

Face-to-face, online, or hybrid learning in post COVID-19 recovery? Scrutinizing Nigerian students' Preferences

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ABSTRACT

The shifting from face-to-face interaction in a formal classroom to digital learning outside the classroom in the recent education system has made a great change in our learning habit. As the online learning mode has become more prevalent in around the world including Nigeria due to the COVID-19 pandemic, it is particularly crucial to re-examine students' opinions and preferences about the teaching modes. Now, a crucial question that may exist is will schools and universities keep at online learning in post COVID-19 pandemic recovery? In responding to the question, the present study scrutinizes Nigerian university students' standpoints either to prefer online or face-to-face learning activities at the time after the global pandemic recovers. A survey design is adopted by using an online questionnaire distributed to 153 students of several departments at a university in Nigeria. The results depict that 51% of the students are in favor of studying in an online learning mode. However, it is further found that only 19% of the students prefer to have a full online learning activity after the pandemic ends. Moreover, this study reveals that the majority of the students (69%) are supporting hybrid learning system which is the combination between online and offline learning activities. The rest (12%) agree with face-to-face learning activities in classrooms. These results contribute to offering fruitful insights and policy recommendation for Nigerian Ministry of Education to design specific rules and guidelines in which schools and universities are desired to offer blended learning activities for students in post pandemic recovery.

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Introduction

As we know, in the beginning of 2020 the world has been shocked by the emergence of Coronavirus disease (COVID-19) which is infectious and quickly spread through human face-to-face interaction. Consequently, it affects mostly all fields in human life because of the lockdowns and restrictions in all areas applied by countries around the world (Azhari & Fajri, 2022; Panakaje et al, 2022). Human style and habit are

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suddenly changing, and most activities are conducted virtually by the assistance of technology (Banna et al., 2022). It is undeniably also happening in education system, where face-to-face classroom activities are shifted to online learning without direct contact among students, teachers, and other stakeholders (Maatuk et al., 2022). Due to the current situation, it becomes a crucial issue to re-define the design of learning activities for students to ensure that the education process still continues on the track. Of course, online learning by using the available technological devices was chosen, and it has been conducted for more than one year at the time of this article is written. After countries in the world begin to step-by-step recover from the impact of COVID-19 outbreak, a question that may arise in the head of students and teachers is that whether the online learning will be continued in post-pandemic recovery, or they may go back to the classical classroom environment like before the pandemic. This question become an interesting attribute to explore through research, and it encourages us to conduct this study.

In Nigeria, like in other countries, schools and universities have been closed to reduce people mobilization to avoid direct contact, which is the primary cause of the COVID-19 outbreak (Adewale & Tahir, 2022; Eli-Chukwu et al., 2022). During the period, students were learning at home in online mode using digital platforms without face-to-face meeting and interaction. Although digital learning (familiar as e-learning) has long been developed and helped the emergence of online programs in the developed countries such as Western and European countries, it still becomes a serious challenge for developing and even underdeveloped countries (Blayone, 2018; Tvenge & Martinsen, 2018). From the time being, only a few private education institutions in Nigeria implement teaching-learning and academic activities by using e-learning, many others still find it difficult to carry out digital learning (Eze et al., 2018). Even to some education institutions, it is still like 'a nightmare' due to poor and non-availability of technological infrastructures and internet resources (Eze et al., 2020), as well as other challenges such as unstable electricity supply, teacher readiness, and lack of students' learning engagement (Adeyeye et al, 2022).

A week after the statement of World Health Organization (WHO) about the pronouncement of COVID-19 as a pandemic, Nigerian government approved the closure of education in all levels to take control of the virus outbreak (Amorighoye, 2020). In this situation, all educational administrators tried to adapt to online teaching and learning approach which lies on the crucial role of technological tools and e-learning system in most parts in Nigeria. In the developed and developing countries, e-learning has played a crucial role in assisting some education institutions to solve problems related to educational continuity at the time of crisis like COVID-19 pandemic (Ayebe-Arthur, 2017; Elshaer & Sobaih, 2022; Wang et al., 2022). In Nigeria, challenges and problems are still becoming 'close friends' to develop e-learning system that can help teachers and students perform effective online learning (Azubuike et al., 2021). According to Ugochukwu-Ibe and Ibeke (2021), some challenges encountered by teachers and students are non-availability and poor maintenance of IT infrastructures, unstable electricity, high-cost of data tariff, inadequate of IT skills required on the part of educator and learners, and difficulty in handling all practical process online. Considering the fact that Nigeria has a potential to develop its e-learning system, research on this area should be consistently conducted. However, it still faces serious challenges such as IT infrastructures and teacher-student readiness. Hence, examining teachers' and students' preferences on the future teaching mode in post COVID-19 recovery becomes a crucial matter to do.

Research on the students' preferences on particular teaching mode has been conducted with various results. Even before COVID-19 pandemic, Hargitai et al. (2021) already examined Romanian students' preferences on the online learning activities, and the results provide insights that can be interpreted as a mandatory element from students to design a smooth and effective shifting from in-class learning activities to

online learning activities. In the context of Jordan, [Elsalem et al. \(2021\)](#) evaluated students' experiences regarding remote E-exams preferences during the COVID-19 pandemic. The results reveal that only one third preferred remote E-exams. It was due to the complexity of the E-exams administration including preparation, academic achievements, and questions appropriateness with study materials. A blended learning system by combining both online and in-class learning assessment was more preferred by teachers and students. [Vala et al. \(2020\)](#) explored the preferences of Indian students between online learning and traditional classroom activities. The results found that 57% of the students preferred traditional classroom activities over the online learning, and 88% of the students want to have online learning when discussing about theories, but they preferred traditional teaching modes for practical classes. It can be concluded that most students prefer the combination of both learning modes in a blended learning system.

Similar result was also depicted by [Vijay \(2020\)](#) where the majority of medical students in Sardar Petel Medical college of Rajasthan India had a preference and more interest for traditional teaching and learning since they had better understanding on the materials. However, majority of the students also agreed that they have more time and exposure to study within the online teaching mode. Hence, the combination of both was more preferred. A study by [Gherheş et al. \(2021\)](#) further showed advantages and disadvantages of online learning from the students' points of views. The first-year students of Politehnica University of Timisoara Romania preferred to have e-learning exclusively, and upper-years students wanted to have both face-to-face and e-learning. This result emphasizes on the key information about a blended learning system from the students' points of view, which can be a guideline to understand the ongoing phenomena of the educational process and to overcome its particular problems to ensure its sustainability.

More recently, [Nikolopoulou \(2022\)](#) examined Greek students' opinions and preferences on different modes of learning which are face-to-face, online and hybrid education. The analysis of data obtained from 24 Greek students through semi-structured interviews revealed that hybrid learning mode was the most chosen learning approach. The positive perceptions toward hybrid learning are often associated to the potential benefits offered by the combination of face-to-face and online learning activities. In a similar direction, [Finlay et al. \(2022\)](#) scrutinized the experiences of students toward virtual and blended learning approaches during the COVID-19 pandemic. The results depicted clear preference of the students for blended learning; the students appreciate the implementation of blended learning activities. In a blended learning, students are able to foster the use of technology for learning as well as to depict clear understanding of the materials through face-to-face interaction at the same time. These findings imply that the education system has come to the new era of teaching-learning mode, in which combining face-to-face and online learning activities seems to be a promising alternative for pedagogical approach.

Having explored the previous studies, a research gap is observable. There is no single study was undertaken to scrutinize Nigerian college students' preferences on the future teaching-learning mode after the COVID-19 pandemic recovers. The students' points of view about the sustainability of education process are a crucial matter and needs more paucity of empirical evidence to ensure the sustainability of education. This becomes a novelty addressed by the present study. Hence, this study casts the light on Nigerian college students' preferences on teaching-learning mode in post-pandemic recovery. This study employs a survey to portray the students' preferences, and the data are descriptively presented to provide generalization. The results of this study contribute to providing valuable insights to design a well-planned teaching agenda in the future, as well as offering policy recommendation for education stakeholders and government to overcome challenges and problems of digitalization in education.

Method

Research Design and Study Area

As this study aims to shed some light on Nigerian college students' preferences on teaching mode in post-pandemic recovery, a descriptive survey design under quantitative approach was employed. This study was based in a university at Kano, the northern second largest city of Nigeria. A survey design enables researchers to obtain quick information about mainstream phenomena and a group of people's feelings related to particular event (Nardi, 2018). This design is appropriate for this study, since the survey research was used to examine general preferences of Nigerian college students on teaching modes either online or face-to-face learning activities when the COVID-19 pandemic recovers in the future.

Respondents

A total of 153 students majoring in some departments at a university in Nigeria, who were selected using random sampling technique, participated in this study. Under the procedure of random sampling technique, all students have equal chances of being chosen as the participants of this study (Andres, 2012). The participants were consisting of undergraduate students (70%), graduate students (17%), and Ph.D students (13%). The survey was administered in the middle of 2021 when the infection cases of COVID-19 was statistically decreasing in Nigeria. Therefore, education practitioners were beginning to re-thinking and consider the most appropriate teaching mode after the COVID-19 pandemic recovery.

Instrumentation and Data Collection

Structured questionnaire was constructed and utilized to elicit the required data. The questionnaire was adapted from Almuraqab (2020), consisting of three parts. The first part explained about the topic and purpose of the data collection, as well as gaining the participants' consent. The second part scrutinized the participants' demographic information such as gender, age, degree, address, current working status, and field of study. The last part of the questionnaire was seeking the data about participants' preferences on the teaching modes, comprising 9 structured items measured using Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) and 1 close-ended item asking them to choose the most preferred teaching model after the pandemic recovery (100% online learning, blended learning system, or in-class learning). Items 1 – 5 sought the participants' perception about the benefits of online learning activities, while items 6 – 9 obtained the data about participants' views on the challenges of online learning. After its development, the questionnaire was piloted to a group of senior high school students, and it has been revised based on their comments and suggestions, before it was used to collect the data. Finally, the questionnaire was distributed online by the assistance of a familiar survey administration platform in Nigeria, Google Forms. The detailed items of the questionnaire are presented in Table 1.

Table 1. Survey Items

Survey Items	Statement
Item 1	Online learning is effective to support my study
Item 2	I have digital devices and internet access, so I am able to learn remotely using any device
Item 3	The online learning is very effective, due to location flexibility.
Item 4	Online learning saves time and efforts to reach universities.
Item 5	Overall, I like online learning activities.
Item 6	I am difficult to reach technological devices at home (PC, smartphone, laptop, tablets)

Survey Items	Statement
Item 7	Online learning makes working and communication with friends limited.
Item 8	The internet access in my region is unstable.
Item 9	Online learning sometimes makes me difficult to understand materials due to limited face-to-face interaction.
Item 10	Would you like to continue online learning in the future? <ul style="list-style-type: none"> - Yes, I want 100% online - Yes, but blended system (in-class and online) - No, I like in-class learning

Adapted from [Almuraqab \(2020\)](#)

Data Analysis

The obtained data from survey research were analyzed under the procedure of descriptive statistics. The data were calculated by using Excel program in the form of percentage to indicate the degree of participants' perceptions on each statement item (see [Table 2](#)). The participants' responses in the form of Likert scale (1 to 5) were computed by determining the total score of each item using the formulation $T \times P_n$, where T is the total responses and P_n is the Likert score. The potential maximum score of each item is 765, obtained from the number of participants (153) multiplied by the highest score of Likert scale (5). Furthermore, an index (indicating percentage) was calculated by dividing the total score of each item with the potential maximum score (765), then multiplied by 100. The index was utilized as qualification criteria to draw the conclusion of the participants' agreement levels toward each questionnaire item. Generalization was further made to show overall perceptions of Nigerian college students about the administration of online learning mode, as well as their preferences related to the future design of learning activities. The qualification criteria are summarized in [Table 2](#).

Table 2. Qualification Criteria

Percentage	Criteria
0% - 20%	Strongly disagree
21% - 40%	Disagree
41% - 60%	Neutral
61% - 80%	Agree
81% - 100%	Strongly agree

Results

Participants' Demographic Information

To reach the objective of this study, several steps of data analysis were conducted. First of all, the process of data analysis began with examining the demographic information of the participants who participated in this study. During the data collection period from May to August 2021, a total of 153 Nigerian college students filled out the survey which was distributed in the form of link spread through social media and emails. The descriptive data of participants' demographic information is presented in [Table 3](#). According to [Table 3](#), the participant of this survey is highly dominated by Nigerian college students whose age is from 17 to 23 years old (64.05%), followed by 24 to 30 (17.64%), 31 to 37 (12.41%), and 37 - 42 (5.88%), respectively. In terms of gender, the participants consist of male (46.40%) and female (53.59%). With regards to current

working status, it is depicted that only 20.91% of the total participants was having a profession at the time of the survey was conducted, while the rest (79.08%) were not working or having a profession. As for the participants' education degree, 67.32% are the students of undergraduate program, 20.26% are studying at master's degree, and 12.41% are taking their Ph.D programs. Last but not least, the participants were coming from various fields of study such as Education (34.64%), Health science (20.26%), Agriculture (15.03%), Islamic studies (11.11%), Environmental science (9.80), and Computer science (9.15%).

Table 3. Participants' Demographic Information

Item	Frequency	Percentage
Age		
17 - 23	98	64,05%
24 - 30	27	17,64%
31 - 37	19	12,41%
37 - 42	9	5,88%
Gender		
Male	71	46,40%
Female	82	53,59%
Working		
Yes	32	20,91%
No	121	79,08%
Degree		
Undergraduate	103	67,32%
Master's	31	20,26%
Ph.D	19	12,41%
Field of study		
Education	53	34,64%
Health science	31	20,26%
Agriculture	23	15,03%
Islamic studies	17	11,11%
Environmental science	15	9,80%
Computer science	14	9,15%

Nigerian Students' Preferences on the Future Teaching Mode

Table 4 presents the results of data analysis from the survey. Items 1 -5 scrutinizes the students' perceptions about the benefits of online learning activities. In terms of statement about the effectiveness of online learning to support the students' study, the students agree that online learning activities using digital platforms is effective to enhance their understanding of learning materials. Although the percentage of this item is considered low, it can be concluded that the students have a positive perception toward the implementation of distance learning amidst the COVID-19 pandemic. It is supported by the finding shown by the score of item 2 which reaches 70.45%. It indicates that the students are able to join distance learning activities since they have internet connection and digital resources. About the location flexibility as described in item 3, the students also agree that online learning activities provide them with unlimited time and spaces to study, anytime and anywhere as long as they are connected to internet. In line with this, an interesting finding is shown by the score of item 4 about the easy accessibility of online learning that possesses the highest score in this survey (82.35%). It means that the students strongly agree that online learning saves their time and efforts to reach campus or university. Overall, it is revealed that the students like online learning activities which is shown by the total score of item 5 (79.60%).

Items 6 – 9, moreover, try to depict the students' perspectives about the challenges of online learning activities. Item 6 reaches a low score which is only 54.37%. It suggests that Nigerian college students did not have serious difficult to find digital devices such as PC, laptops, and tablets in their home. It is in line to the statement of item 2 that the students acknowledge the availability of digital devices to join online classroom activities. However, the students highly agree that online learning activities limit their interaction and communication with friends. It is shown by the high score for item 7 (80.91%). Although in general the students like the online learning, they also criticize about the unstable internet connection in some of their regions. It is indicated by the score of item 8, which is 75.42%. As a result, the students agree that online learning activities sometimes make them difficult to understand particular materials that are being studied. It is shown by the score for item 9, which reaches 70.71%. This finding might have a connection with the unstable internet connection as revealed by the students' agreement in item 8.

Table 4. Students' Preferences

Items	N	Responses Score					Total Score	Index (%)	Criteria
		SD	D	N	A	SA			
1	153	18	66	51	216	155	506	66.14	Agree
2	153	3	26	186	204	120	539	70.45	Agree
3	153	11	74	90	236	80	491	64.18	Agree
4	153	2	20	39	284	285	630	82.35	Strongly Agree
5	153	1	36	45	272	255	609	79.60	Agree
6	153	24	78	153	236	25	416	54.37	Neutral
7	153	4	20	36	304	255	619	80.91	Agree
8	153	4	22	132	204	215	577	75.42	Agree
9	153	13	28	108	232	160	541	70.71	Agree
10	153	<ul style="list-style-type: none"> - Yes, I want 100% online (19%) - Yes, but blended system (in-class and online) (69%) - No, I like in-class learning (12%) 							

Notes: N (Number of participants); SD (Strongly disagree); D (Disagree); N (Neutral); A (Agree); SA (Strongly agree)

As for the item 10, the participants were asked to choose three options telling their preferences on the teaching modes in post-pandemic recovery. They were required to show their standpoints on having 100% online learning, blended learning system (combination of both), or in-class learning activities. The result portrays that 69% of the participants prefer to have blended learning system, in which online and in-class activities are combined. Moreover, 19% of them want to have full online learning, and the rest (12%) prefers in-class learning activities. This finding indicates that Nigerian college students acknowledge the benefits of online learning activities. However, when they are required to choose the most appropriate teaching mode in the future after the pandemic recovers, blended learning system becomes the best option.

Discussion

In the beginning of 2022, many countries have already been successful in slowing down the spread of COVID-19 which causes the banning of gatherings, including the closure of universities. The university closure is a must, and it is proven to be an effective way to minimize the infection rate of the virus, especially among students and teachers who are one of highest population segment in most countries. On the other hand, the closure of schools and universities has come with its own challenges especially in a developing country in Afrika, such as Nigeria. By collaborating with universities, the

government provides regulations about the implementation of online learning to ensure the continuity of education process and teaching-learning activities in the country. In the era of Information Communication and Technology (ICT) advancement, learning from home is actually not quite difficult (Greenhow et al., 2022; Mubarak et al., 2022). Students have already been familiar with technological resources and digital platforms for educational purposes, especially at university level (Komljenovic, 2021). Online learning offers students a big advantage and freedom as they can study everywhere as long as having internet connection (Decuyper et al., 2021).

The results of this study show that Nigerian college students are having a positive perception toward the online learning activities. However, when being asked to show their preferences on the teaching mode in the future, the majority of them choose blended learning system, which is the combination of online learning and in-class activities. This finding can be interpreted as 'a wake-up call' for education stakeholders and government especially in developing countries to begin acknowledging not only the potentials anymore but also the practices of online learning through digitalization in educational aspects. The pandemic of COVID-19 increases people's awareness toward the crucial role of technology for human being's life, including in education system (Mustapha et al., 2021; Szymkowiak et al., 2021). Hence, the finding of this study offers a fruitful insight for education stakeholders to re-design the concept of teaching-learning activities in schools and universities by considering the standpoints of students who want to have a blended learning system at the time of post-pandemic recovery.

Although it is found that the students are possessing a positive consideration about the practice of digital learning during the pandemic, a number of challenges have further been revealed through the survey. One of the challenges is that online learning makes the students' working spaces and communication with colleagues and friends limited. It is undeniable since the primary cause of COVID-19 outbreak is physical contact and face-to-face interaction among people (Berawi et al., 2020). Not only does this challenge occur in Nigeria, but it is also happening in all countries affected by the outbreak of COVID-19. This finding is similar to the results of Nartiningrum and Nugroho (2021) and Siddiquei and Kathpal (2021) that students are often feeling bored due to limited communication and spaces during the lockdown. Another challenge faced by Nigerian students during the online learning is the difficulty to understand learning materials from teachers' explanation. From the survey, students agreed with the statement that internet connection in some of their regions was unstable. It might be one of the causes why they could not clearly understand the materials delivered by their teachers. This result is consistent with the findings of Hashemi (2021) in Afghanistan and Affouneh et al. (2021) in Palestine that internet connection still became a serious problem to assist the efficacy of online learning, even in most of developing countries.

The most important finding in this study is that the students' preferences about the future teaching model after the pandemic recovers. Although it has been mentioned in the previous section, however, we think it should be discussed in more detailed section, especially the potential reasons behind the preference. It will be a worth insight for educational stakeholders and government to ensure the effectiveness of future education system including designing curricula, facilities and infrastructures, teaching paradigm, and preparing the digital as well as human resources. It is undeniably true that most students choose blended learning because of the limitations of online learning activities. On one side, they want to experience a new teaching habit that can be 'a modern style' of learning in this century through digitalization and online learning. However, on the other side, they were experiencing a number of problems and challenges during its implementation, particularly in the time of COVID-19 pandemic. It is not surprising of course, since the online learning amidst the global pandemic is not a well-planned agenda but a sudden change simply from face-to-face interaction in the classroom to digital interaction through online media. Hence, the results of this study

offer multiple implications as a policy reference in order to enrich the literature about future model of teaching in school and universities.

Further reason is that digitalization in education and learning has been developed in the recent decade, even before the outbreak of COVID-19. It is due to twenty-first century education paradigm which has been the witness of advanced development of Information Communication and Technology (ICT). Western countries such as United States and European countries has begun the design of digital learning environment since the beginning of twenty-first century (Majovski et al., 2018). In the context of COVID-19 pandemic, digitalization in education is such an obligation because we have to do so. It increases people's awareness on the importance of digitalization in today's learning system which is experiencing continuous development in the recent years. When most countries are in the stage of struggling to design digital learning environment, COVID-19 is coming and becomes an alarm for the countries to quickly finish their digital learning projects. COVID-19 might tell us that we must be in hurry so that our students will experience effective, attractive, and interesting digital learning activities in the future years. This becomes a primary reason for students, particularly in universities, choose to have a blended learning after the pandemic ends. It is not impossible when the digital learning has been well-designed and effectively conducted, students will change their preference to have a full online learning activity.

Finally, we come to the implications and contribution of this study. First of all, we would like to say that the results of this study support previous findings of Elsalem et al. (2021), Pech et al. (2021), and Saidi et al. (2021), in which students are more preferred to have a blended learning system instead of only online or in-class learning activities. Theoretically, the results of this study contribute to literature enrichment about digital learning amidst COVID-19 pandemic. Not only does it, but the results also offer significant insight with regards to teaching and learning mode in the future. From pedagogical perspective, the results must be a reference and guideline to design future education system and policy related to education development, especially in Nigeria. Last but not least, it is a worth saying that digitalization in education system is a must, so let us take the results of this study as input enhancement to design a well-planned agenda for our education in the future.

Conclusion

This study is initiated based on a problem that may arises in the time of education system amidst today' global pandemic. Teachers and students might have been thinking about the model of teaching and learning activities after the pandemic recovers. Will it be online like we are doing today, of course with its all challenges and problems, or will it be back to in-class activities like before the pandemic? It has been a big question since online teaching and learning activities are now becoming a new habit and style of learning. The answer is depicted in this present study, which aims to scrutinize the standpoints of Nigerian college students about their preferences toward the teaching mode in the future. Drawing on survey research, the results reveal that most students prefer blended learning system, which is the combination between online and in-class learning activities. It is reasonable since they still have to deal with a number of challenges when joining online learning. The results contribute to offering valuable inputs for developing policy in education. Stakeholders and government should consider the results of this study as a part of policy recommendation to design future teaching paradigm.

This study has several limitations. First, this study only examines students' standpoints related to their preferences on the future learning mode. Hence, future studies are strongly suggested to explore the preferences of teachers and educators, so that the result will be more balance and comprehensive. Second, the research sample

used in this study was only from one university, which is modest to represent the whole students in Nigeria. Although it can be a clear description, but it may not very accurate to represent students' preferences on the learning style in post-pandemic recovery. It leaves a hole for future research to examine students' perceptions from more universities in Nigeria, as well as to reveal more insights on learning style in the future.

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