

## Educational, Scientific and Technological Innovations for Sustainable Development in Nigeria

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### **Abstract**

*The society has witnessed rapid changes since the advent of the industrial revolution all up to the information revolution era. Advancements in science and technology have revolutionized the way things are done in education, business and social economies. Have these changes been reflected in the educational sector of Nigeria to foster sustainable development as proposed by goal 4 of the United Nations Sustainable Development Goals (SDGs)? This forms the fulcrum of this paper which seeks to address the need for innovation in the educational sector of technologically, scientifically and economically emerging countries like Nigeria. The paper highlights the SDGs, how science and technology education is promoted, addresses the current state of education with special reference to Information and Communication Technology (ICT), the need for educational innovations, adopting e-learning in Nigerian schools, e-learning modalities and M-learning. This paper also discussed the challenges of ICT and scientific and technological innovations with suggestions on the way forward.*

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**Keywords:** Innovation, Science and Technology, Information Communication Technology (ICT), e-learning, M-learning, Education, Sustainable Development Goals, Computer Based Tests (CBT).

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### **Introduction**

Advancements in science and technology have left all facets of our society affected, mostly positively, and education should not be left out. To attain the sustainable development goals, educators must be willing to adopt scientific innovations that promote students' increased participation, collaboration and dynamism in the learning environment (Akpomi, 2009). Innovations refer to the introduction of new ideas that cause changes in a given system. These changes may be educational, scientific or technological that promotes learning. For any society to survive, thrive or grow, teaching and learning must be considered indispensable because education is a social institution that serves the needs of society. In that sense, teaching and learning should continuously evolve to meet the challenges of the fast-evolving and unpredictable globalized world.

Innovations and evolutions are essential to the development and survival of individuals, families and nations (Serdyukov, 2017; Akpomi, 2017). Innovations in education are of particular importance because education plays a crucial role in creating a sustainable future.

## **Sustainable Development Goals of the United Nations**

In September 2015, the General Assembly adopted the 2030 Agenda for Sustainable Development that includes 17 Sustainable Development Goals (SDGs) (Akpomi, 2009; UNCTD, 2017). Building on the principle of “leaving no one behind”, the new Agenda emphasizes a holistic approach to achieving sustainable development for all.

The 17 sustainable development goals (SDGs) to transform our world are:

- GOAL 1: No Poverty
- GOAL 2: Zero Hunger
- GOAL 3: Good Health and Well-being
- GOAL 4: Quality Education
- GOAL 5: Gender Equality
- GOAL 6: Clean Water and Sanitation
- GOAL 7: Affordable and Clean Energy
- GOAL 8: Decent Work and Economic Growth
- GOAL 9: Industry, Innovation and Infrastructure
- GOAL 10: Reduced Inequality
- GOAL 11: Sustainable Cities and Communities
- GOAL 12: Responsible Consumption and Production
- GOAL 13: Climate Action
- GOAL 14: Life below Water
- GOAL 15: Life on Land
- GOAL 16: Peace and Justice Strong Institutions
- GOAL 17: Partnerships to achieve the Goal

As stated above, Goal 4 is to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. The document (Morton, Pencheon & Squires 2017; UNCTD, 2017), outlined 10 targets to achieve Goal 4 but this paper is premised on the following three:

- By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.
- By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development.
- By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed countries and other developing countries

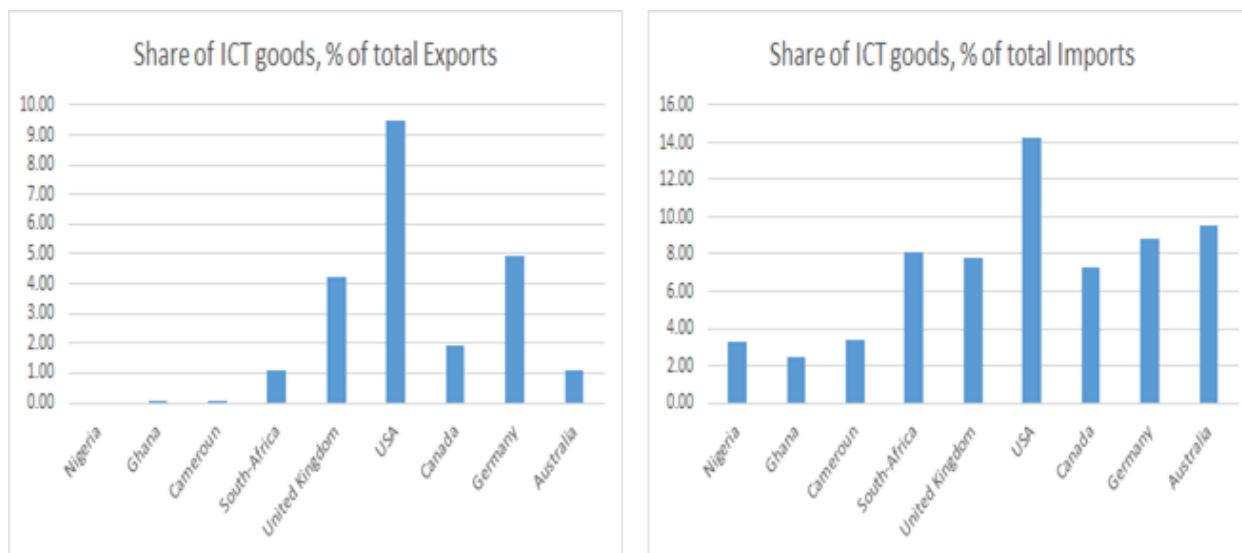
This last target is mostly our concern in this paper. We are already a little less than half way into 2020, about 8 months to the end of 2020; with COVID '19 pandemic, shutting down the whole world. The big question is: Is the target achievable and is our level of vocational training and information and communications technology promoting science and technology education?

## **Promoting Science and Technology Education in Nigeria.**

Education has been widely described as the bedrock of national advancement and an engine room for manpower development of any nation. A quick look at the data provided by the United Nations Conference on Trade and Development (2017), show Nigeria's percentage share of ICT goods in relation to total export and import. According to Akpomi and Bupo (2018), when compared to other countries in Africa and beyond, it is glaring that Nigeria's

level of readiness for scientific innovations, especially in the area of Information and Communications Technology, is still backward. The chart above and the table below illustrate this:

**Figure 1 & Table 1: Bar Chart showing Countries % share of ICT goods in Relation to Total Exports and Imports; Table showing exports and imports of ICT goods.**



	Nigeria	Ghana	Cameroun	South-Africa	UK	USA
Share of ICT goods, % of total Exports	0.00	0.02	0.05	1.09	4.25	9.49
Share of ICT goods, % of total Imports	3.27	2.51	3.39	8.11	7.77	14.27

**Source:** UNCTD ([https://unctd.org/country/profile/General profile/enGB/036/index.html](https://unctd.org/country/profile/General%20profile/enGB/036/index.html))

Table 1 shows the percentage of ICT goods exported from Nigeria in relation to total exports. With 0.00%, Nigeria does not export ICT goods or services. The ratio of ICT import goods to the total import stands at 3.27%. This data calls for concern as it shows the level of readiness of the Nation to compete with other nations in terms of Information Communication and Technology.

The National Universities Commission’s data on the computer per student ratio of Nigerian Universities (See Appendix) indicate the paucity of personal computers available for students in Nigerian Universities.

### **The current state of ICT in Nigeria’s education system**

It is good to have knowledge of budgetary allocations to education of different countries to appreciate why education has remained in a sorry state in Nigeria. Different countries maintain flexible and fluctuating allocation for education. Evidence from available public expenditure database have shown that countries such as Iran allocate 21.7%, Malaysia 20%, Fiji 19.4%, South Korea 17.4%, while Nigeria 7.05% out of N8.83 trillion total budget, representing an insignificant percent to Education (Adebenjo & Olubato, 2015). Research has shown that the nations of the world that parade Ivy League universities are those that consistently devote a large percentage of their national budget to the education and implement its policies. The

percentage of budget a nation allocates to education speaks volumes of the importance of education to such country. Nigeria is still paying lip service to this with less than 7% allocated to education in the 2020 budget (Abdulsallam, 2019).

Nigeria's education system is bedeviled with ugly challenges and according to the Ministerial Strategic Plan of 2018 (Federal Ministry of Education (2017)), rather than bemoan Nigeria's distress in education, steps should be taken to surmount the challenges. Amongst others, reviving technical and vocational education and training is one of the steps, which has to be taken alongside Information and Communication Technology (ICT).

ICT in Education refers to all kinds of electronics that are used for broadcasting, telecommunication and all forms of computer-mediated communication (Akindolu, 2002, Ikpesu, 2010). Advances in ICT have its full advantage in all spheres of life. The use of ICT in education has brought many online packages which give the students greater control over what they learn and how they learn. It provides students with vast electronic learning capabilities. ICT is able to bring students and teachers together for lectures, tutorials and one-to-one interaction across geographical locations. With ICT, the traditional world of paper has become obsolete. Many nations of the world have embraced the use of ICT in their educational system. The dividend of this step has been so wonderful and amazing, such that Britain made use of ICT to promote distance learning (Akpomi, 2008). The Open University of the United Kingdom started offering degree courses through the use of television and opened a summer school over the internet. Also, master degrees have been obtained since 1995 via the use of Integrated Digital Service Network. This afforded opportunity for students to upgrade their knowledge without undergoing unnecessary hardship. In Austria, a policy known as eFit-Austria is already in place. The Austrian government through eFit-Austria gave e-Education a key position in order to make educational institutions and all people who are involved in Austria educational system fit for the knowledge society and information technology (Morton, Pencheon & Squires, 2017).

The use of ICT in education in any nation depends on the computer technological awareness in that country. According to Akindolu (2002), the first time computer appeared in Nigeria was in 1963 when it was used to process the national census data. Some companies started the use of computer from that time. However, it is very obvious that the use of ICT in education is yet to be fully embraced by many Nigerian educational institutions. The new innovation of ICT in teaching and learning process in most schools is still a dream yet to be realized. ICT facilities in our institutions are either not available or inadequate and non-functional, for instance, in some institutions, apart from computer science department that are equipped with few computers, available for the use of their students, most of the other students and lectures outside the department do not have access to computers. Many institutions now have ICT Centres but how functional and effective are they in actual teaching and learning? Many Nigerian schools are without internet facilities. The implication of this is that students and teachers are not able to come together for lectures, tutorials and one-to-one interactions across geographical locations. The traditional world of pen and paper teaching and learning is still the order of the day (Akpomi, 2019; Ikpesu, 2010). Students are not exposed to the enriching teaching and learning materials on the internet; teachers are either inadequately trained or not trained. Most teachers in our schools have not been trained on the use of ICT facilities. The 'older generation', many of them with sophisticated android phones, can only make calls and send and receive messages. Few of them may be trained only to appreciate the use of which will be inadequate for them to apply in teaching and learning process.

### **The Need for ICT in Education**

The use of ICT as instructional materials has become a reality. Calp & Lagowski (1971) posited that the use of ICT in science instruction has been seen by its advocates as potentials, a tool without peer and as the probable means for providing instructional flexibility and individualized instruction; the use of ICT should not be neglected if one has to stress the effectiveness and simplicity in terms of teaching and learning. ICT has transformed many sectors of the society especially the manufacturing industries finance and medicine of which it has the capacity of changing or restructuring the conventional method of learning in schools (Akpomi & Amesi, 2013). ICT is replacing the chalkboard, overhead projector with various types of software, such as tutorial, simulation, drill and practice, telecommunication and internet. The Federal Republic of Nigeria (2004) in her National Policy on Education (NPE) section 10 stated that most of our textbooks at present are unstable, inadequate or expensive. The NPE has been revised three times since then with little noticeable changes.

Radio and television are products of ICT designed to improve communication. They are also used for the development and improvement of education as well as for the expansion of instructional techniques. Afe (1989) asserted that the impact of ICT is unsurpassed by any innovation in the field of science and education. Many nations have already advanced in the use of ICT in education and all human endeavours. For any developing nation like Nigeria, ICT is expected to have a place in education, no matter that the demand it places on the teachers and resources of acquiring them are enormous. With the introduction of ICT in education one can now easily find instructional materials which are carefully structured for teaching specific lessons (Akpomi and Bupo, 2018). In Computer-Assisted Instruction, ICT is to be used as a store of information which can answer questions (that is as a processor of answers to given questions) and to demonstrate visually or via educational robots, ideas and concepts. Walker (1986) identified the following as strength of ICT in education: (i) more active; (ii) more varied sensory and conceptual modes; and (iii) nearer speed of thought and an aid to abstraction. ICT stimulates the interest of the learner; and gives the individual a flexible tuition at the learners own pace and direction. Since it is a generally accepted fact that the acquisition of appropriate skills is of tremendous benefit to the individual and the nation at large, it is imperative that all hands must be on deck to move Nigeria to the next level of ICT.

The world has become a global village and has moved from the industrial based society to an information-oriented one as a result of ICT which is the dominant agent of the change. ICT skills, knowledge, and competencies are needed in almost all spheres of human life and its literacy is a prerequisite to effective participation in information-oriented society, for instance, for any individual or student or researcher to succeed, ICT knowledge is a criterion (Akpomi, 2017). Assignments, seminars, projects, thesis, and term papers can be facilitated ICT facilities such as the computer and internet and students are expected to use the library to source for information. Knowledge, skills and confidence with ICT are now an asset to those entering the competitive labour market. We are in the era when employment is mostly given to only those who possess ICT knowledge because in today's world, proficiency in ICT skills is as critical as reading, writing and arithmetic. ICT is now being compared to that of reading and writing literacy and a prerequisite for employment.

ICT literacy cannot be avoided but must be embraced by Technical and Vocational Education students. Benefits of ICT in TVE cannot be overemphasized, particularly to students and the nation at large: increases performance when interactivity is prominent; improves attitude and confidence; provides instructional opportunities otherwise not available; increase opportunities for students-constructed learning; increases mastery of technical and workforce skills; prepare students for work when emphasized as a problem-solving tool; increases the preparation of students for most careers and vocations; increase emphasis on individual instruction; ICT will

provide flexibility and convenience; it will overcome some traditional barriers such as time and place; it helps students to study independently and enhances the learning achievement levels of students (Akpomi, 2008; Bezt, 1996).

### **Challenges of Information and Communication Technology**

Information and Communication Technology has enormously improved teaching and learning in tertiary institutions of learning, valuable lessons are learned from the best practices around the world but there is no one formula to determine the optimal level of ICT integration in our educational system. However, there are significant challenges such as Educational Policy and Planning, Infrastructure, Language and Content, Capacity Building and Financing (Nwanewezi and Akpomi, 2009), that our policy makers, planners, educators, education administrators, and other stakeholders must consider to ensure the optimal level of ICT in our tertiary institutions of learning.

It is very important to consider educational policy and planning in the use of ICT to enhance teaching and learning in our institutions of learning. It requires understanding the specific objectives, guidelines, and political commitment of stakeholders at all levels to ensure the success of the learner. It is also very important to understand the curriculum and pedagogy, the available infrastructure and capacity of the institution. In the aspect of financing, federal and state universities look up to Tertiary Education Trust Fund (TETFund). These challenges, notwithstanding, we can be technologically and scientifically advanced.

### **Scientific and Technological Innovations in Education**

When discussions arise on educational, scientific or technological innovations in teaching and learning, the term educational technology or the area of educational technology readily comes to mind. Educational technology is the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources (Parkavi, Abdullah, Sujitha & Karthikeyan, 2018). Educational technology is the use of both physical hardware and educational theoretic. Technology should change our vision of education; our approach toward teaching-learning must change to global practices.

Technology is not having cool iPods or expensive gadgets; it is about the learning process. Educational technology can be described as teaching technology, instructional technology, behavioural technology and instructional design technology. Educational technology has moved from the traditional methods to e-learning and currently m-learning. E-learning deals with learning from anywhere outside the classroom with the aid of electronic books, journals etc while m-learning makes use of the e-learning gadgets like tablets, laptops and smart phones, as well as providing virtual classrooms (Hosmer, Jeffcoat, Davis & McGibbon, 2011). According to Olusola, Adeyanju, Popoola and Odewale (2017), E-learning is very important in education because it helps to remove barriers in teaching and learning and provides more stimulating ways of achieving educational goals.

E-learning, in simple terms, means electronic learning. That is, any form of learning that is enabled by any electronic device. Electronic devices would range from simple devices like; radios and televisions to complex devices like; internet-enabled phones, computers and online platforms. It can further be described as all forms of electronically supported learning and teaching, which are procedural in character and aim to effect the construction of knowledge with reference to individual experience, practice and knowledge of the learner. According to Olojo, Adewunmu & Ajisola, (2012), it is a web-based learning, online learning, distributed learning, computer-assisted instruction, or internet-based learning, so the integration of

electronic devices, online or offline, into our normal teaching and learning process could be referred to as e-learning.

There are different forms of e-learning which are based on different modes of technology integration in the learning process. Some of them are:

**Offline E-learning Forms:** This entails the use of educational resources that can be accessed offline by the students at a convenient time with the appropriate electronic devices. Class materials can be saved on a CD, DVD or Flash Drive for students to access at home. Videos of the class activities can be recorded and given to the students to watch while at home. Students could be asked to listen to educational radio programs or watch educational television programmes at home (COVID'19 has forced many schools in many nations to do this), and this can be used during class instructions.

**Synchronous and Asynchronous Online Learning:** Synchronous e-learning is a kind of learning that is carried out online in real time. It is carried out usually in a virtual classroom which enables students to receive instructions online, ask the teacher questions and receive answers instantly via chatting, instant messaging, discussion forum, etc. This form enables the students to interact with each other in real time (online). Asynchronous e-learning refers to learning done online but not in real time. That is, learning materials are provided online and students can access them whenever they are on the internet. Students can submit assignments via emails or discussion boards.

There are many resources on the internet that can help educators improve the delivery of lessons in a student-friendly and interactive way. One can simply search for whatever one wants on [www.google.com](http://www.google.com) and educational video searches can be on [www.youtube.com/education](http://www.youtube.com/education). The following sites can help teachers in different ways.

- Khan Academy (<https://www.khanacademy.org/>)
- Teachers without borders (<https://teacherswithoutborders.org/>)
- Amazon Education (<https://www.amazon.com/gp/feature.html?docId=1000412651>)
- Big Think (<http://bigthink.com/>)
- Brightstorm (<https://www.brightstorm.com/>)
- CosmoLearning (<https://cosmolearning.org/>)
- Coursera (<https://www.coursera.org/>)
- EdX (<https://www.edx.org/>)
- FutureLearn (<https://www.futurelearn.com>)
- MIT open courseware (<https://ocw.mit.edu/index.htm>)

E-learning is therefore advantageous in the following ways:

1. It makes teaching and learning more flexible as learning materials can be assessed anytime and anywhere.
2. It makes learning attractive to the learners as different modes (video, audio, text-based, pictures etc.) can be used.
3. Boredom and inattentiveness is reduced since students will become much more involved in the learning processes.
4. Learning can be self-paced and thereby catering for learners' individual differences.
5. E-learning helps to save teaching time and thereby making it easier for teachers to communicate the lesson contents to the students.
6. It is more learner-centered as the learner is much more in control of the learning processes.

Advantageous as it is, E-learning utilization in Nigeria's institutions is bedeviled with the following challenges:

1. Unavailability of e-learning facilities
2. Epileptic power supply
3. Inadequate and in some cases, lack of internet services
4. Poor maintenance culture of available facilities
5. Inadequate and in some cases, lack of ICT Skills
6. Resistance to change and Technophobia (fear of using technology)

These challenges, though surmountable have continued to rob us of advancement. Now, what is M-learning?

M-learning, short for Mobile Learning is a learning model that makes it possible for students to access learning materials from any mobile device at any time. This makes learning resources easily accessible to students no matter where they are provided they can connect to the internet. Educators need to take advantage of these to create atmospheres that allow students to interact with learning content in a constructivist manner (Akpomi and Bupo, 2018). With the introduction of social media like Facebook, WhatsApp, and so on, students could interact with each other about learning materials. Learning groups could be created on social media platforms, accessible from students' smart phones and projects can be done as students construct their own knowledge through Learning Management Systems.

Learning Management Systems (LMS) are Virtual Learning Environments (VLE) where teachers can interact with their students by providing educational resources (or links to these resources) and providing feedback on inquiries from students. It is a platform where teachers and students can come together to interact in order to achieve an educational goal (Rowell, 2012). These systems have the ability to coordinate all the learning activities of students ranging from registration, class activities, assignments, education resource material provision to examinations, assessment and giving out feedback.

LMS are different with differing features. They are not only used in educational institutions but also by corporate bodies and business organizations for the training of their staff (Chaffe, 2016). Mtebe (2015) suggested that the most widely adopted LMS in sub-Saharan Africa include Blackboard, Sakai, KEWL, and Moodle. They can also be built or programmed by institutions to suit their current programmes. Such programmes offer opportunity for students to obtain username and password in order to log in and participate in activities. Some of the LMS are free and open courseware while others have to be paid for. Examples of free LMS include Moodle, aTutor, Canvas, Google classroom and so on, while examples of paid LMS include Blackboard Learning System, eCollege, Desire2learn and so on.

The world we live in today is characterized by tremendous scientific and technological explorations and innovations. It is a world of the world-wide-web (www), internet surfing, face-books, twitters, YouTube, Blogs, supersonic jets, virtual learning, CAD/CAM, the robotics, Nan technologies, biotechnologies and mechatronics (Chauhan, 2018). The world is a global village webbed together with an array of ICT networks. Chauhan presented a list of some of the most popular digital learning tools for sustainable teaching and learning to include Edmodo, Socrative, Projeqt, Thinglink, TED-Ed, ck-12, ClassDojo, eduClipper, Storybird, Animoto and Kahoot. All these digital learning tools have a common ground which is aiding the teachers to teach well and the students to comprehend better thus enhancing sustainable teaching and learning (Amesi, Akpomi and Okwuanaso, 2014).

### **The way forward**

Having reviewed literature on the issue of scientific and technological innovations for sustainable development in Nigeria, the authors recommend the following as way forward: Budgetary allocation to education can be greatly improved to be near the United Nations



recommendation. Funding has been a major challenge to education, science and technology in Nigeria. With funds made available, institutions can procure ICT facilities and maintain them as well as train staff.

Research and Development which are expected to develop new ideas are done sincerely. Technological development can be guaranteed through broadening the sources of new ideas and inventions and subsequent innovations. One of the sources of new ideas and inventions is research in our universities. How sincere are we in carrying out researches? Do we come up with new ideas and inventions after carrying out research? Or are we just paying 'lip service' in the name of carrying out researches? The sincerer and diversified our source of new ideas and inventions are, the better the chance of achieving the technological breakthrough and putting an end to our technological backwardness.

There is the need to exploit scientific discoveries outside Nigeria. At our slow rate of development, we need to rely on the world-wide reservoir of technical information available to the technological community.

Our universities are strengthened through increased and improved university-industry interactions and collaborations. This will enhance the quality of science and engineering education and encourage the conduct of research, leading to high level of technological development. Universities contribute to technological development through research while the industry utilizes the research results and identifies problems requiring new and further research. The flow of people between industries and campuses is an important element in the advancement of education, science and technology. Efforts should be made to strengthen this partnership so as to enable the industry and universities to play their respective roles in Research and Development; the results of which could lead to increased national activity in the economy, bringing about economic and sustainable development.

Technological development must directly and positively influence economic growth and development. This requires organizing our science and technology so as to create an impact on economic growth, which means working in the areas of need. Our underlying philosophy should be working in those areas relevant to the needs of the country, with a potential to yield material benefits to a large number of people within a reasonable time frame. Today the urgent need in Nigeria has shifted to national security needs and COVID-19. Technological and scientific programmes that guarantee response to these urgent needs are what Researchers of today should focus on.

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APPENDIX

**Table 11: ICT Infrastructure**

S/N	University	Ratio of PC to students	Hours of Wi-Fi/day
1.	Abia State University, Uturu	1:30	20
2.	Abubakar Tafawa Balewa University, Bauchi	1:32	20
3.	Achievers University, Owo	1:20	8
4.	Adamawa State University Mubi	1:25	9
5.	Adekunle Ajasin University, Akungba	1:19	24
6.	Adeleke University, Ede		24
7.	Afe Babalola University, Ado-Ekiti - Ekiti State	1:1	24
8.	African University of Science & Technology, Abuja		24
9.	Ahmadu Bello University, Zaria	1:20	24
10.	Ajayi Crowther University, Ibadan	11:3	24
11.	Akwa Ibom State University, Ikot Akpaden		6
12.	Alex Ekwueme Federal University, Ndufu Alike, Ikwo	1:9	24
13.	Al-Hikmah University, Ilorin	1:17	24
14.	Al-Qalam University, Katsina		24
15.	Ambrose Alli University, Ekpoma		
16.	American University of Nigeria, Yola	1:1	24
17.	Anchor University Ayobo Lagos State	1:1	24
18.	Arthur Jarvis University Akpabuyo Cross River State	2:1	8
19.	Augustine University	1:3	18
20.	Babcock University, Ilishan-Remo	1:13	24
21.	Bayero University, Kano	1:13	24
22.	Baze University	1:1	24
23.	Bells University of Technology, Ota		
24.	Benson Idahosa University, Benin City		24
25.	Benue State University, Makurdi	1:55	24
26.	Bingham University	1:30	6
27.	Bowen University, Iwo	1:8	21
28.	Caleb University, Lagos	1:10	14
29.	Caritas University, Enugu	1:7	24
30.	Chrisland University	1:2	24
31.	Christopher University Mowe	1:2	24
32.	Clifford University Owerrinta Abia State		
33.	Coal City University Enugu State		24
34.	Covenant University Ota	1:1	24
35.	Crawford University Igbesa	1:1	24
36.	Crescent University	1:6	14
37.	Cross River State University of Science & Technology, Calabar	1:40	

S/N	University	Ratio of PC to students	Hours of Wi-Fi/day
76.	Joseph Ayo Babalola University, Ikeji-Arakeji	1:5	18
77.	Kaduna State University, Kaduna	1:20	8
78.	Kebbi State University of Science and Technology	1:8	24
79.	Kings University	1:4	24
80.	Kogi State University Anyigba	1:20	10
81.	Kola-Daisi University, Ibadan	1:1	24
82.	Kwara State University, Ilorin	1:10	10
83.	Kwararafa University, Wukari	1:12	
84.	Ladoke Akintola University of Technology, Ogbomoso		24
85.	Lagos State University, Ojo	1:31	
86.	Landmark University, Omu-Aran.	1:11	24
87.	Lead City University, Ibadan	1:15	24
88.	Legacy University, Okija Anambra State	1:1	6
89.	Madonna University, Okija	1:12	24
90.	Mcpheerson University, Seriki Sotayo, Ajebo	1:2	20
91.	Michael Okpara University of Agricultural Umudike	1:30	18
92.	Micheal & Cecilia University	4:1	
93.	Modibbo Adama University of Technology, Yola	1:13	18
94.	Mountain Top University	1:1	8
95.	Nasarawa State University Keffi	1:56	24
96.	National Open University of Nigeria, Lagos		24
97.	Niger Delta University Yenagoa	1:10	24
98.	Nigeria Police Academy, Wudil		24
99.	Nigerian Defence Academy Kaduna	1:14	8
100.	Nile University of Nigeria, Abuja		24
101.	Nnamdi Azikiwe University, Awka	1:4	24
102.	Novena University	1:25	0
103.	Obafemi Awolowo University, Ile-Ife	1:10	24
104.	Oduduwa University, Ipetumodu - Osun State	1:2	24
105.	Olabisi Onabanjo University, Ago Iwoye	1:20	10
106.	Ondo State University of Medical Sciences	1:2	8
107.	Ondo State University of Science and Technology Okitipupa	1:4	5
108.	Osun State University Osogbo	1:40	
109.	PAMO University of Medical Sciences Port Harcourt		
110.	Pan-Atlantic University, Lagos		24
111.	Paul University, Awka - Anambra State	1:2	10
112.	Plateau State University Bokoos	1:15	24
113.	Redeemer's University, Ede	1:3	24
114.	Renaissance University, Enugu		5

S/N	University	Ratio of PC to students	Hours of Wi-Fi/day
115.	Rhema University, Obeama-Ase - Rivers State	3:6	
116.	Ritman University	1:4	
117.	Salem University, Lokoja	1:1	24
118.	Samuel Adegboyega University, Ogbwa.	1:2	24
119.	Sokoto State University, Sokoto	1:3	24
120.	Sule Lamido University, Kafin Hausa, Jigawa	1:7	24
121.	Summit University	1:1	8
122.	Tai Solarin University of Education Ijebu Ode	1:8	12
123.	Tansian University, Umunya	1:2	12
124.	Taraba State University, Jalingo	1:25	24
125.	The Technical University, Ibadan	1:2	11
126.	Umar Musa Yar' Adua University Katsina	1:13	9
127.	University of Abuja, Gwagwalada	1:10	2
128.	University of Agriculture, Makurdi		24
129.	University of Benin	1:10	24
130.	University of Calabar	1:48	24
131.	University of Ibadan	1:13	24
132.	University of Ilorin	1:13	24
133.	University of Jos	1:3	8
134.	University of Lagos	1:10	24
135.	University of Maiduguri	1:27	24
136.	University of Mkar, Mkar	1:26	12
137.	University of Nigeria, Nsukka	1:1	24
138.	University of Port-Harcourt		24
139.	University of Uyo	1:2	3
140.	Usmanu Danfodiyo University	3:1	24
141.	Veritas University	1:4	18
142.	Wellspring University, Evbuobanosa - Edo State	1:3	15
143.	Wesley University., Ondo	1:2	8
144.	Western Delta University, Oghara Delta State	2:1	11
145.	Yobe State University, Damaturu	1:30	24
146.	Yusuf Maitama Sule University Kano	1:10	8