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Measure of online indices among tertiary institution students in Lagos, Nigeria

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Article Info	Abstract
	Online indices can serve as a gauge of students' digital readiness and proficiency in navigating digital learning environments. Assessing students' familiarity with digital tools, online communication platforms, and information literacy skills can help institutions tailor support services and training programs to meet students' needs. Hopefully, it is expected that data generated can inform instructional design and course delivery strategies that would enhance the online learning experience and promote student success. Hence, this research work assesses the extent of undergraduate students' response to ten online indices such as attendance, attention, regularity, distraction and so on, using an adapted questionnaire. Answers were provided to three research questions raised in the study. Data generated was analyzed using descriptive statistics of frequency counts, percentages, mean and Standard deviation. Findings revealed that undergraduate students are ready to navigate digital learning as seen in their engagement in online learning and agreement to convenience in attending online classes among others, though it is established that they face technical issues during online classes. It is therefore recommended that tertiary institutions can leverage on undergraduates' digital literacy and accept the change for effective technological integration.

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Introduction

The method of teaching from the period education was brought to Nigeria by the missionaries has been conventional, where lecturers and students see and interact. In this method, lecturer visits the classroom where students are sited in preparation for the lesson. Though it has been asserted that learning can occur in many contexts, and that the learning environment can be structured or informal as it complements each other (Eziyi, Oluwole & Owoseni, 2017). With the advent of technology in 1990s, technology has been seen to have the ability to change traditional teaching and learning processes; the ability to eliminate geographic and temporal barriers to education and significantly expand access to lifelong learning. By this students no longer need to be physically present in the same area at the same time in order to get instruction from an instructor. Fundamentally therefore, new technology has proven to have the potential to influence how institutions of higher education are seen. Technology has been integrated into education and training, which informed digital knowledge.

Digital learning refers to the use of digital technologies, tools and resources to support and enhance the learning process. In this case the facilitator taught electronically via the internet, intranets or multimedia platforms such as CD-ROMs or DVDs. In Smart & Cappel (2006) view, it involves the integration of digital elements such as online courses and tutorial, digital textbooks and multimedia content, virtual classrooms and webinars, and so on. Many users have access to direct internet connections and synchronous interactive settings, self-paced independent study mechanisms, asynchronous interactive sessions.

Digital learning has grown tremendously over the past years. Advances in technology since the 1990s have given rise to an increased use of web-based tools in distance education, and recently, many institutions of higher learning offer digital instruction with integrated web-based instructional tools known as Digital Learning System (DLS). The system has absolutely moved into higher education with novel additional programs - the blended synchronic learning (digital and conventional approaches) mode, gaining and developing trend in higher education. With fast expansion of global education market, several universities have increased their transnational education offer, like blended and distance learning (Bali & Liu, 2018).

Digital learning is seen to lack interactivity vis-à-vis traditional learning. It has been promoted as being more cost-effective and practical than conventional educational environments, and as providing opportunities for more learners to continue their education. Rodriguez, Klaus & Milner (2008) agreed that sustaining enrolment in higher education will depend upon students' learning experiences and sensitivity in digital learning system or conventional learning environment. This is a pointer that higher education institution is approaching a phase

where physical site equipped with classrooms and residence halls where students congregate to pursue higher education is less emphasised.

Nkedishu, Egwunyenga & Nwaorgu (2021) opined that significant forces are forcing higher education to embrace this new technology. These forces among others include: Globalization's rapid growth, which is eroding international borders and transforming the business world and also expanding the potential reach of schools and institutions. With the advancement of superior communication technology, institutions of higher education are no longer confined by their local student markets or instructional resources. Similarly, the growing need for opportunities for lifelong learning in order to keep current with social, economic, and technological advances creates a demand for accessible alternatives to traditional on-campus, real-time training. Additionally, competition among institutions of higher education fosters technological innovation inside colleges and universities. To avoid being eclipsed by competitors, many institutions participate actively in a technology "arms race" that requires rapid adoption of new technological developments as they become available. The alternative is to fall behind other universities in the race for the same students, faculty, and funding.

Online learning affords students access to a choice of tools that complement the job at hand and allow them to gain a better grasp of topic. Acceptance of change is a must for effective technological integration. Integrated technology is when technology works well with the syllabus or teaching strategies (Rathore & Sonawat, 2015). Integrated technology is always developing; it's a never-ending process of learning. Computers, multi-touch screens, mobile devices, audio recorders, e-book readers, games, light tables, are examples of technological tools engaged in learning. Thus, rather than being an extra layer in the classroom, technology is interwoven in the lesson plan and pedagogy. In this technique, teachers plan activities and students utilize technology to create their own. For example, students utilize technology to gather information, arrange it, and display it using computer apps. The instructor is a facilitator and the student a learner constructor. According to Charania (2011) this method promotes student usage of technology, genuine assessments and activities involving technology in the classroom.

In schools, classrooms, and among teachers and students, there is a substantial body of research on the use of digital technology. However, most of these studies are narrow in scope, focusing on only one or two aspects of education and technology (for example, classroom cases or teacher and student technical competence), thereby isolating the object of study from the larger context of a school (Liisa & Minna, 2018). According to Freitas and Paredes (2018), technology utilized in digital learning focuses more on student-centred pedagogies that go beyond the simple transfer of information, although via new and flashy channels (video lectures, fancy-designed virtual platforms, etc.). Despite the promise of technology, its integration into higher education has

been everything but smooth or rapid. However, in 2020 due to COVID-19 pandemic restrictions, traditional classroom teaching in many institutions was shifted to online teaching. Students have to go online to attend, participate and get involved in the classroom, which is not physically assessable to them.

However, tertiary institutions embrace of online learning comes with its challenges among which are Student's understanding of course content; paying attention to lectures; convenience and regularity in attending classes; clearing doubts during the class; facing technical issues during online classes; students attending and sticking to the time table of traditional classes as compared to online classes; as well as students interaction and engagement in online classes. Hence, this study has been conducted to empirically ascertain the extent of undergraduates' response to these online indices in Lagos – Nigeria.

Research Questions

1. What is the extent of undergraduate students' response to the ten online indices?
2. How ready are undergraduate students in navigating digital learning environment?
3. How does undergraduate students' readiness to navigate digital learning environment vary by demographic factors such as age, gender, field of study, level of study and ethnic affiliation?

Method

Research Design

A qualitative approach using an online survey design of an ex-post facto type was adopted for the study. The target population comprises all undergraduate students in Lagos - Nigeria. Online survey questionnaire on google forms were sent to different undergraduate Whatsapp platforms, from where Three hundred (300) completely filled responses were selected. These constitute the sample for the study.

Instrumentation

The main instrument employed in the study was an adapted questionnaire comprising of two sections: Section A consists of profile of the respondents in the study; Section B was a ten (10) items statement that measures the extent of respondents response to the online indices considered in the study.

Administration of Instrument

The Instrument was administered and retrieved with the assistance of students and colleagues compelled to send the online survey questionnaire to different students' whatsapp platform. It was sent to more than Three hundred (300) undergraduates across Lagos - Nigeria.

Data Analysis

The data generated were analysed using frequency count, percentages, mean and standard deviation.

Result

Research Question 1: What is the extent of undergraduate students' response to the ten online indices

Table 1. Frequency, percentage, mean and standard deviation of extent of undergraduate students' response to the ten online indices

S/N	Statement	SA	A	D	SD	Mean	Std. Dev.
1	Online classes provide better understanding of course content	25 (8.33)	100 (33.34)	160 (53.33)	15 (5.00)	2.45	0.12
2	It is easier to pay attention to lectures in online classes	45 (15.00)	65 (21.67)	160 (53.33)	30 (10.00)	2.42	0.15
3	Online classes are not convenient to attend	40 (13.33)	130 (43.33)	110 (36.67)	20 (6.67)	2.37	0.20
4	It is not easier to clear doubts through online discussions	50 (16.67)	160 (53.33)	75 (25.00)	15 (5.00)	2.18	0.39
5	Students face technical issues during online classes	135 (45.00)	135 (45.00)	20 (6.67)	10 (3.33)	3.32	0.75
6	Students are more likely to attend online classes than traditional classes	55 (18.33)	100 (33.33)	110 (36.67)	35 (11.67)	2.58	0.01
7	It is not easier to get distracted during online classes than during traditional classes	25 (8.33)	70 (23.33)	130 (43.33)	75 (25.00)	2.85	0.28
8	Students are more likely to stick to the time table of traditional classes as compared to online classes	100 (33.34)	135 (45.00)	55 (18.33)	10 (3.33)	3.08	0.51
9	Students do not miss social interaction with peers and teachers in case of online classes	55 (18.33)	125 (41.67)	110 (36.67)	10 (3.33)	2.25	0.32
10	Lack of face to face communication does not make online classes less engaging	60 (20.00)	140 (46.67)	85 (28.33)	15 (5.00)	2.18	0.39
	Weighted Average			**2.57**			

Table 1 revealed the extent of undergraduate students' response to the ten online indices such as attendance, attention, regularity, distraction and so on. It shows undergraduates agreement to Online classes providing

better understanding of course content ($\overline{x}$ = 2.45); being easier to pay attention to lectures in online classes ($\overline{x}$ = 2.42); Online classes not convenient to attend ($\overline{x}$ = 2.37); not easy to clear doubts through online reception ($\overline{x}$ = 2.18); students facing technical issues during online classes ($\overline{x}$ = 3.32); students more likely to attend online classes than traditional classes ($\overline{x}$ = 2.58); getting distracted during online classes than traditional classes ($\overline{x}$ = 2.85); students more likely to stick to time table of traditional classes as compared to online classes ($\overline{x}$ = 3.08); students not missing social interaction with peers and teachers in case of online classes ($\overline{x}$ = 2.25) and lack of face to face communication not making online classes less engaging ($\overline{x}$ = 2.18). Weighted average value of 2.57 ascertained the extent of undergraduate students' understanding of course content; paying attention to lectures; convenience and regularity in attending classes; clearing doubts during the class; facing technical issues during online classes; students attending and sticking to the time table of traditional classes as compared to online classes; as well as students interaction and engagement in online classes.

Research Question 2: How ready are undergraduate students in navigating digital learning environment?

Students' digital readiness and proficiency in navigating digital learning environment can be measured by the followings among others:

1. Ownership of smartphones/laptops
2. Presence on social media
3. Participation in online learning platform
4. Frequency of online interaction
5. Ability to use digital device

Without missing words, a higher percentage of Nigerian undergraduates (nearly 100%) fulfilled the five variables listed above. Due to COVID-19 pandemic restrictions, traditional classroom teaching in Nigeria was shifted to online teaching. Students have to go online to attend, participate and get involved in the classroom, which is not physically assessable to them then. Undergraduates that did not have android phones prior to this period had no choice but to get one to enable him/her participate in online classes. Also, for a long period, Joint Admission and Matriculation Board examination and 100level examinations in most institutions are Computer-based. Hence, it can be affirmed that undergraduate students are apt to be ready in navigating digital learning environment.

Research Question 3: How does undergraduate students' readiness to navigate digital learning environment vary by demographic factors such as age, gender, field of study, level of study and ethnic affiliation?

Table 2. Demographic factors of the Three Hundred (300) respondents in the study

S/N	Variables	Frequency	Percentage
1	Age: 15 – 19years	70	23.33
	20 – 25years	160	53.33
	26 – 30years	25	8.33
	31 – 40years	45	15.01
2	Gender: Male	125	41.67
	Female	175	58.33
3	Field of Study: Sciences	185	61.67
	Arts	25	8.33
	Social sciences	60	20.00
	Vocational	30	10.00
4	Level of Study: 200Level	140	46.67
	300Level	90	30.00
	400Level	70	23.33
5	Ethnic Affiliation: Yoruba	260	86.67
	Igbo	25	8.33
	Hausa	15	5.00

Table 2 revealed how undergraduate students' readiness to navigate learning environment varied by demographic factors such as age, gender, field of study and ethnic affiliation. It shows that 23.33% of the respondents are in the age bracket 15 – 19years, 53.33% are in the age bracket 20 – 25years, 8.33% are in the age bracket 26 – 30years, and the remaining 15.01% are in the age bracket 31 - 40years. The highest number of respondents falls in the age bracket 20 -25years, which happens to represent bulk of persons in the digital age. 41.67% of the respondents are male, while the remaining 58.33% are female. 61.67% are studying Science-related courses, 8.33% are studying Arts-related courses, 20% are studying Social science-related courses and the remaining 10% are studying Vocational courses. 86.67% are from Yoruba ethnic affiliation, 8.33% are from Igbo ethnic affiliation and the remaining 5% are from Hausa ethnic affiliation.

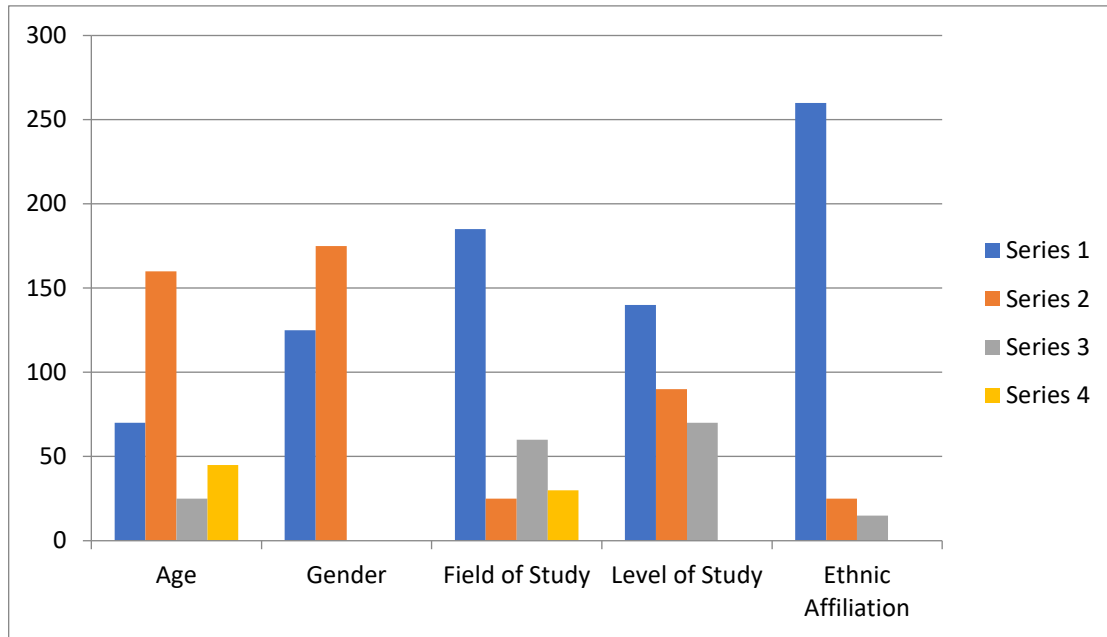Graphical representation as shown below:

Figure 1. Bar chart description of respondents in the study

Figure 1 revealed that the highest number of respondents in the study falls in the age bracket 20 - 25years; the greatest number of the respondents being female; and the highest number studying science-related courses. A good number are in their second year of study at the University and majority of them are from Yoruba ethnic affiliation.

Discussion

This study tries to establish the extent of undergraduate students' agreement to online classes providing better understanding of course content; making it easier to pay attention to lectures; not being convenience and irregularity in attending online classes; not being easy to clear doubts during the class; not making peers and teachers miss social interaction; and does not make classes less engaging. The mean value for each of these items being less than 2.5, by implication is close to saying that the students disagree to preference of online classes over traditional classes. Since the current trend in higher institutions is blended synchronic learning, more needed to be done to assist undergraduates navigate digital learning environment. At the same time, greater agreement to students was facing technical issues during online classes, which could be as a result of power failure, network disruption, and faulty equipment and so on; students likely attending online classes more and sticking to the time table of traditional classes as compared to online classes. The mean value for each of these items being greater than 2.5, by implication affirms that these indices need to be addressed in promoting online classes.

Information gathered revealed that the highest number of respondents in the study falls in the age bracket 20 - 25years, which capture the average age of present day undergraduates in Nigeria; the greatest number of the respondents being female; and the highest number studying science-related courses. A good number are in their second year of study at the University and majority of them are from Yoruba ethnic affiliation. Also, the result established undergraduate students' readiness to navigate learning environment, since all undergraduates engaged in the study were able to access google forms to be able to participate in the study. Hardly would you meet any undergraduate student that does not have an android phone or laptop. A good number of them are learning digital skills that are required for global competitiveness.

The findings are in consonance with outcomes of various online related studies such as: Jaggars & Xu (2016) study on Online Engagement indicators such as participation rates, discussion forum activity and course completion; and students' academic performance in online courses which found out that active engagement is important for promoting student success in digital learning environment. Afolabi & Otubanjo (2014) study on impact of the internet on academic performance of students in tertiary institution in Nigeria, found that majority of the respondents were computer literate and frequently accessed the internet to retrieve relevant academic materials, and identified power outages, slow internet speeds and lack of computer terminals as some of the challenges faced by students. Adeyinka & Oyedeji (2020) study investigated impact of e-learning on student engagement and learning outcomes. The results showed significant improvements in student engagement, motivation and academic performance. Nikolopoulou (2022) investigated University students' opinions and preferences regarding face-to-face, online and hybrid modes of education, soon after their return to traditional face-to-face classes. The findings revealed major perceived disadvantage as demanding timetable; perceived benefits to include time and space flexibility and familiarity with digital technology; negative opinions regard technical problems and loss of practical classes.

Garrison, Cleveland-Innes & Fung (2021) meta-analysis synthesizes research on effective strategies for promoting student engagement in online courses, including instructional design principles, pedagogical approaches, technological tools, and support services. It provides evidence-based recommendations for educators and institutions seeking to enhance online engagement and student success. Means, Toyama, Murphy & Bakia (2013) meta-analysis provides evidence that online learning is as effective as face-to-face learning and that Blended learning models are more effective than online or face-to-face learning alone. It equally ascertained that students' satisfaction and engagement are higher in online learning environment.

Conclusion

This study empirically ascertained the extent of undergraduate students' agreement to online classes providing better understanding of course content; making it easier to pay attention to lectures; not being convenience and irregularity in attending online classes; not being easy to clear doubts during the class; not making peers and teachers miss social interaction; and does not make classes less engaging; greater agreement to students facing technical issues during online classes, students likely attending online classes more and sticking to the time table of traditional classes as compared to online classes. It has been used to establish students' autonomy in navigating digital learning environments, their perceived competence in using online tools and their sense of relatedness to peers and teachers.

Recommendations

- Tertiary institutions having gained valuable insights into the dynamics of online engagement among her students can leverage on it.

- Institutions can identify strategies for optimizing online learning environment to promote student success and satisfaction.

- Educators and institutions can tailor support services and training programs that would meet students' needs.

- Educators and institutions are left with no other choice than to accept the change for effective technological integration

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