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NIGERIAN STUDENTS PERCEPTION OF TECHNOLOGY INTEGRATION IN THE 21ST CENTURY CLASSROOM

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Abstract: This paper considered the effective role of technology in teaching and learning in secondary school, based on the technologically advanced society, where children from birth have easy access to digital tools such as phones, laptops, games, internet, applications, online education, and multimedia sources. In Nigeria, teachers are faced with the challenge of teaching technologically cultured students who have grown up with technology from childhood. Therefore, we examine student's perception on integrating technological tools in classrooms, using four secondary schools in Abia state, Nigeria (Two private and two public schools). In order to meet up with these challenges, there is need for teachers, Government and other stakeholders in education to incorporate everyday technology in the classroom, to enhance student's learning ability.

Keywords: *Technology, student's perception, 21st century*

1.0 INTRODUCTION

The world is growing technologically on a fast pace such that every other thing is growing alongside with it, and our educational sector is not an exemption. Technology has gradually found its way into our educational sector such that educational administrators are looking for ways to improve students' learning and most importantly keep students engaged in class. The role of technology in teaching and learning is very significant because it improves student's quality of learning, and as such cannot be over-emphasized. Fatimah and Santiana (2017), are of the view that the world has so much changed, such that technology development has taken over every aspect of human life.

Incorporating technology in our classroom is highly important now than ever, Aminu and samah (2019) are of the view that there is need for technology integration in the classroom as this will help students have great learning experiences. Technology integration is very important as it prepares students to be 21st century learners and lifelong learners. As we progress into this new millennium, it becomes clearer that the 21st century students have different learning needs. In this 21st century classroom, the teacher is now the facilitator of students learning, thereby creating a great learning environment for students to develop these important skills that are needed for future work and life. This research is born out of the need to improve technology integration and contents in Nigerian classroom, which will help improve students' learning.

This research work is arranged thus: the purpose of the study, the limitation of the study, the literature review- this will summarize previous studies on the integration of technology in the classroom, the research methods, followed by the results of the questionnaire, summary of findings, discussion and then conclusion.

1.1 Purpose of the study

The primary aim of this study is to investigate on these technological tools in Nigerian secondary classrooms, how effective are these tools in teaching and learning? Secondly, to investigate student's perception on technology use in Nigerian private and public secondary classrooms. Based on these our research questions are thus:

- 1) How do students perceive the use of technology in the classroom?
- 2) How effective are the technological tools used in the classroom?

The significance of this study is to create awareness among students in secondary schools, on the importance of technology integration in the classroom. The findings of this study will help students understand the importance and relevance of integrating technology in the classroom, and inform them on some technological tools they can find useful in their classrooms.

1.2 Limitation of the study

This research was carried out in four secondary schools in Abia State, Nigeria (two private and two public secondary schools). The questionnaire was distributed to students in grade nine (9) to twelve (12) classes in the four schools selected. Only two hundred and forty students participated in responding to the questionnaire.

2.0 Literature Review

Technology integration is the way technological tools and contents are incorporated in the classroom to enhance instruction and support students learning. Yemothy (2015) posits that technology integration goes beyond using devices to carry out a task rather it is the application of technology to instruction in order to facilitate learning through several media in order to engage learners actively and allow for differentiated instruction. Educational administrators and policy makers now recognize the importance of technology integration as a step towards educational reform because students are born into a society that is advancing technologically.

Technology integration when introduced into the school curriculum can reform existing practices and develop learner 21st century skills (partnership for 21st century skills, 2011). U.S Department of education (2009) in their research has found out that the use of technology in schools have created more authentic experiences and improved learner's engagement in the classroom.

Much study has not been carried out on student's perception of technology integration in the classroom. Though students have shown much interest in technology use both at home and in school, yet much research has not been done to investigate their perception on technology integration in schools, I think their perception should be very important in technology integration in Nigerian education, since they are the once at the center of learning.

Yang, Yu, Gong and Chen (2016) carried out a research on 143 students in China, this is an experimental group comprising of four classes. Two classes were equipped with technology Rich Classroom (TRC), and two classes with multimedia Classroom (MMC). The TRC is equipped with wifi, wireless display, ipads, dual screens and facilitations. While the MMC classroom was equipped with computer and projectors alone. This class lasted for 12 weeks, the result shows that the score of students in the TRC classroom was significantly higher than the MMC classroom students. The TRC students were engaged in individual learning and collaborative learning.

Charles and Issifu (2015) in their study, carried out a research on 3380 Ghanaian Students, this research covered 24 private and public schools in Ghana. They found out that students generally have positive view on the use of ICT in the classroom, they discovered that students are aware of integrating technology in the classroom and would be excited if technological tools are used effectively in their classrooms. Tristiana and Rosyida (2018) in their research of 30 university TEFL students on their perception of using ICT in their English class, discovered that students have positive perception on the use of ICT in their TEFL class. Technology has made the students develop positive attitude towards their learning and made students bring out their best in the classroom.

In the few studies done on student's perception on technology integration, it is seen that students have shown so much interest on technology and media technology. Technology has enriched the quality of students learning in the classrooms, the highest influence which is reported include: improved student's motivation, engagement and improved learning experience. Other findings also suggest that the use of educational games in the classroom go a long way to minimizing student's distraction, improving the quality of students' learning and improving teaching beyond the conventional classrooms, Licorish, Owen and George (2018).

Today's classroom has gone far beyond the traditional classrooms to creating new ways our teachers can teach and learners can learn within the classroom environment. Learners are now innovating new ways they can communicate, collaborate and engage with their mates using technology and digital media. As students gain access to digital tools, they come up with new ideas on how they can engage with the content they like. This is why curriculum designers, educational administrators and policy makers should focus on integrating technological tools in the classroom.

Technology today, is very important in scaffolding teaching and learning experiences in schools and in building strong collaboration amongst learners. The 21st century social networks, applications, wikis, blogs, and platforms have improved our classroom instructions. For students learning to be effective, there is need for new educational technologies which is supported by innovative pedagogical approaches that enable

collaboration, mobility and communication, Websters and Murphy (2008). Enhancing our teaching and learning with technological tools helps in engaging students in the learning process and improving students learning, it also helps teachers to choose the right tool to achieve students learning goals.

Technological tools are Digital tools and learning resources used in the classroom to support the process of information by helping students develop mental representations through media elements and other educational resources made available to them, Eady and Lockyer (2013). They include some contents and learning activities used in classroom to support and enhance teaching and learning, these include: digital tools (electronic boards, projectors, computers); educational applications (khan academy, Edmodo, google classroom, prezi, padlet, quizlet); multimedia elements (video, images, audio, pictures, texts etc), and mobile devices (Phones, tablets, laptops). Fatimah and Santiana (2017) in their research of one hundred (100) student-teachers on the use of media technologies found out that media technology has great positive effect on students' learning.

Digital tool and technology helps in building collaboration among students in the classroom. Learners can share ideas and learn from one another easily with internet on their phone and mobile devices. Students can work together outside the classroom; collaborative learning facilitates learning, giving students the opportunity for their voices to be heard. This can be done using Apps, group chats, Facebook, twitter, instagram, and hashtags. Apps like twiducate (this is a social networking for schools), this encourages deeper engagements of students outside the classroom; It helps even the shy students benefit from the lesson; It helps teachers and students to collaborate online in real time, projects, share documents, images and texts. These Apps are mostly seen in mathematics and science classes, teachers use these apps to enhance learning and help students be in control of their own learning. Some educational apps like: google classroom, khanacademy, edmodo, kahot, wise.barleley.edu, padlet.com etc they keep students engaged and make learning fun. Using mobile devices, teachers and students can communicate through texts, videos etc. The lecture capture tool also helps teachers to record their lessons directly from their computers and upload for students to watch. Thus, MCNeely (2005) posits that using technology in the classroom during lesson will increase students' participation and inclusion of all students in the learning process. Digital tools and technology therefore help teachers create and present their instruction in an interesting way that is relevant and individualized to students.

Digital tools such as interactive white boards are used in the classroom to enhance students understanding of an instruction in the classroom; It helps to integrate various learning styles into the learning experience; hence students can see, hear and interact with the white board through touching; It helps display various media types using projector on the laptop. This ranges from video, photos, graphs, maps, illustrations; this helps to keep students engaged in class and improves their understanding of the concept. Other digital tools that can be used in the classroom to improve instruction are; laptops, mobile phones, tablets, computers etc. The use of technological tools in the classroom provides our students with multiple ways of engagement, representations and expressions. It is great for teachers to select materials that will help students retain information they are learning, because learning is not meaningful when students forget what they have learned. Voltz, Sims and Nelson (2010) citing Rief (1993) asserts that students retain 10% of what they read, 20% of what they hear, 30% of what they see, 50% of what they see and hear, 70% of what they say and 90% of what they say and do. Hence, these statistics brings to mind the importance of multisensory materials in the classroom. A teacher should vary how they present their instructions in order to engage learners in the learning process. Printed materials, objects, posters, diagrams, worksheets, photos, pictures are great ways of incorporating educational materials in the classroom. It is the teacher's responsibility to determine which material is appropriate for the lesson.

Our future although unprecedented, we could tell that it lies on emerging technologies and technological skills which is already valuable in our workplace. Exposing our students and youths to this very important skill is preparing them to be well equipped to move into the pool of available jobs in the future, which obviously are high tech jobs. High tech jobs are here today but cannot be compared with that of the future because of emerging technologies. The people to take these jobs in the future will be those who start now in teaching and using these technological tools, Nguyen (2018).

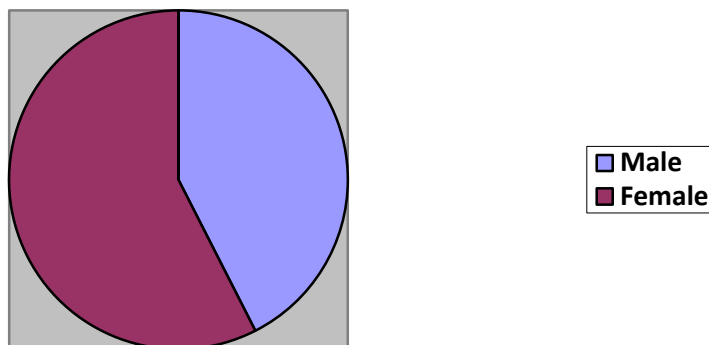
3.0 Research methods

A total of two hundred and forty students were randomly selected from four secondary schools used in this study, since four schools were used, sixty students were randomly selected from each school. The questionnaires were distributed by hand to students who were randomly selected and collected within ten minutes of filling it. The collected data were analyzed using degrees and simple percentage to analysis the demographics of the students.

Table 1: Showing analysis on students' gender

Gender	Number of students	Percentage (%)	Degree
Male	102	42.5	153
Female	138	57.5	207
Total	240	100	360

From table 1, it is discovered that 57.5% of the sample size are female representing 207° while 42.5% are male, representing 153°

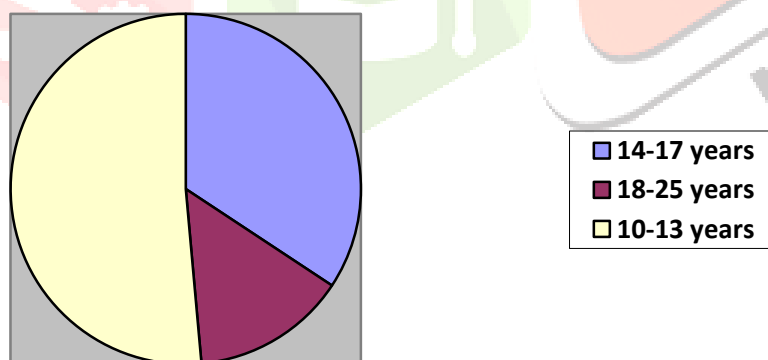


A chart showing analysis on students' gender

Table 2: showing age distribution of the students

Age	Number of students	Percentage (%)	Degree
10-13 years	130	54.2	195
14-17 years	102	42.5	153
18-25 years	8	3.3	12
25-30 years	-	-	-

Table 2 above shows the age distribution of the students who participated in the study. From the table, majority of the students falls between 10 -13 years followed by 14-17 years only 3.3% of the students falls under 18 – 25 years which represents 12°.

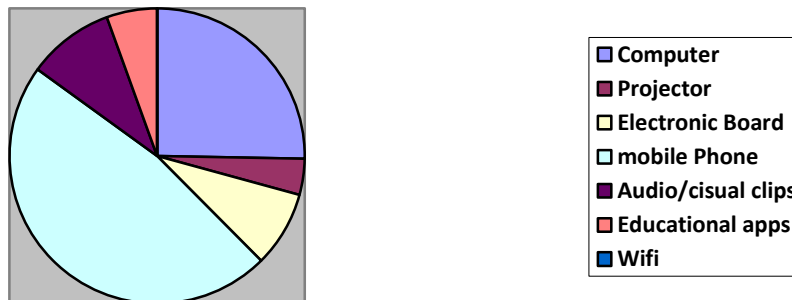


A chart showing the age distribution of students

Table 3: Showing technological tools found and used in schools

Technological tools	Number of students	Percentage (%)	Degree
Computer/laptop	128	25.3%	91°
Projector	20	3.95%	14°
Electronic board	42	17.5%	30°
Mobile devices	240	47.4%	171°
Audio/visual difi	48	9.50%	34°
Educational apps	28	5.5%	20°
Wifi	-	-	-
Total	506	100%	360°

From table 3 above, all the students that took part in the study have mobile phone. This represents 47.4% of the entire device used in schools. Computer/laptop constitutes 25.3% of the device used in school. The least of them is projector (3.95%). Wifi is not seen or used by any of the students in the schools under study.



A chart showing devices used in schools.

Table 4: showing how often these devices are used

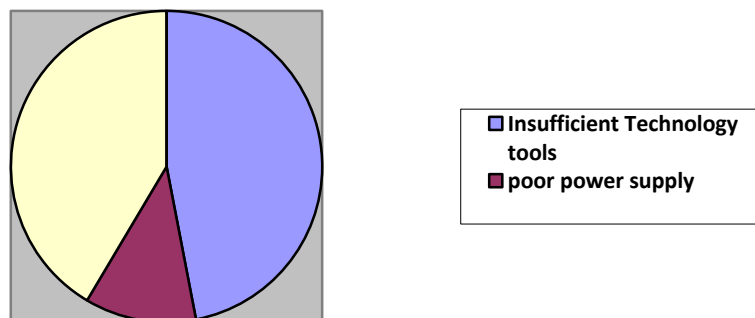
Technological tools	Never	%	Once a week	%	Three times a week	%	Every day	%
Computer	112	46.7	28	11.7	60	25	40	16.7
Projector	220	91.7	12	5	4	1.7	4	1.7
Electronic board	198	82.5	12	5	14	5.8	16	6.7
Mobile devices	-	0	-	0	-	0	240	100
Educational apps	212	88.3	8	3.3	8	3.3	12	5
Audio/visual clip	192	80	18	7.5	20	8.3	10	4.2
Wifi	240	100	-	0	-	0	-	0

From table 4 above, mobile device is used more often than others. It is also discovered, that the students (43.3%) will always make used of the computer/laptop every week – 11.7% once a week, 25% three times a week and 16.7% every day. It is also discovered that 100% of the students have never used the wifi in the respective school.

Table 5: showing major setback to the use of technological tools in schools.

Set back	Number of students	Percentage (%)	Degree
Insufficient Technological tools	128	31.5	113°
Poor power supply	240	59.1	213°
Teacher’s inability to use them	-	-	-
Insufficient time in class	38	9.4	34°
Total	406	100	360

From table 5, it is discovered that the major setback to the use of these technological tools in schools is poor power supply. 59.1% of the total responses on this, confirms it. 31.5% maintain that insufficient technological tools are yet another setback.



A chart showing the setback to the use of technological tools

Table 6: showing where the technological tools are available

Locations	Number of students	Percentage (%)	Degree
In all the classes	-	-	-
In few classes	44	25.6	92°
Only in the laboratories	128	74.4	268°
Total	172	100	360

Table 6 above shows that most technological tools are located in the laboratories. This is confirmed by 74.4% of the respondents. 25.6% maintains that some are in few classes.

Table 7: Showing students' perception on the use of technological tools

s/n	Questionnaire item	SA	%	A	%	D	%	SD	%	Total	Total %
1	Technological tools should be used in day to day activities in the classroom	240	100	-	-	-	-	-	-	240	100
2	Students learn better and faster using technological tools	240	100	-	-	-	-	-	-	240	100
3	Technological tools have improved students learning and performance	110	45.8	80	33.3	42	17.5	8	3.3	240	100
4	The use of technological tools has increased students engagements and concentration in	98	40.8	126	52.8	9	3.8	7	2.9	240	100
5	Technological tools makes the concept cleaner and better understood	122	50.8	110	45.8	5	2.1	3	1.3	240	100
6	The use of technological tools in class has increased collaboration effective communication and effective engagement of the students in the class.	141	58.8	99	41.3	-	-	-	-	240	100
7	The use of technological tools consumes a considerable amount of time of the class.	-	-	-	-	38	15.8	202	84.2	240	100

Based on the data collected and presented on table 7, it is discovered that items 1, 2, 3, 5, and 6 were agreed upon shown from more than 80% for strongly agree and agree. For item 7, it is discovered that they disagreed to it. This explains that;

1. The technological tools are very important in the day to day activities in the classroom as they;
 - (a) Increase students' engagements and concentration in class
 - (b) Make concepts clearer and better understood
 - (c) Increase collaboration, effective communication and effective engagement of the students in the classroom
 - (d) Increase students' learning and performances.
2. The use of technological tools does not consume considerable amount of time of the class.

4.0 Summary of findings

From the analysis above, the following major findings were made:

Table 3 shows that only 25.3% of the students confirmed that they use computer/laptops in their schools, these are students from the two private schools used in this study. The students from the government schools all confirmed that there are no computers/laptops or any technological tools in their schools. The students from the private schools also confirmed that they use projectors and electronic boards in their schools, but these are only 3.95% and 17.5% of the population. All the students confirmed that they have their own mobile

phones but phones are not allowed in schools. All the students confirmed that there is no use of wifi in their schools.

Table 4 shows that only 16.7% of the population uses computer/laptop daily in their schools, 25% use it three times a week, while 11.7% use it once a week in their schools. This shows that the greatest technological tool used in most schools is computer/laptop, other technological tools like projectors, electronic boards, educational apps, are scantily used in schools.

Table 5 shows that insufficient technological tools and poor power supply are the major setback to the use of technological tools.

Table 6 shows that 74.4% of the students confirmed that technological tools can be found only in the laboratories. Hence, Yemothy (2015) posts that technology integration is when technology is used as a tool daily to facilitate learning through several media in order to engage learners effectively. Here, technological tools are not used daily and scantily seen in the classrooms, technology integration is not effective in these schools.

5.0 Discussion

The result of this study has shown that students are aware of the importance of integrating technological tools as a teaching and learning tool in the classroom. The findings from this study gave answer to the research question on how students perceive the use of technological tools in the classroom. The study found out that student wants technological tools to be integrated in their day to day learning and to be found in all their classrooms. This agrees with yang et al (2016) study which found out that students want technological tools to be integrated in their day to day classroom activities.

The study also gave answer to the second research question on how effective these technological tools are used in the classroom. The findings reveal that these technological tools are only seen in the laboratories, this shows that these technological tools are not effectively used in the classrooms. Hence, Philips (2015) posits that technological integration is not happening or it is happening slowly, this they tracked down to the fact that schools claim to have technology integration but these technological tools can only be found in the laboratories or in few classrooms, making technology integration ineffective. This is the same as the schools used in the study.

Students further lamented on lack of access to technological tools in the schools. The two private schools that have technological tools, stationed it only in their laboratories, where access to these tools by the students happened when learning science subjects, excluding non-science students. Hence, Yemothy (2015) asserted that technology integration can only be said to be effective when it creates visible impact on students learning and performance. So far with the schools used in this study, it could be said that technology has not been successfully integrated into their curriculum.

5.1 CONCLUSION

The school, administrators, ministry of education and government need to provide sufficient technological tools in all the classrooms to enable all the teachers to be part of technology integration. In the schools used in this study, technological tools can only be seen in laboratories (Biology, chemistry, physics, and computer laboratory), hence only teachers teaching these subjects have access to technological tools. This is in line with the school used by Philip (2015) in his research, where some teachers can be found using technological tool and in the same school some other teachers were found not using technological tools. If school administrators and the government can provide these technological tools in all the classrooms, and organized seminars for the teachers on its usage with a technology specialist, technology integration will be highly effective in education.

REFERENCES

- [1] Aminu, M. and Samah, N. A., (2019). Teachers Perception on the Use of Technology in Teaching and Learning in Associate Schools Zamfara State, Nigeria. *Journal of Education, Sustainability and Society*, 2(2):1-4
- [2] Charles, B. And Issifu, Y., (2015). Innovation in Education: Student's Perception of Implementing ICT in Learning second-cycle Institutions in Ghana. *Procedia Social and Behavioral Sciences*. PP 1512-1519
- [3] Eady, M. J. and Lockyer, L., (2013). Tools for learning: Technology and Teaching Strategies. Learning to Teach in Primary School. *Queensland University of Technology, Australia*. PP 1-24,
- [4] Fatimah, A.S. and Santiana, S., (2017). Teaching in 21st Century: Students-Teachers Perception of Technology use in the classroom?, *Journal of Linguistic and English Teaching*. 2(2):1-11.
- [5] Licorish, S.A., Owen, H.E. and George, J.L., (2018). Students Perception of Kahoot's influence on Teaching and Learning. *Research and Practice in Technology Enhanced learning*, 13(9), Springer [Online].
- [6] McNeely, B. (2005). Using Technology as a Learning Tool, not Just the cool New Thing. *Educating the Net Generation, Educause [Online]*

- [7] Nguyen, M. H., (2018). Design and Organization of History of Teaching and Learning in High School in Vietnam, *American Journal of Educational Research*.6(5): 560-565.
- [8] Partnership for 21st Century Skills (2011). Learning environments: A 21st century skills Implementation guide. Available at: <http://www.p21.org>
- [9] Philips, M., (2015). Models of Technology Integration. *Teaching and digital Technologies*, 6(2), Cambridge University Press [Online].
- [10] Rief, S., (2013). How to Reach and Teach ADD/ADHD Children. *New York: The Center for Applied Research in Education*.
- [11] Tristiana, N.E. and Rosyida, E., (2018). student's Perception on the Integration of Information and Communication Technology (ICT). *Journal Tadris hahasa Inggris*, 11(1), Creative Common [Online].
- [12] Voltz, D. L., Sims, M. J. and Nelson, B.P., (2010). Connecting Teachers, Students and Standards: Strategies for Success in Diverse and Inclusive Classrooms. Ebook [Online]. Availableat:
- http://www.google.com/url?q=http%3A%2F%2Fwww.ascd.org%2FPublications%2FBooks%2FOverview%2FConnecting-Teachers-Students-and-Standards.aspx&sa=D&sntz=1&usg=AFQjCNGBsz75X_swRxsLqzzaibr1XAET9A
- [14] Webster, L. and Murphy, D., (2008). Enhancing Learning through Technology: Challenges and Responses. *Enhancing Learning through Technology*. 1-16.
- [15] Yang, J., Yu, H., Gong, C. and Chen, N., (2017). Student's perceptions and Behaviour in Technology-Rich Classroom and Multi-Media Classroom. *Eurasia Journal of Mathematics an Technology Education*, 13(3), ISER[Online].
- [16] Yemothy, N. E., (2015). Improving Educational Technology Integration in the Classroom. Ph.D., Walden University, Published [Online].
- [17] US. Department of Education (2009). Available online at <https://tech.ed.gov/files/2017/01/NETP17.pdf> (US Dept of Edu)

