods of teaching, and they provide the environment for the learners to perform excellently in their learning. Also, a virtual classroom allows students to participate actively in the learning process.

In addition, the third research question (3) of this study revealed the challenges faced in using a virtual classroom during insecurity. This finding is consistent with that of Biswas and Nandi (2020) and Singh and Meena (2022) enumerated the challenges faced by undergraduates in using virtual classrooms. They opined that there are both international external challenges and that an inadequate teaching environment at home, less Information and Communication Technology (ICT), are some of the challenges or threats faced by undergraduates when a virtual classroom is being used during insecurity.

5. CONCLUSION

From the findings of this study, the following conclusions were made: the awareness level of undergraduates' usage of virtual classrooms high; also it was revealed that virtual classroom has great impact on the academic performance of undergraduates and despite the benefits of virtual classroom there are lot of challenges facing the undergraduates on the use of virtual classroom during insecurity. It was revealed that there is a strong positive relationship between the impact and the usage of virtual classrooms among the undergraduates, which was statistically significant.

Based on the findings of the study, the following recommendations have been made:

- (i) Virtual classroom facilities should be made available in the universities, and this can be provided by the government and other stakeholders for use during insecurity.
- (ii) To make the undergraduates increasingly aware of virtual learning, lecturers need to incorporate virtual activities in curriculum delivery, task design processes and outcomes, teaching pedagogies, and measurement of virtual learning.
- (iii) Government agencies, university management, and the Students' Union Government should organize seminars and workshops to inform students more about the benefits of the virtual classroom to their course curriculum.
- (iv) The government should invest more funds in providing digital technologies to the universities to enhance the ability of the universities to expose students to a virtual classroom.

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Ethical Approval: The study adheres to the ethical guidelines for conducting research.

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REFERENCES

- Akhigbe, O. J., & Ogunlade, B. O. (2022). Online instruction: Panacea to insecurity in Nigerian Tertiary Institutions. *Nigerian Online Journal of Educational Sciences and Technology*, 4(1), 46-56. <https://nojest.unilag.edu.ng/article/view/1503>
- Álvarez, I. M., Manero, B., Romero-Hernández, A., Cárdenas, M., & Masó, I. (2024). Virtual reality platform for teacher training on classroom climate management: evaluating user acceptance. *Virtual Reality*, 28(2), 78. <https://link.springer.com/article/10.1007/s10055-024-00973-6>
- Anekwe, J. U. (2017). Impacts of virtual classroom learning on students of Nigerian federal and state universities. *European Journal of Research and Reflection in Educational Sciences Vol*, 5(3). <http://www.idpublications.org/wp-content/uploads/2017/03/Full-Paper-IMPACTS-OF-VIRTUAL-CLASSROOM-LEARNING-ON-STUDENTS%E2%80%99-OF-NIGERIAN.pdf>
- Babalola, J. O., Dambo, B. I., & Bupo, O. G. (2019). Utilization of online platforms for e-learning by business education postgraduate students in universities in South-South Nigeria. *Nigerian Journal of Business Education*, 6(1), 182-197.
- Bi, X., Hu, Y., Li, L., Zhang, J., & Yang, X. (2025). Immersive virtual reality for classroom management training: Enhancing pre-service teachers' skills, emotions, and learning satisfaction. *Education and Information Technologies*, 1-25. <https://link.springer.com/article/10.1007/s10639-024-13248-z>
- Biswas, R. A., & Nandi, S. (2020). Teaching in virtual classroom: Challenges and opportunities. *International Journal of Engineering Applied Sciences and Technology*, 5(1), 334-337. https://www.researchgate.net/profile/Rajab-Ali-Biswas/publication/343543538_TEACHING_IN_VIRTUAL_CLASSROOM_CHALLENGES_AND_OPPORTUNITIES/links/6693dc63c1cf0d77fd710bb/TEACHING-IN-VIRTUAL-CLASSROOM-CHALLENGES-AND-OPPORTUNITIES.pdf
- Boulton, H. (2008). Managing e-Learning: What Are the Real Implications for Schools?. *Electronic Journal of E-learning*, 6(1), 11-18. <https://eric.ed.gov/?id=EJ1098713>
- Dai, W., & Kang, Q. (2025). Improvement of flipped classroom teaching in colleges and universities based on virtual reality assisted by deep learning. *Scientific Reports*, 15(1), 3204. <https://www.nature.com/articles/s41598-025-87450-5>
- Daoayan Biaddang, L. M., & Caroy, A. A. (2024). Student voice and choice in the virtual classroom: engagement strategies. *Discover Education*, 3(1), 162. <https://link.springer.com/article/10.1007/s44217-024-00269-6>
- Fabunmi, F. A. (2017). Undergraduate students' percentage of effectiveness of ICT use in improving teaching and learning in Ekiti State University, Ado-Ekiti, Nigeria. *International Journal of Library and Information Science*, 4(7), 121-130.
- Fini, A. A. S. (2008). Attitude of professors and students about virtual learning at colleges in Iran. In *WSEAS International Conference. Proceedings. Mathematics and Computers in Science and Engineering* (No. 7). World Scientific and Engineering Academy and Society.
- Habib, M. N., Jamal, W., Khalil, U., & Khan, Z. (2021). Transforming universities in an interactive digital platform: case of city university of science and information technology. *Education and Information Technologies*, 26(1), 517-541. <https://link.springer.com/article/10.1007/s10639-020-10237-w>
- Karp, P., & McGowan, M. (2020). Clear as mud: schools ask for online learning help as coronavirus policy confusion persists. *The Guardian*, 1(1), 261-307.
- Li, L., Hu, Y., Yang, X., Wu, M., Tao, P., Chen, M., & Yang, C. (2024). Enhancing pre-service teachers' classroom management competency in a large class context: the role of fully immersive virtual reality. *Humanities and Social Sciences Communications*, 11(1), 1-14. <https://www.nature.com/articles/s41599-024-03538-9>
- Muhamad, W., Suhardi, & Bandung, Y. (2025). Evaluation of technology integration's influence on the virtual classroom service system acceptance using the UTAUT framework. *Journal of Computers in Education*, 1-29. <https://link.springer.com/article/10.1007/s40692-024-00351-w>
- Nwadi, C. L; Attah, B. I. & Eze E. C. (2023). Awareness and Utilization of E-learning Technologies among Vocational and Technical Education students. *International Journal of Home Economics, Hospitality and Allied Research*, 2(2); 149-

Ayelaagbe, S.O. (2025). Virtual classroom learning: A boon during insecurity among university undergraduates. *World Journal on Educational Technology: Current Issues*, 17(2), 80-88. <https://doi.org/10.18844/wjet.v17i2.9537>

161.

Olibie, E. I., Ezoem, M. N., & Ekene, U. S. (2014). Awareness of virtual learning among students of two Nigerian universities: Curriculum implications. *International Journal of Development and Economic Sustainability*, 2(1), 48-62.

https://www.researchgate.net/profile/Jumoke-Soyemi/publication/317560155_AWARENESS_OF_VIRTUAL_LEARNING_AMONG_STUDENTS_OF_TWO_NIGERIAN_UNIVERSITIES_CURRICULUM_IMPLICATIONS/data/593fa421a6fdcc1b10acc591/paper5.pdf

Singh, A. K., & Meena, M. K. (2022). Challenges of Virtual Classroom during COVID-19 Pandemic: An Empirical Analysis of Indian Higher Education. *International Journal of Evaluation and Research in Education*, 11(1), 207-212. <https://eric.ed.gov/?id=EJ1340411>

Taangalar, B. A; Fatoki, J. O. &Ikondo, P. U. (2022). Science Teachers' Awareness of Availability and use of Virtual Reality in Secondary Schools for Science Teaching in COVID-19 Era in Makurdi Metropolis. *An International/Multidisciplinary Journal of Network for Grassroots Science and Mathematics Education* (The Village Math Network), 3(1), 219-227.

Udosen, A., & Ekpo, U. (2016). Instructional games: Implications for curriculum and instruction. *Equatorial Journal of Education and Curriculum Studies*, 1(1), 24-42. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2834253

Wells, P., De Lange, P., & Fieger, P. (2008). Integrating a virtual learning environment into a second-year accounting course: determinants of overall student perception. *Accounting & Finance*, 48(3), 503-518. <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1467-629X.2007.00249.x>