Exploring the Impact of Social Interactions on Academic Achievement among Learners at the National Open University of Nigeria

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Abstract
It has become necessary to integrate both in-person and virtual learning exchanges in order to address the issue of learners feeling disconnected and uncomfortable while studying remotely. Based on this, the study examined the effects of social interactions (face-to-face tutorial meetings and online interactions) on learners' academic achievement in the institution. The study design used was a descriptive survey. 200 students were chosen at random from the colleges of law, arts and social science, business and human resources, education, science and technology, and the centre for continuing education, making up the population of 100–500 level students. We used the Perceived Social Interaction on Learners' Academic Achievement in the National Open University of Nigeria Scale (r=.82) as the study's questionnaire, which consisted of thirty questions. Descriptive statistics and multiple regression were used to examine the data. The findings of the research showed that social interactions—both in-person tutorial sessions and online interactions—co-accounted for 02.2% of the variation in students' academic achievement and had no discernible impact on it ($F_{(2,189)} = 2.135$; $R^2 = 0.022$). Based on the study's results, the administration of the National Open University of Nigeria was advised to include social media, Google apps, and all learning technologies in order to support both in-person and virtual interactions. This proactive approach would ensure learners' participation and retention in the institution. This unique research on social connections and students' academic progress was carried out at the National Open University of Nigeria.

Keywords: Social interactions, learners' academic achievement, social interaction components, distance Learners, National Open University of Nigeria

Introduction

Interactivity between students and their tutors, as well as between students themselves, is a key component of distance learning systems. This is almost nonexistent in some types of remote learning, yet it is usually seen as significant (FME, 2002: 37). Traditionally, the provision of infrastructure in establishments like schools, university campuses, technical colleges, and others has facilitated the learning process. The idea that a student needed to be present where the instructor was in order to gain information, skills, and knowledge motivated the desire to be a member of such institutions. The first instance of a teacher-student separation occurred with correspondence education, which transmitted knowledge and information through a medium, usually print. These early forms of distance education brought the learning frontiers closer to the learners' homes. Active learning in the classroom and interaction between students and their instructors, as

well as between students and their surroundings, are essential components of a successful distance learning system (Quadri & Muibi, 2024). Compared to in-person classrooms, online courses still have a significant deficiency in conversation. Engagement extends beyond traditional in-person teacher-student exchanges, audio, and video formats. Additionally, it concerns how students may engage with their classmates, counsellors, facilitators, institutional support services, teaching assistants, and distance instructors (Muibi, 2022).

Stated differently, the presence of additional institutional support services and in-person and virtual connections would improve students' academic performance. Academic accomplishments can be defined as statements that outline the knowledge or skills a learner will acquire as a result of a learning activity. Muibi (2017:4) cites Powar, Panda, and Bhalla (2000) as saying that academic accomplishments are often defined as the information, skills, attitudes, or capacities that a learner has acquired at the conclusion (or as a consequence) of their involvement in a certain set of higher education experiences. According to research, learning settings help students develop their skills, interests, and attitudes (Feldman, Ethington, & Smart, 2001). Environments encourage the development of competencies, inspire individuals to participate in various activities, and provide rewards for exhibiting values and attitudes (Holland, 1997). Therefore, one's environment affects one's ideas of oneself, abilities, attitudes, interests, and values on both a personal and professional level.

Holland (1997) added that among the experiences of a college student are (a) the pursuit of academic settings that align with their aptitudes, interests, and personality types; (b) the impact of academic settings on students' social conduct in an attempt to develop the appropriate skills, passions, and values; and (c) a student's accomplishment that takes into account their personality type and the classroom setting. The majority of studies have focused on interactions between teachers and students in the classroom (Astin, 1993; Kuh & Hu, 2001). Nevertheless, there exists a paucity of research examining the relationship between learner-instructor interactions and extracurricular engagement, as well as how students are involved in their educational experiences (Kuh & Hu, 2001). Furthermore, considering the significance of student engagement in their academic success, it is essential to assess their involvement in education (e.g., completing individual assignments, collaborating with peers, or engaging in joint reading activities). Instructors provide students with learning resources; therefore, it is the responsibility of the student to complete the assigned tasks to achieve a deeper understanding of the subject matter. Studies have demonstrated the benefits of web-based learning for students when technology is integrated into teaching and learning environments (Quadri & Muibi, 2024).

Studies have shown that students who use educational technology have greater privacy and opportunities to practice a range of general skills (e.g., managing information, tasks, people, and oneself) (Howe, 1998; Oliver & McLoughlin, 2001). Additionally, learners may expand and make meaning of their e-experience by using online technologies, which provide a dynamic and engaging environment with a variety of learning scaffolds and supports (Hammond & Trapp, 2001; Krantz & Eagly, 1996). Students are given the chance to regularly interact with computers via computer resources and other online learning tools (Muibi, 2020). Most library resources are accessible online, allowing

learners to view the bulk of research papers and technical reports without the need to be physically present in a library. Finding material for research projects has become simpler because of sophisticated computer technology and online databases at libraries (Alasa & Quadri, 2022).

Conversely, social interaction encompasses all types of contact, communication, and information sharing among people or groups in a society (Yohanna, 2020). It refers to how people interact, communicate, and impact one another in diverse settings. Building social ties, comprehending social norms, and preserving social structures within a community all depend on social contact (Umberson & Karas-Montez, 2010). The concept of social interaction encompasses various important aspects, including communication, in-person or virtual contact, objectives and motives, social standards, social structure, conflict, and cooperation. Social contact, an essential part of everyday life, greatly influences a society's social dynamics (Litt et al., 2020). The impact of social interaction simplifies our understanding of how people interact, adapt, and form social relationships, and how these interactions impact students' academic performance.

Face-to-face interactions in physical settings were the primary means of social contact in the past (Ausat et al., 2021). However, in the current environment, students also communicate a lot via Internet channels. In other words, distance learning practices nowadays take into account both in-person and virtual interactions. This change has significantly changed how students see themselves and other people, giving birth to whole new social interactions. Enough learning interactions and support are crucial in remote education because distance learners must adapt to a new learning environment that requires self-management of learning, autonomous learning abilities, and the capacity to participate in activities (McLoughlin & Marshall, 2000). Ogedengbe and Quadri (2020) and Muibi (2022) affirmed that the utilisation of social media applications such as WhatsApp and Telegram, educational platforms like Moodle, Zoom, and LMS, as well as Google applications like Meet and Classroom, enhances learners' social connections while on virtual course design, instruction, and evaluation, thereby contributing to the efficiency of their learning.

Studies (Jung et al., 2002; Picciano, 2002) directly correlate academic success with high quality and amounts of contact. Teachers attempted to determine the kind of contact since it is crucial in distance learning. Moore (1989) distinguished three types of interaction: learner-to-instructor, learner-to-content, and learner-to-learner. Moore (1989) added that a learner's comprehension, viewpoint, and mental structure all change as a result of their intellectual engagement with the material. Learner-content engagement directly correlates with the amount of time students spend with course materials like textbooks, PowerPoint presentations, websites, and discussion boards (Su, Bonk, Magjuka, Liu, & Lee, 2005). The degree of engagement essentially determines the quality of distance learning programmes (Dzakiria, 2005). Learner-content interaction is the foundation of all education and is the most significant kind of interaction (Vrasida, 2000). This research investigated the three interactions through both in-person and virtual encounters. Most distance learners have limited time due to various circumstances (Omohbhe, Quadri & Kutu, 2020). Students with the financial means to utilise smartphones and Android devices as supplementary educational tools will have convenient access to online course

modules, study guides, and platforms for tutor-student collaborative learning, thereby facilitating effective educational enhancements through Zoom and WhatsApp (Muibi, 2021).

Distance learners face lots of challenges, such as inadequate interpersonal relationships with their tutors and colleagues and irregular contact with their institutions compared with conventional institutions. The learners faced the problem of isolation that created anxiety for the learners to succeed, which invariably led to poor academic performance and high dropout rates among the learners (Muibi, 2017). The constantly changing world of social media, characterised by its quick tempo and transparency, has somewhat lessened these difficulties by allowing students to participate in discussions, debates, and idea-sharing that are quite different from what they encounter in the actual world (Dwivedi et al., 2023). It creates an atmosphere in which students may engage with one another outside of conventional time limits and geographic restrictions. In addition to redefining the bounds of social contact, the digital sphere has sparked significant changes in students' perceptions of themselves and the people they interact with.

The complex and evolving nature of social media has fundamentally transformed how people connect, allowing learners to explore the intricate relationship between their online and offline identities, broadening their social interaction, and engaging in a discourse that surpasses their real-world experiences (Susanti & Hantoro, 2022). Social media significantly influences how students see themselves and others in the wider social environment.

The exposure of learners to a varied range of information on social media, including photographs, messages, and peer comments, may significantly impact their self-image, values, and adherence to societal standards. In the domain of social media, the omnipresent urge to portray an "ideal" self may significantly influence self-perception and provoke social comparisons. The curated and often idealised representations of persons on social media might influence students' opinions of what is considered desirable or acceptable regarding looks, lifestyles, and social standing (Pedalino & Camerini, 2022). The intricate relationship between self-presentation and societal standards shapes their self-concept and affects their perception of others. Furthermore, the continual exposure to a barrage of material, criticism, and discussion in the digital realm fosters a dynamic atmosphere in which students perpetually navigate the intricate balance between their genuine selves and the social personas they curate online. This continuous process may have significant repercussions, affecting both self-esteem and self-worth, as well as influencing students' perceptions and interactions with their classmates and society as a whole. Thus, social media functions as a complex platform where the nuanced interaction between self-identity and societal norms occurs, significantly influencing the perceptions and social dynamics of students (Etter et al., 2019).

The impact of social media on students has considerable ramifications for the field of learning and education. Social media platforms may function as significant knowledge sources and efficient collaboration tools in education (Ansari & Khan, 2020). They enable students to disseminate information, engage in discourse, and collaborate on projects, thereby cultivating a dynamic and participatory educational atmosphere. This collaborative potential allows students to access a substantial pool of collective

knowledge and varied views, enhancing their educational experiences. Educators and educational institutions must acknowledge the crucial significance of social media in students' lives and actively explore methods to incorporate it effectively within the educational framework, particularly in remote learning programmes.

Numerous studies have focused on student support services, course material development, staff capacity development, quality assurance, and feedback mechanisms to minimise the challenges faced by distance learners. However, certain areas of research remain unexplored, such as the current focus of this study. The National Open University of Nigeria is a case study to address the dearth of literature on the impact of social interactions on learners' academic achievement. We developed objectives to guide the investigation. This study's specific goals are to determine how social interactions—both in-person tutorial meetings and online interactions—affect students' academic performance within the institution and investigate how students view these two aspects of social interaction in relation to their academic performance.

Theoretical framework

With regard to online education, a number of studies have embraced theoretical frameworks to support their research. We used the idea of interaction and independence as the most appropriate theory for this investigation. Daniel and Stroud (1981), as quoted in Muibi (2024), assert that the concepts of independence and contact provided the opportunity for freedom and communication in a distance learning system. The distance learning institution provides a media-informative bundle that allows a distance learner to select any course and method of learning. They may also think about themselves, complete assignments, and progress at their own pace while still keeping in touch with others. In addition to reducing ambiguities, misinterpretations, and dissatisfactions, this approach will drive and assist the learner in the remote learning arrangement, potentially reducing wear-down or dropout rates. Interactive activities are the theory's less significant foundation, whereas the most significant premise is the autonomous study of distance learners. An individual stated that well-structured distance courses consist of a blend of autonomy and thoughtful learning activities. Autonomous tasks involve engaging with a text and concentrating on the literature provided by the remote institution (Daniel & Stroud, 1981). Therefore, the authors sum up the following:

Face-to-face tutorial meetings between instructors and students are necessary; new distance learners may need to attend these sessions. Weaning, the process of bridging the gap between formal and remote learning techniques so that a distance learner can gradually adopt the learning habits shown in distance education, benefits from physical meetings. Finally, one can manage two-way communications by scheduling a conversation meeting immediately following the broadcast of radio and television shows. Free telephone administrations can provide focused educational discussions between instructors and distance learners. Among other tools, Moodle, online study guides, online library resources, and Blackboard may be used to improve and facilitate student engagement and two-way communication, particularly for distance learners who want to study on their own (Muibi, 2024).

Methodology

For this study, a descriptive survey research design type was used. The fact that the researchers did not alter the variables served as justification for using this kind of design. Every 100–500 level distance learner from the faculties of law, arts and social sciences, business and human resources, education, science and technology, and the centre for Continuing Education was included in the target demographic. We used a straightforward random sampling procedure to select a sample of 200 people. The "Perceived Social Interaction on Learners' Academic Achievement" (PSILAA) questionnaire features two sub-scales: one for in-person tutorial meetings and another for online interactions. The survey consisted of two sections: Session A included the collection of demographic data, which included details like gender, age, marital status, academic level, and faculty. The second part of the research was to answer the research questions and achieve the study's objectives. We used a four-point Likert scale to assess the responses: 4 for Strongly Agree, 3 for Agree, 2 for Disagree, and 1 for Strongly Disagree. Respondents had to sign a permission form stating their willingness to participate in the study before they could begin. The Distance Learning Centre National Open University of Nigeria approved the research and allowed distance learners from different departments and faculties to access it through the web-based community to which they all belong. We then assured them that we would only use the information they submitted for study, protecting their privacy and identities.

We used content validity, which includes face validity, to ensure that the instruments utilised in this inquiry were reliable. We formulated the survey questions to ensure easy comprehension for the respondents. They were systematically and logically organised to align with the goals and study questions. The researcher also made sure that the contents of the instrument matched the goals and research questions of the study in order to increase validity. Although they were not the study's target demographic, fifty (50) students from the collaborating departments of the University of Ibadan's Distance Learning Centre pretested the instrument. We calculated the internal consistency reliability coefficient using the Cronbach Alpha reliability approach to assess the instrument's dependability. This approach was used since the questionnaire asked respondents to assess their level of consent or disapproval on a scale rather than selecting the correct or incorrect response. The Cronbach Alpha reliability test's values of 0.81 for in-person tutorial sessions and 0.83 for online interaction, respectively, demonstrate that the instrument is appropriate, adequate, and reliable for the research. The data was analysed using multiple regression and descriptive statistics of count rates and simple percentages.

Results

The results of the study are presented below, with Table 1 illustrating the first objective of the research.

Objective 1: To what extent do social interactions—both in-person and virtual—affect students' academic achievement at the National Open University of Nigeria?

The cumulative influence was determined using a multiple regression analysis, and the

study's findings are shown in Table 1.

Table 1: Multiple Regression Analysis of Interpersonal Relationship

R=0.149 R square = 0.022 Adjusted R square = 0.012 Std error = 508.58203						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1104510.073	2	552255.037	2.135	.121[b]
	Residual	48885924.406	189	258655.685		
	Total	49990434.479	191			

Table 1 above illustrates the relationship and impact of social interactions, specifically in-person tutorial sessions and online interactions, on students' academic performance at the National Open University of Nigeria. The independent variables have a negative association, according to the correlation coefficient (R = 0.149). Additionally, the coefficient of determination (R square = 0.022) indicates that the sum of these independent factors explains about 02.2% of the variation in academic performance. Variables not included in this study may account for the remaining variance. The statistical analysis (F (2,189) = 2.135; R = 0.149, R2 = 0.022, Adj. R2 = 0.012, p > .05) confirms the non-significance of the model in predicting the academic achievement of distance learners in the research. The 0.121 is greater than the p-value 0.05 level of significance.

Objective 2: How did learners perceive the two social interaction components on their academic achievement?

A descriptive assessment of distance learners' perceptions of the effects of two social interaction components on their academic progress is shown in Table 2.

Table 2: Face-to-face interaction on learners' academic achievement

S/N	Items	Strongly Agree	Agree	Disagree	Strongly Disagree	Total
1.	I achieved more during face-to-face interaction than online interaction	94(49.0%)	81(42.2%)	16(8.3%)	1(0.5%)	192
2.	Face-to-face interactions help me understand the course contents better than online interaction	117(60.9%)	59(30.7%)	12(6.3%)	4(2.1%)	192
3.	Face-to-face classroom environment makes it easier for me to communicate with my instructors	99(51.6%)	78(40.6%)	12(6.3%)	3(1.6%)	192
4.	I can speak with my colleaques more easily in a face-to-face educational setting.	101(52.6%)	74(38.5%)	15(7.8%)	2(1.0%)	192
5.	Face-to-face contact with instructors increases my learning effectiveness	111(57.8%)	58(30.2%)	19(9.9%)	4(2.1%)	192
6.	I engage in several conversations about the course material with my classmates during frequent in-person discussions.	57(29.7%)	100(52.1%)	29(15.1%)	6(3.1%)	192
7.	I get lots of feedback from my classmates during regular face-to-face discussion	80(41.7%)	82(42.7%)	29(15.1%)	1(0.5%)	192
8.	I receive enough feedback from questions asked in a timely fashion during face-to-face contact	54(28.1%)	74(38.5%)	46(24.0%)	18(9.4%)	192
9.	The instructor encourages us to question different ideas and perspectives during face-to-face discussion	92(47.9%)	74(38.5%)	23(12.0%)	3(1.6%)	192

10	The instructors aroused my interest in some issues which motivated me to learn more during face-to-face contact.	61(31.8%)	107(55.7%)	23(12.0%)	1(0.5%)	192
11	I often gain more knowledge during a face-to-face interactive session	69(35.9%)	98(51.0%)	23(12.0%)	2(1.0%)	192
12	I believe I would learn better if learners' face-to-face discussions were put in place by the institution.	89(46.4%)	81(42.2%)	18(9.4%)	4(2.1%)	192

Note: Agree and Strongly Agree are aggregated into a single category, Agree, whereas Disagree and Strongly Disagree are merged into Disagree.

Table 2 showed that just 17 (8.8%) of the respondents disagreed with the statement that they accomplished more via in-person engagement than through online interaction, while almost all 175 (91.2%) agreed. The table indicated that a significant majority of respondents, 176 (91.6%), affirmed that they comprehend the course information more effectively in face-to-face interactions compared to online formats, while just 16 (8.4%) disagreed with this assertion. All respondents confirmed that a face-to-face classroom atmosphere facilitates communication with peers and enhances learning effectiveness via direct interaction with teachers. This suggests that learners find face-to-face interaction more comfortable as it enhances their understanding of the material, leading to improved academic performance.

Table 3: Online interaction on learners' academic achievement

S/N	Items	Strongly Agree	Agree	Disagree	Strongly Disagree	Total
1.	Online interaction helped me to have information on study habits and how to manage my time and scored good grade on my courses.	69(35.9%)	113(58.9%	10(5.2%)	_____	192
2.	I was able to ask questions and receive a quick response from the instructors during online interaction.	40(20.8%)	107(55.7%)	29(15.1%)	16(8.3%)	192
3.	The use of technology involved usually delays my ability to accomplish the required coursework.	59(30.7%)	96(50.0%)	30(15.6%)	7(3.6%)	192
4.	I can connect with my instructors more easily in the online setting.	39(20.3%)	95(49.5%)	42(21.9%)	16(8.3%)	192

5.	The online environment makes it easier for me to access to information on my course registrations and other academic activities in the institution.	59(30.7%)	92(47.9%)	33(17.2%)	8(4.2%)	192
6.	My technical skills have improved as a result of online interactions.	69(35.9%)	88(45.8%)	24(12.5%)	11(5.7%)	192
7.	The use of various online learning tools provided by the institution have helped my interaction with fellow students and academic performance.	60(31.3%)	94(48.9%)	34(17.7%)	4(2.1%)	192
8.	Access to online interaction has improved my confidence to study as an independent student.	69(35.9%)	79(41.1%)	35(18.2%)	9(4.7%)	192
9.	Access to online interaction has helped reduce the effects of isolation as a distance learner.	35(18.2%)	89(46.4%)	62(32.3%)	6(3.1%)	192
10	Access to online interaction has helped me to engage in synchronous and asynchronous methods of learning.	60(31.3%)	88(45.8%)	40(20.8%)	4(2.1%)	192
11	Access to online interaction has helped me to learn at my own pace.	64(33.3%)	101(52.6%)	22(11.5%)	5(2.6%)	192
12	Online interaction gave room for interpersonal relationships and learning satisfaction among distance learners	74(38.5%)	98(51.0%)	20(10.4%)	____	192

Note: Agree and Strongly Agree are aggregated into a single category, Agree, whereas Disagree and Strongly Disagree are merged into Disagree.

Table 3 indicated that a majority of 182 respondents (94.8%) agreed that online engagement facilitated their acquisition of knowledge about study habits, time management, and achieving high grades in their courses, while just 10 respondents (5.2%) expressed disagreement. A total of 147 respondents (76.5%) reported having the ability to pose questions and obtain prompt responses from instructors via online interactions, while 45 respondents (23.4%) expressed disagreement. A significant majority of respondents, 155 (80.7%), concurred that the use of technology often hinders their capacity to complete the necessary coursework, whereas just 37 (19.2%) disagreed with this assertion. The respondents also attested in Table 3 that online interaction has helped them to learn at their own pace as well as reduce the effects of isolation as distance learners. The data indicates that respondents confirmed that online contact had facilitated their learning at their convenience. However, despite the benefits of online interaction, the learners expressed their dissatisfaction with using

technology to complete their coursework. This may be owing to poor technological infrastructure in the teaching and learning at the centre.

Discussion of findings

The results of the first study goal demonstrate the impact of two elements of social interaction—face-to-face tutorial sessions and online interactions—on learners' academic performance inside the institution. The findings revealed that the two components did not influence the prediction of learners' academic progress at the institution, indicating that they together accounted for just 2.2% of the variance in predicting academic success. Incorporating both components results in a 2.2% increase in learners' academic success, with the remaining 97.8% of the variance falling outside the purview of this research. Consequently, the combination of face-to-face tutorial sessions and online interactions yielded a p-value of 0.121, beyond the 0.05 threshold of significance, indicating no meaningful impact on learners' academic progress in this research. Susanti and Hantoro (2022) said that the complicated and changing nature of social media environments has caused a big change in how people interact with each other. They say that this is the start of a new era in which students manage a complicated relationship between their physical and digital identities, making more friends and having conversations that go beyond what they can experience in real life. The findings do not support those of Muibi (2022) and Ogedengbe and Quadri (2020), who indicated that using social media apps like Telegram and WhatsApp, educational platforms like Moodle, Zoom, and LMS, and Google apps like Meet and Classroom would help students with the conception, instruction, and evaluation of online courses, improving their academic performance and learning.

The subsequent objective's results revealed students' perceptions of the influence of social connections on their academic achievement, particularly when elements such as in-person instruction and online communication were involved. The findings indicated that both interactions substantially affected students' learning outcomes in the environment. The learners' responses suggested that the institution's method of instruction must incorporate the two crucial elements of social contact. This suggests that implementing these interpersonal interaction elements effectively will enhance the effectiveness of the educational environment for distance learners. The management of the institution considers the integration of the two elements of social interaction essential. This result corresponds with the Universal Design for Learning Principles, which underscore the creation of inclusive, flexible, and student-centered learning environments for social engagement, guaranteeing that all students can access and utilise the institution's direct and online academic resources, course materials, assignments, and other activities at any time and from any location. Crick (2021) asserts that the COVID-19 epidemic catalysed changes in digital schooling. Digital learning materials enable students to use and apply the knowledge they have gained (McGrath et al., 2020). These concepts support the premise that COVID-19 offers more prospects for creativity in a new sphere of online learning..

Conclusion

The research examined the impact of social contacts (in-person tutoring sessions and

online engagements) on students' academic performance at the National Open University of Nigeria. Consistent with the aforementioned findings, the conclusion drawn is that the available social interactions (face-to-face tutorial meetings and online interactions) utilised within the institution exert no significant effect, whereas the findings regarding learners' perceptions have a significant impact on learners' academic achievement. The distance learning programme necessitates the significance of face-to-face tutorial sessions and online contacts, as they mitigate the physical and psychological isolation between tutors and learners, as well as among learners themselves. This enhances learners' educational efficacy and academic success inside the institution. This necessitates enhancements in both components to allow the National Open University of Nigeria to compete worldwide with other remote learning schools.

Recommendations

In light of the study's results, the following recommendations were made:

- Increased use of various digital educational tools should enhance the virtual engagement experience for distance learners, and ICTs should be used more effectively by optimising their potential to support student's academic success and learning efficiency within the institution.
- To improve students' academic performance in remote education, virtual opportunities for engagement via ICTs should be designed and used in a way that is easy for learners to comprehend and relate to.
- The administration of the National Open University of Nigeria should formulate an effective strategy that promotes the integration of technological resources in educational activities while still accommodating occasional in-person interactions.
- Technologies that would support online learning at the National Open University of Nigeria should be provided, including training, financing, sufficient internet access, a backup power source, PCs, and other devices, and so forth. If the aforementioned recommendations are implemented correctly, they will enhance teachers' and students' understanding of how ICTs are integrated into educational activities and provide students with a means of effectively communicating with both their teachers and other students.

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