

Readiness for Online Learning in Higher Education: A Mixed Methods Assessment of Students at a Nigerian University

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Abstract

As Massive Online Open Courses (MOOCs) increase in prevalence, this paper addresses an important phenomenon: the readiness of Nigerian university students for online learning. The Internet has become an important tool in education delivery because it holds great promise for increased access to higher education, as well as a means of promoting learning in general. Readiness for online learning, however, is determined by access to the Internet, functional Information and Communication Technology (ICT) skills and appropriate independent learning skills that influence meaningful learning in any self-directed, self-regulating learning environment. The research results from the students that were surveyed showed positive online learning characteristics – functional, dispositional, and situational - that should determine readiness for online learning. There is evidence that students have appropriate independent learning skills that could be transferred to an online learning environment. Additionally, students believe they have both independent learning and ICT skills that are appropriate for online learning, therefore indicating a high level of readiness for online learning among students in Nigeria.

Keywords: online learning, readiness, ICT skills, students' perceptions, higher education, Nigeria

Introduction

In recent years, online learning has grown in scale, significance and acceptance globally, which is evidenced by the emergence and remarkable growth of Massive Open Online Courses (MOOCs, 2013). MOOCs are Internet-based courses that promote increased student enrolment and the utilisation of online open education resources (Li and Powel, 2013; Lindsey, 2012; Perez-Pena, 2012). These represent the continuous and rapid changes in the area of online learning, and MOOCs are gaining greater acceptability and significance because of their applicability in

different learning environments, the flexibility of students' learning expectations, and their accessibility in continuing education and professional development contexts (MOOCs, 2013).

Another emerging phenomenon in online learning is the establishment of educational consortia (Kolowich, 2013), institutional arrangements involving two or more universities collaborating in the design and delivery of online courses. For example, Coursera and edX are educational platforms that partner with top universities or organisations to offer free online courses to massive numbers of students (Kolowich, 2013); other examples include Udacity (Forbes, 2013), FutureLearn (Shaw, 2012), Edukart (Shama, 2013) and Eliademy (Eliademy, 2013; Sotiris, 2013) to mention a few. The number of these massive open online university courses and collaborations among leading global players continue to grow (Li and Powel, 2013). Apart from providing an enhanced tool for education delivery, online learning also promotes flexibility, accessibility to open educational resources, and good communication among learners and facilitators. Most notably, these new learning technologies are bringing about massive change in university education worldwide (Lewin, 2013; Kolowich, 2012; Shama, 2011). The effective deployment of online learning, however, may pose both problems and challenges for traditional universities. Areas of concern include the online learning readiness of students and faculty, increased difficulties in the development of specialised administrative structures, and the adoption of appropriate technology infrastructure for online learning in Nigeria.

In an era of rapid growth in online learning, policy-makers may find it difficult to insulate their educational institutions from international influences and the growing number of online programs and courses that are providing learning opportunities for students across the world (Shama, 2011; Shaw, 2012; UNESCO, 2011). It can therefore be argued that the most effective national education strategy would be the development of strong national online learning institutions, programs and courses that can effectively compete with those on the global scene (Li and Powel, 2013). Meanwhile, if little or nothing is done by the educational authorities in Nigeria, one likely outcome of these developments is the growth of fear that universities will lose relevance in the delivery of higher education in Nigeria. As students can opt for online courses while looking to their national educational institutions solely for examinations and certifications,

if Nigerian universities do not reposition themselves via a radical transformation involving the integration of online learning, they could be reduced to mere certificate-granting institutions in the near future.

Massive Open Online Courses (MOOCs), first developed in 2008 by Downes and Siemens (Downes, 2012), are rapidly gaining ground and influencing the cost, quality and quantity of courses delivered online. Looking forward, what are the long-term implications of MOOCs for the survival of traditional or conventional universities, “for-profit” online educational institutions and the acquisition of foreign or international certifications by students in developing countries? In view of its infrastructural deficits, can Nigeria take advantage of ubiquitous mobile devices and skip over older technologies? To remain relevant, can faculty members develop instructional materials that meet local needs? These issues would be better managed by a radical shift by Nigerian higher educational institutions towards online learning paradigms based on learning theories, principles and practices in the field of educational technology.

Because education is a fundamental human right of every person in the world, according to the United Nations Universal Declaration of Human Rights (1948), the Nigerian National Policy on Education (Federal Republic of Nigeria [FRN], 2004) has stated that every child shall have an equal right to educational opportunities and that higher education shall be accessible to all on the basis of merit. Globally, institutions of higher education propagate knowledge through teaching and research activities, thereby enabling citizens become better contributing members of society. In addition to an individual’s social status, the acquisition of higher education also determines an individual’s economic competitiveness in the global market place (World Bank, 2011). To meet these expectations, the Nigerian government introduced the Universal Basic Education (UBE) programme, which was developed to get all Nigerian children off the streets and back into school. In addition, the Nigerian University Commission (NUC) and the Joint Admission and Matriculation Board (JAMB) are two Nigerian federal agencies that were established to ensure better access, improved equitability, and higher quality education at the tertiary level in the country.

Enrolment in Nigerian universities has grown considerably; indeed, enrolment tripled between 1991 and 2005, expanding at an annual rate of 8.7% (New World Encyclopaedia, 2012). Therefore, the university system is already overstretched (Fabiya and Uzoka, 2009), a fact corroborated by Moti (2010), who states that higher education institutions in Nigeria operate at higher carrying capacities than they were originally established to handle. According to Fabiya and Uzoka (2009), the NUC's inspection of universities in 2005 showed that 72% of universities were over-enrolled, overcrowded, over-populated and that facilities were obviously overstretched. Substantiating this claim concerning the state of the physical facilities in Nigerian universities, their results further show that 89.9% of respondents (heads of departments) indicated that infrastructural facilities were overstretched in their institutions (Fabiya and Uzoka, 2009).

When launching its roadmap for the education sector in 2009, the Nigerian Federal Ministry of Education (FME) also identified access, carrying capacity and staff capacity as some of the problems facing the Nigerian education sector (British Council, 2011). For the 2009/2010 academic year, more than one million qualified candidates sat for the national admission examination, and less than 20% were offered admission (University World News, 2009). Today, there is no indication that the carrying capacity of less than 20 per cent has changed (British Council, 2011). With demand for university spaces far outstripping supply, is it not also arguable that higher education systems are not properly structured?

Nigeria's higher education needs are clearly not being met; this has been underscored by the introduction of satellite/outreach centres where thousands of students were admitted and provided with an off-campus university education over ten years; however, these satellite/outreach centres run by several federal- and state-owned universities were grossly abused, thus leading to disregard for standards. Ipaye (2007) argued that because there were no discernible admissions qualifications, principles were compromised and money-making became the focus. This initiative was suspended by the federal government, which ordered the immediate closure of all operating satellite/outreach centres in the year 2000.

Therefore, one critical challenge for the Nigerian government today is the need to expand access to quality higher education because higher education institutions have far exceeded their carrying capacities (Moti,

2010). There is a need to consider alternatives or other options to create greater access to higher education in Nigeria. One of the ways the Nigerian government has responded to this challenge is by increasing the number of federal universities to 40 and state-owned universities to 38, and by licensing 50 private universities, as well as the establishment of one national open university (Nigerian University Commission, 2011).

Even with the current efforts to expand access to higher education in Nigeria, less than 20% of qualified candidates gain admission to higher education institutions in the country (Akpotu and Akpochafo, 2009). Udom (2009) argued that demand has continually outstripped the available supply of university spaces. Moti (2010) showed that less than 20% of those who apply to Nigerian universities are admitted. This fact was upheld by the British Council (2011), who stated that only 20% of Nigerian secondary school leavers currently have access to places at the universities, thereby leaving many thousands without the chance to continue their education. It is further anticipated that as of 2010, the graduates of the UBE programme would be expected to increase, further swelling the numbers seeking higher education in the country (NUC, 2011). In this context, online learning could be the solution for students who are currently educationally disenfranchised due to limited access to higher education in Nigeria.

In recognition of the unlimited access and abundant opportunities offered by online learning in higher education, the Nigerian government, through national policies and regulations, is preparing their institutions for the effective development, deployment and adoption of technology-mediated learning in the education sector. It is important for decision-makers in government, institutions and other organisations to provide an adequate technological infrastructure and facilities so that the deployment of online learning is not hindered (Baggaley 2008; Mbarika, Kah, Musa et al., 2003). The need to encourage public and private collaborations, to fund online learning platforms, the development of online learning resources and virtual libraries in order to properly facilitate online learning in Nigerian universities cannot be overlooked. The federal government is already providing some leadership in the deployment of ICT facilities in universities through the NUC, which coordinates higher education policies in Nigeria.

Research Questions

The following three research questions are investigated in this study:

1. What is the level of Internet access available to Nigerian university students?
2. What is the level of technology adoption by Nigerian university students?
3. What is the difference between female and male students in the degree of preparedness for online learning?
4. What is the difference between the ages of female and male students in terms of readiness for online learning?

Research Hypotheses

This study also adopted three research hypotheses to elucidate and to make inferences on important demographic characteristics, such as gender, ICT skills, personal commitment, age and academic discipline, on the level of readiness for online learning by university students.

H₀₁: There is no significant difference between female students and male students in the degree of Internet access required for online learning.

H₀₂: There is no significant difference between female students and male students in level of ICT skills required for online learning.

H₀₃: There is no significant difference between female students and male students in the degree of personal commitment to online learning.

H₀₄: There is no significant difference between the ages of female students and male students in readiness for online learning.

Research Methodology

This study is a concurrent mixed methods study. This is a systematic and rigorous approach to research because it addresses the objective views of participants and provides a full expression of participants' voices, thereby enabling the production of a fuller picture. This method, which uses quantitative and qualitative (mixed methods) methods for both collection and analysis of research data, also provides for triangulation, confirmation or disconfirmation of research results.

Research Participants

A total of 119 students participated in both the survey and the pen and paper interview. A convenience sampling method was adopted involving student volunteers; there was no gender discrimination in the conduct of the research. The sample size for this mixed-methods design was higher than the minimum sample sizes recommended for correlational research design (Onwuebuze, Jiao and Bostick, 2004) and for qualitative approaches to research (Creswell, 2007).

The age composition of the participants, as presented in Table 1, shows that 81% of the population surveyed were between the ages of 18 and 30, and 18% were above 30 years of age. Table 1 also showed that 37% of the participants were female, while 62% were male. Table 1 also shows the distribution of students according to their academic disciplines – 27% in the Arts, 25% in Science and 47% in the Social Sciences.

Table 1: Age, gender, academic composition and age distribution by gender

AGE			GENDER			ACADEMIC DISCIPLINE		
Age (Yrs.)	Frequency	%		Frequency	%		Frequency	%
18–30	97	81.5	Female	45	37.8	Arts	33	27.7
31–45	12	10.1	Male	74	62.2	Science	30	25.2
46–60	10	8.4				Social Sc.	56	47.1
Total	119	100.0	Total	119	100.0	Total	119	100.0

Furthermore, the age distribution of respondents by gender is presented in Table 2. The results show that approximately 87% of females student are between the ages of 18 and 30, while 78% of male students are within that same range of 18 to 30 years.

Table 2: Age distribution by gender

	Female		Male	
	Frequency	Percentage	Frequency	Percentage
Age 18–30	39	86.7	57	78.1
Age 31–45	5	11.1	7	9.6
Age 46–60	1	2.2	9	12.3
Total	45	100.0	73	100.0

Results and Discussion

Research Question 1

Question 1 sought to determine the level of Internet access available to students. Students' access to the Internet was defined by the degree of access to computers and networked access as captured by section E of the research survey instrument, which addressed (1) the percentage of computer ownership, (2) home internet access (monthly costs), (3) percentage of smartphone ownership, (4) level of smartphone browsing, (5) level of cybercafé usage and (6) students' proximity to cybercafés.

Research results from the questionnaire concerning the level of Internet access and the students' situational characteristics are presented in Table 3.

Table 3 shows that the students surveyed had a computer ownership rate of 79%, with a home Internet access rate of 71%. Respondents also indicated 71% smartphone ownership, and 70% downloaded information from the Internet using their smartphones. Below are some significant statements from students:

1. Through mobile phones, especially smartphones, you can have access to the whole world. Information is explosive this time around, so you don't need to wait for anybody before you get information, and you can see the trend of development and thereby update yourself in your area of specialisation.
2. Technology aids teaching and learning, promotes the easy dissemination of information, and accommodates more students at once, because most times access to text books can be difficult so the Internet fills this void. I browse to read through literature on my research project.
3. Technology helps learners to learn anytime, anywhere and at their own pace.

In addition, 88% of the students surveyed use cybercafés and 67% live and/or work within walking distance from the nearest cybercafé. Only 40% use university-provided Internet facilities. The cost of using

cybercafés was comparable to the cost of transportation to school for conventional, face-to-face learning (Table 4).

Over 67% of students spend between one thousand and five thousand Naira for road transportation to school, while 99% already spend approximately the same amount to use cybercafés, and students could be encouraged to spend the cybercafé expense/cost on online learning.

The research findings seem to indicate that there is a considerable level of communication technology available for students to access (Table 5).

There is also strong evidence that students are accessing online learning through home Internet, cybercafés or their smartphones; therefore, access to computers and the Internet is considered high and cannot be said to be grossly inadequate. Although some hurdles still exist in the provision of communication technology infrastructure in the university, the results show that 72% of students confirm that the university provides some technology infrastructure for learning, and 46% confirm the provision of a networked infrastructure connected to the Internet for online learning; however, approximately 50% stated that they were not happy with the level of technology infrastructure that has been provided for learning by the university. One student says:

I am not happy because there is no reliable networking service (internet connectivity), limited spaces in the computer laboratory and frequent electricity/power failures.

Table 3: Students' access to Internet facilities

	Computer Ownership		Home Internet		Smartphone Ownership		Downloading with Smartphones		University Internet Facility Usage		Cybercafé Usage		Proximity to Cybercafé		
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Distance	Frequency	%
Yes	94	79.0	90	71.0	84	70.6	84	70.6	47	39.5	105	88.2	Walking Distance	80	67.2
No	24	20.2	29	29.0	33	27.7	28	23.5	70	58.8	12	10.1	Motor Bike	22	18.5
Missing	1	0.8			2	1.7	7	5.9	2		2		Car/Bus	15	12.6
Total	119	100	119	100	117	100	119	100	119	98.3	119	98.3	Total	119	

Table 4: Cost of cybercafés and cost of travel to school

Cost in Naira	Costs of Cybercafé		Transportation Costs to School		
	Frequency	%	Frequency	%	
Valid	0	1	.8	22	18.5
	1,000	50	42.0	7	5.9
	2,000	50	42.0	33	27.7
	5,000	16	13.4	43	36.1
	10,000	1	.8	11	9.2
Missing		1	.8	2	2.6
Total		118	100	117	100

Table 5: Networked infrastructural provision by the university

	University Computer Provision		Internet Connectivity		Overall Satisfaction	
	Frequency	%	Frequency	%	Frequency	%
Don't know	0	0	32	26.9	3	2.5
Yes	72	60.5	55	66.2	45	37.8
No	38	31.9	18	15.1	60	50.4
Total	110	92.4	105	88.2	108	90.8
Missing	9	7.6	14	11.8	11	9.2
Total	119	100.0	119	100	119	100

Research Question 2

This research question sought to determine the current level of communication technology adoption and usage by students in Nigeria. This research question was examined from the point of view of the students' functional characteristics, i.e., computer/technical skills. The survey questionnaire covered by section D addressed ICT proficiency and students' general perceptions of their ICT expertise. Therefore, the levels of students' computer functional/technical skills (dependent variable) was measured against students' web presence in terms of their degree of social networking expertise, membership in social networking sites and ownership of e-mail addresses (independent variables) as shown in Table 6.

Table 6: Students' functional ICT skills

Membership of Social Networks			Social Networking Expertise			Email Ownership		
	Frequency	%		Frequency	%		Frequency	%
0		1.7						
1 Network	63	52.9	Beginner	12	10.1	Yes	117	98.3
2 Networks	25	21.0	Intermediate	45	37.8	No	2	1.7
3 Networks	20	16.8	Expert	54	45.4			
4 Networks	4	3.4						
5 Networks	2	1.7						
Missing	4	2.5	Missing	8	6.7			
Total	119	97.5	Total	119	100.0	Total	119	100.0

The results, as shown in Table 6, show that 94% of students were involved in Internet social networking on Facebook, Twitter, etc., 89% rate themselves as intermediate or expert in social networking, and 98% have e-mail addresses. Less than 2% of respondents did not belong to any social network, which was confirmed by the fact that less than 2% that did not own e-mail address, thereby cross-validating and conferring reliability on the research results. Students' situational and functional skills and networked access seem positively high, and therefore, it could be said that students in Nigeria are ready for online learning.

Table 7 shows, students' perceptions concerning the current use of online learning environments for teaching at the university. Approximately 36% state that online teaching or teaching involving online learning resources occurs rarely or sometimes, while approximately 13% say that online learning always occurs. The results support the general belief that online learning in Nigerian universities remains fairly rudimentary.

However, in Table 8, further statistical analysis examining the level of the online learning readiness of Nigerian students shows that 97% strongly agree/agree that they have appropriate online learning skills, and 67% say they are totally committed to online learning.

Table 7: Students’ perception of the current faculty use of online resources

Do any of your courses use online materials?		Frequency	Percentage	Valid Percentage
Valid	Rarely	44	36.7	42.3
	Sometimes	44	36.7	42.3
	Always	16	13.3	15.4
	Missing	15	12.6	
Total		119	100.0	100.0

Table 8: Students’ perceptions of online learning

Questions	SA %	A %	D %	DA %	SDA %	Total %
I have the appropriate ICT skills for online learning	40	57	4	7	0	90.8
I am totally committed to online learning	23.5	44.5	7.6	13.4	1.7	90.8

Table 9 shows that 95% of students say technology is useful for learning and 87% say they are already using technology for learning. Furthermore, 93% say it should be used and 92% say they are ready for online learning.

Table 9: Students’ attitudes to online learning

		Frequency	%
Technology is useful for learning	Yes	113	95
	No	1	.8
I already use technology for learning	Yes	103	86.6
	No	6	5
Online learning should be adopted for courses in the university	Yes	111	93.3
	No	1	.8
I am ready for online learning	Yes	109	91.6
	No	2	1.7

Significant Statements Concerning Students' Perceptions and Attitudes towards Online Learning

1. Technology aids teaching and learning, promotes easy information dissemination, and accommodates more students at once.
2. Most times access to text books can be difficult so the Internet fills this void. I browse to read through literature on my research project.
3. Technology provides rich knowledge and makes learning interesting to both teachers and learners.
4. It encourages student/learner based learning and provides adequate additional information for classroom learning.

Research Question

This research question sought to discover if there is a gender-based difference in students' readiness for online learning. To address this research question, the level of computer usage and appropriate independent skills needed for online learning were analysed. Table 10 shows the difference between females and males in the level of computer usage and independent learning skills appropriate for online learning. The table showed that approximately 58% of females consider themselves intermediate users of computers, while approximately 44% of males are intermediate users. Additionally, while approximately 38% of females consider themselves expert users, approximately 51% of males are expert users.

Table 10: Comparisons between female and males in computer use and independent learning skills

	Computer Usage				Appropriate Independent Learning Skills for Online learning			
	Female		Male		Female		Male	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Beginner	2	4.4	3	4.1	4	8.9	6	8.1
Intermediate	26	57.8	33	44.6	25	55.6	48	64.9
Expert	17	37.8	38	51.4	16	35.6	17	23.0
Total	45	100.0	74	100.0	45	100.0	72	97.3

Analysis of the appropriate independent learning skills (Table 10), showed approximately 56% of female students and 64% of male students have intermediate learning skills appropriate for online learning. Additionally,

while approximately 36% of female students say they are experts, 23% of male students consider themselves to be experts in independent learning skills appropriate for online learning.

Research Hypothesis 1

H0₁: There is no significant difference between female and male students in the degree of Internet access required for online learning.

To address this research hypothesis, readiness for online learning was defined in terms of levels of Internet access. Statistical analysis for independent group comparison using t-tests (Table 11) shows that at .016, there is a significant difference between females and males in the level of Internet access required for online learning readiness. Therefore, the null hypothesis is rejected.

Table 11: Independent Sample Test

	F	Sig	df	Missing
Level of Internet Access	5.923	.016	115	4
Level of ICT Skills	.867	.354	116	3
Level of Commitment to Online Learning	.814	.369	108	11
Age	12.478	.001	116	3
*95% Interval Confidence				

Research Hypothesis 2

H0₂: There is no significant difference between female and male students in the level of ICT skills required for online learning.

To address this research hypothesis, readiness for online learning was defined in terms of levels of ICT skills and competency. Table 11 shows that at .354, there is no significant difference between females and males in the level of ICT skills required for online learning; therefore, the null hypothesis is not rejected.

Research Hypothesis 3

H0₃: There is no significant difference between female and male students in the degree of personal commitment to online learning.

To address this research hypothesis, readiness for online learning was defined in terms of levels of personal commitment to online learning. Table 11 shows that at .369, there is no significant difference between females and males in the levels of personal commitment required for online learning; therefore, the null hypothesis is not rejected.

H0₄: There is no significant difference between the age of female and male students in terms of readiness for online learning.

To address this research hypothesis, readiness for online learning was defined in terms of the difference between the ages of female and male students. The results of the independent group comparison using t-tests (Table 11) show that at .001, there is a significant difference between the ages of female and male students in terms of the level of readiness for online learning. Therefore, the null hypothesis is rejected.

Furthermore, Table 12 shows significant statements from respondents regarding differences between female and male students in the level of technology adoption.

Table 12: Significant statements

Question	Convergent Views	Divergent Views
Do male students use technology more effectively than female students?	<ol style="list-style-type: none"> 1. I don't think gender influences the use of technology; 2. There is no gender in the use of technology; 3. Both males and females can be effective in the use of technology but it depends on the individual interest and attitude; 4. Young ladies use it more; 5. It's a 50/50 thing. 	<ol style="list-style-type: none"> 1. Females do not use technology unless there is special purpose for it; 2. Most females are always afraid of taking risks, thinking they might spoil the equipment; 3. Females use technology less because they have a lot to attend to (e.g., domestic work), unlike their male counterparts; 4. I don't know.

Because this study was conducted using a sample of university students, females' motivation to use technology may be somewhat higher than the average female on the street. Although it is generally accepted that gender is an issue in technology acceptance because males are often more enthusiastic and positive about technology adoption than females, existing studies show that men and women experience learning technologies differently (Burge, 1998; May, 1994) and that women tend to lag in Internet adoption (Greenspan, 2004). Therefore, the significant difference between male and female students in the level of Internet access reported in this study may be due to females' limited access to economic resources and the economic gaps that still exist in many countries.

Conclusion

Readiness for online learning is influenced by appropriate strategies necessary for independent learning, such as self-regulation, self-direction and self-motivation. These goal-directed behaviours are instigated and sustained by students' dispositional and situational factors (Schunk, 1990). Students' dispositional, functional and situational characteristics all affect the level of meaningful learning in any educational environment, including online learning (Harasim, 1997).

Our research results showed positive dispositional characteristics towards online learning and also provided evidence supporting the online learning readiness of the students surveyed and that students have acquired independent learning skills that can be transferred to another learning environment, in this case, the online learning environment. According to Keller (1987), this is a natural consequence of learning. Additionally, students are not afraid of new technology and are in fact comfortable with acquiring new skills. Because one's confidence levels, as determined by prior knowledge, affect learning, confidence can reduce fear of the unknown, thus reducing the anxiety that jeopardises the learning process (Driscoll, 2005).

Furthermore, online learning can be affected by students' perceptions of the usefulness or relevance of what is to be learned and the media that will be employed in the learning process. Communication technologies have become important instruments in education and hold great promise both for increasing access to learning and promoting learning in general

(Bransford, Brown and Cocking, 2000; Driscoll, 2005). Our research results show that students believe they have high independent learning skills that are appropriate for an online learning environment, therefore indicating high positive disposition and readiness for online learning by Nigerian students who participated in this study.

Research Implications

The research results and findings seem to show strong evidence that the university students who participated in this study are enthusiastic about the adoption of communication technologies. They seem to possess the necessary strategies for independent learning, are positively disposed towards online learning and feel ready for online learning. Extrapolating from the findings of this study, several suggestions for the expansion and improvement of online learning can be proposed to encourage its effective deployment in Nigerian university education.

Mobile phones could successfully overcome the challenges of poor connectivity, poor electricity supply, and PC availability. Students in Nigeria are benefiting from the services offered by cybercafés within their neighbourhoods; therefore, partnerships between educational institutions and cybercafé providers could encourage online learning. Additionally, to appreciate technological changes in higher education, educators should be challenged to involve themselves in the production of online teaching resources and courseware needed by their students.

Additionally, decision makers at all levels – Federal, State and Private organisations - need to know that students are ready for online learning and should provide increased access to the Internet and adequate online learning environments, such as the efficient deployment of Learning Management Systems (LMS), such as Moodle, Blackboard and WebCT, to effectively improve or change the delivery of university education in Nigeria.

Lastly, although these findings are based on a relatively limited sample, nevertheless, there is evidence that online learning facilities are inadequate; therefore, it has become critical for universities to seriously consider the adoption of newer educational technologies and online

learning methods as a means of expanding educational opportunities for Nigerian students.

Limitations

This study sample was limited to one hundred and nineteen (119) participants, which may not allow for the generalisation or extrapolation of our research findings to a wider population. However, this study utilises a concurrent mixed-method approach in which quantitative methods are used to produce numbers and tables, while the qualitative methods adequately represent the perceptions, attitudes or voices of the participants. This supplements the inadequacies of the quantitative methods, thereby supporting the acceptability and validity of the research findings.

Suggestions for Further Research

This research on the readiness of students for online learning is based on a sample of 119 students in one university in Nigeria; future research should involve many more participants and universities. Furthermore, online learning can only be successful when there is a deployment of an adequate technological infrastructure, good administrative policies, strong management support and an enthusiastic faculty (Rosenberg, 2001). These issues and their effects on online learning are beyond the scope of this study and would therefore make interesting topics for future research.

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