

## STUDENTS ADAPTIVE LEVEL TO THE NEW LEARNING STYLES AS A RESULTANT EFFECT OF COVID-19

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**Abstract:** The recent covid-19 crisis had made it mandatory for schools to introduce new learning styles. However, the extent at which students will adapt to this new learning environment could differ as most are just being exposed to this context. This study therefore investigated the adaptive level of students to the new learning methods. The population comprised all students in Nigeria out of which 2500 respondents were sampled across the schools in Nigeria based on their accessibility. A researcher-developed questionnaire was used to gather data for the study. All ethical issues were put into consideration as none of the respondents were coerced to participate in this study. Means were used to answer the research questions while hypothesis one was tested using Man-U Whiteny at 0.05 significance level. The findings established that majority of the students initially find the distance education uneasy and data consuming. There was significant difference between public and private students' adaptive level to the new learning methods. The study concluded that students are getting used to the new learning style introduced by their various schools because they have only that choice to learn with. It was therefore recommended that school administrators and teachers should continue encouraging students to use this learning style introduced as they may find it uneasy to use. The learning style adopted should also be such that attracts the learners' attention.

**Keywords:** COVID-19; students' adaptive level; learning styles; resultant effect.

### INTRODUCTION

For every problem there exist an underlying corresponding tenacity because without the difficulties the value of the solutions may not be fully appreciated. The reactions towards the knock down matters as it could aggravate the livelihood activities. It may not matter the depth and numbers of downfall but the effort made to rekindle the fuel to start again really matters. Teachers need to place technology into the hands of students carefully by selecting the right mediums and technological tools should be constantly evolving to enhance problem-solving, innovation, decision-making, and teamwork (Onojah & Onojah, 2020).

Just like every other innovative virus which hampers the way of living in the past, there exist the

corona virus or Covid-19 which appear without notice and find its way to the society thereby scattering all plans across every sector with education inclusive. The reason why it was difficult to tackle could be due to its no record in the past, thus many countries are in the research to study, troubleshoot and discoveries which is expected to bring solutions to this pandemic. Emerging technologies have a considerable impact on education and its adoption could facilitate learning and improve students' academic performance (Falade & Alimi, 2015).

The pandemic had lots of negative effect on the economy of every nations as most sectors are been shut down in other to curtail the spread of the virus. Initially, there were unfounded rumors that this

virus can not affect the Africans. This spread for a while but was tampered when it started spreading even among the African countries. Several approaches were introduced by the federal government of Nigeria to restrain its blowout amidst the citizens of Nigeria which the president made a priority because the lives of every Nigerians' matter. Nam and Smith-Jackson (2017) established that the use of the Web as an educational tool has provided teachers experiences of accessing information at any time and place, provide opportunity for online, presentation of information, encourage interactive task-based activities, effective dissemination of information, and long-distance education.

Most Sectors were closed down, Schools were closed to curb the spread of these pandemic. At that stage, most schools' administrators unveil series of plans to engage both the administration, teachers, parents and students in learning activities to allow continuity so as for the students to still keep abreast with their instructional activities. Most of the primary and post-primary schools used various technologies for their learning activities while away from school buildings. Their selection and adoption of such technology(ies) for learning was based on availability, accessibility and technical-know-how. Some tertiary institutions also engage their students to the extent of conducting their end of semester' examination for their students during the lockdown. These will in turn need a connection to bring all users and learners together which could be in form of cables, wireless connection or data connection with the use of internet. Internet services and facilities are capable of providing universities lecturers, teachers, students and scholars the enabling environment to overcome the barriers of communication, collaboration and also providing them and their institutions the advantages of presenting their research finding and ideas across the globe (Abba, 2017). However, most of these learning innovations introduced has to be rooted in ICT which is capable of bringing together virtually people, learners and instructors who are separated by distance. The use of Information and Communication Technology (ICT) has helped academicians, students, educationists and researchers to gather information which is normally not available through other means or not easily accessible. The benefits of ICT being nature-protecting, non-polluting, less energy consumption

and above all, more human-friendly, it is applications are becoming indispensable parts of contemporary culture, spreading across the globe through general and vocational education (Ogunlade *et al.*, 2013).

While some schools would have engaged their students in this new learning method even before the Covid outbreak, some will just be using it due to the lockdown and this could pose a challenge on the new users than their peers. Such students who are exploiting these technologies afresh could encounter some challenges in adopting these learning tools. Fakomogbon *et al.* (2017) stated that ICT in education is a comprehensive approach to innovative educational systems, methods and management with the aid of new technology. It is comprehensive because it is impossible for any individual to explore all the ICTs to its optimum. Correspondingly, ICT in education incorporates all the contemporary digital tools such as computers, accessories and internet that can be used in education to accomplish its goals (Abdulrahman & Soetan, 2017). The use of technologies in educations makes teaching, teaching process and learning easier and speedily acquainted. ICT encourages students to advance their literacy and numeracy skills and to recognize their prevailing abilities and also helps both individualized, sovereign and collaborative learning experiences.

The adoption of technologies allows learners identify areas where they need assistance, update, backing, upgrade or transformation. In the same vein, Amosa *et al.* (2016) concluded that learners can complete their education from any location as long as they have access to the ICT resources. This is why these technologies became inevitable in this current season where students cannot gather together to perform their instructional activities consequent of the pandemic outbreak. Application of ICTs in universities made it possible to work with distance learning and achieve a closer collaboration between different universities, lecturers, professors and even students now share ideas, conference and even have lectures online from different universities and countries. Not only at the tertiary level but also other levels of education as development and innovations is embraced in all sectors aside the educational region. These developments paved way for a new teaching approach where there is unparalleled ability to spread knowledge and also disseminate information

(Emmanuel & Ngozi, 2014). Each day is an opportunity for every human to get refreshed of ideas, skills, knowledge and human interactions and developments, innovations and new ideas also emerged every day. It has also been observed that ICT in education makes lifelong learning easier and contributes to individual development by enhancing digital skills and providing individuals with skills that they might need in the future and thereby increasing employability and productivity (Haelermans, 2017).

The school ownership of the students could influence their adaptation rate to the new technologies introduced for learning during the covid. The purpose of ICT in education is to make the students and teachers acquainted with its use and how it works (Kampschulte & Ellert, 2016). Therefore, ICT education in Nigeria has to be a priority in the societal rudiments. Proprietorship refers to the ownership of the schools, which students attend to acquire knowledge, or the body responsible for its establishment whether government or individuals and private organizations. In Nigeria, government owned schools are referred to as public schools while those established by individuals or private organizations are referred to as private schools (Clement & Grace, 2017). Institutional ownership refers to ownership of the institutions whether private, federal or state owned. School proprietorship also refers to the individual or group of individuals, religious body, Federal or government that establish the schools. In this study, the school ownership will be clarified to mean the private and public owned schools.

In similar study by Onojah *et al.*(2019) which investigate the perception of undergraduate students on the utilisation of flipped classroom for learning in south-west Nigeria and recommended that stakeholders in education should procure necessary equipment for flipped classroom due to its significance to education. If stakeholders in education procure necessary technological hardware and software which are essential to boost their learning, instructional activities will be easy especially in the lockdown era because out of the abundance of the heart vibrates the lips. Clement and Grace (2017) carried a study on the influence of school proprietorship on the achievement of students taught oral English with games technique and thus deduced that if students are exposed to equal treatment with regard to classroom

instruction, there might not be much difference in the achievement of students attending schools in private and public schools.

There had been series of calls to turn the school system into a digitalized classroom environment whereby students can learn without the four walls of the classroom. As much as the experts in the field of educational technology whose aim is to facilitate learning and improve performance with the use of technologies keep hammering on the need for this digitalized learning as another option for the conventional teaching process, most schools in Nigeria especially the public schools have not embraced this innovative approach. For instance, Onasanya (2019) pointed out the breakthrough in ICT particularly in the 21st century and asserted that the inception of new trends in educational technology facilitates the creation of various forums for educational interactions. Some schools employed it partially as supplement to the traditional classroom activities but only the National open University and some distance education programmes been conducted by some universities in Nigeria are known to the researcher to adopt the digital system of learning in Nigeria whereby students can engage in performing all requirements to obtain a degree without the conventional physical classroom attendance but it is done virtually. Even the schools which acclaimed to have the technologies for learning in deceit have been exposed by the Covid-19 pandemic which prompt schools to perform their activities virtually. While those who are already in the digitalized world easily migrate to the system during lockdown, those who do not have to prepare an emergency remote learning which was hurriedly developed to cover up the learning activities during lockdown and some could not even engage their students at all due to unavailability of the required resources.

At commencement of the lockdown due to Covid pandemic which made the federal government of Nigeria to declare all schools closed till further notice, many schools put up several efforts to keep the school activities ongoing without delay. Although the students and teachers will be in their various residence, they can still do the teaching and learning virtually. Several platforms were adopted by each school ranging from websites, apps, links, TV, Radio as well as the clustered learning. Adapting to these technologies

by students depends on the newness to the platform. As it will be easily utilized by the students who have been using it before the mandatory lockdown, it will be uneasy and tacky for those who are utilizing it a fresh. This is the need for this study which is the reason why the researchers explored the Adaptive Level of Students to the New Learning Styles as a Resultant Effect of COVID-19.

The following are the research questions of this study: (1) What technological learning means was introduced by your school during this lockdown? (2) How do students adapt to this new technological learning? (3) Does this reaction to this technological learning vary by school ownership?

The hypothesis of this study is: There is no significant difference between the reaction of private and public' students to the technological learning.

There are several theories postulated by scholars for learning, they include behaviourism,

connectivism, constructivism, and so on. Also, there are numerous models that support learning strategies which vary depending on Technology Acceptance Model, Theory of Planned Behavior, Theory of Diffusion of Innovations and Technology Readiness to explain the users' adoption of self-service technologies. Technology Acceptance Model introduced two new constructs, perceived usefulness (the belief that using an application will increase one's performance) and perceived ease of use (the belief that one's use of an application will be free of effort). In TAM, both perceived usefulness and perceived ease of use could predict an individual's attitude concerning the use of an application. Second, TAM did not include subjective norm as a determinant of intention. Since its introduction by Davis (1989), TAM has been widely used for predicting the acceptance, adoption, and use of information technologies as indicated in figure 1.

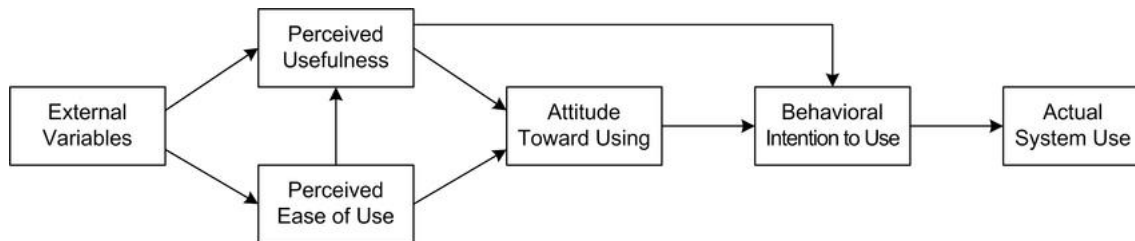


Figure 1. *Technology acceptance model (Onojah et al., 2019)*

The TAM has its roots in the Theory of Reasoned Action (TRA) and there have been numerous variations on the TAM over the years. Mohammadi *et al.* (2020) stated the TAM offers insight into how behavioral intention is formed and its original form, the TAM posits that attitude toward use of a system is determined by two behavioral beliefs of perceived usefulness and perceived ease of use. Perceived usefulness on application of technology is the degree to which an individual believes that using a particular technology would enhance their academic performance (Alani *et al.*, 2022). Perceived ease of use is “the degree to which a person believes that using a particular system would be free of effort. The Technology Acceptance Model (TAM) has been described as a protuberant theory which

pursues to explore the qualities which affect the adoption of technology. Also imperative to the TAM is the intention that can as well be applied in the foresee and envisage the keenness and enthusiasm to accomplish behavior with the complement of several skills. Criollo *et al.* (2021) discussed some issues which affect user' intention to espouse the exploitation of mobile imbursement structures and discovered that “performance expectancy, effort expectancy, social influence is facilitating conditions in the e-finance and mobile finance context. The TAM model was adapted to fit in the focus of this research as shown in figure 2. The reaction of the students towards the use of the new learning style introduced towards during the lockdown from COVID crisis could influence their readiness to use it for learning.

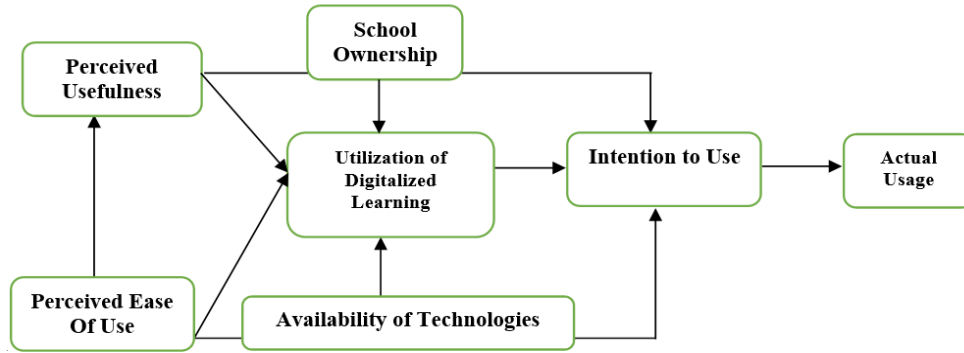


Figure 2. *Conceptual framework of the study*

The reaction comprises the adaptation, perceived ease of use, perceived usefulness, intention to use among other variables which could influence students to want to utilize the digital learning method during lockdown. The availability of the technologies for learning also influenced their adoption of these platforms. Another variable which influence the adaptation of these new learning styles is the school ownership which differentiate students from public schools and private schools in Nigeria. Upoalkpajor and Upoalkpajor (2020) deduced that the worldwide lockdown of educational establishments is going to ignite major break in students' education.

Behaviorism posit that learning in human being occurs only when there are observable changes in behavior. Therefore, learning must be organized in chunks, and present learning should be logical and sequential order. Behaviorist theory is based on the activities that promote learning as a change in learners' observable actions (Yusuf, 2022). In the behaviorist context, learning is thought to be best facilitated through reinforcement of an association between a particular stimulus and a response. Aucejoa *et al.* (2020) established that COVID-19's economic and health shocks vary by socioeconomic status and act as key mediators explaining pandemic's effects as the COVID-19 outbreak also had large negative effects on students' current labor market participation and expectations about post-college labor outcomes.

Constructivism asserts that, learner construct idea based on his/her perception and personal interpretation. Each learner is unique and brings unique experience and contexts to learning new things. Thus, learning is meaningful only when the learning contexts and materials are based on the learner's cognitive structure and socio-cultural context. Some of the proponents to this theory are

Aundrey Gray, Lel Vygotsky and Jean Piaget (Alebiosu, 2017). It is an activity in which learners actively construct new ideas or concepts based on both their previous and current knowledge (Anhwere *et al.*, 2020). The researchers are also of the view that learning is an active process in which learners construct new ideas or concepts based on both their current and past knowledge. Learners are encouraged to be active constructors of knowledge, with academic social networking sites now embedding them in a realistic context at the same time as offering access to supporting tools. The key target of this theory is to make sure that technology is unobtrusive, so that it facilitates rather than hinders interactions among the learners. With computer laptops or desktops/mobile phones, ipads, tablets and so on, learners can construct their own knowledge and share it freely with peers at any time in any place. In a study by Kuhfeld *et al.* (2020), it was projected that school closures are likely to lead to significant learning losses in math and reading. However, they estimate assorted effects, and conclude that high-performing students are likely to make gains.

Cognitivism postulates that learning is based on the belief that mental activity is less express in human behavior than what happens inside the human mind. Human perception is important to learning and learning involves conceptual understanding, problem solving and procedures (Marc, 2021). According to them, learning is spiritual rather than physical and mental rather than material. Applying this to digitalized learning introduced during lockdown, some of the platform require brain work to run and the technical know-how is essential too. This has significant contribution to boosting mental ability of students. Chetty *et al.* (2020) found that, post-COVID, student progress on an online math program

decreased significantly more in poorer ZIP codes. Theories provide standards that promote advancements in any academic field, thereby guiding focus on elements that influence good practice. Since education is a deliberately planned activity, learning theories therefore, provide the basis for effective learning experiences. The analysis of Aucejoa *et al.* (2020) revealed that the heterogeneous economic and health burden imposed by COVID-19 can partially explain these varying impacts. Hence students have good reactions towards the use of the digitalized learning, it will enhance performance and readiness to use.

## **METHOD**

This chapter presents the methodology adopted in the study. They include: Research Design, Sampling and sampling techniques, Instrumentation, procedure for data gathering, Data analysis techniques.

A cross-sectional survey type was adopted in this study. These surveys offer researchers a sort of snapshot in time and give us an idea about how things are for our respondents at the particular point in time that the survey is administered. This type of research is frequently used to determine the prevailing characteristics in a population at a certain point in time. A researcher designed questionnaire was used to collect information on Students Adaptive Level to the New Learning Styles as a Resultant Effect of Covid-19.

The study investigated how students adapt to the new learning styles introduced to them as a result of lockdown from covid-19 in Nigeria. The study covered students at the primary and post-primary educational level across several states located in each geopolitical zone of Nigeria. Two thousand, five hundred students were randomly selected across the states in the Nation. The selection was based on their availability and accessibility to the means at which the instrument was distributed.

The research instrument employed to collect the relevant data for this study was a researcher-developed questionnaire. The questionnaire was structured in order to help draw appropriate responses from the respondents. The questionnaire was developed both on paper and online with the use of google forms. In building questionnaire items, the instructions were clear and unambiguous. The questionnaire was divided into three sections. Section A focused on respondents' demographic

information which include the gender and school ownership type of the students, section B provided questions on various technologies for learning and respondents are to tick the technologies which their school introduced for learning during Covid-19 lockdown in Nigeria. Section C dealt with how students adapt to the new technologies for learning during lockdown. Ten relevant different items were composed for respondents to react to. The response mode adopted in this section is the four-Likert scale of strongly disagree, disagree, agree and strongly agree. Respondents will tick (√) as appropriate for their response, and fill in blank spaces to provide suitable answers where applicable.

Validation of the instrument was carried out through experts' validation. In order to ensure content and construct validity, the research instrument was validated by four experts from reputable establishment for scrutiny and expertise assessment. Corrections and observations made by the experts were critically analyzed and treated to produce the final copy of the research instrument. The experts' observations were corrected accordingly adhering to its face and content validity. The research instrument was trial tested on some graduates which will not be part of the real study. Their responses were subjected to Guttman Split-half Correlation Coefficient and the correlation value yielded 0.815 which was used to establish that the instrument is reliable and that the instrument could be used without re-trial testing. However, the author(s) who want to adopt/adapt it for further studies could re-subjected it to validation and reliability process if desired.

The researchers sought the permission from appropriate personnel to introduce the researcher and the focus of the research. The researchers introduced the research instrument and the interested respondents were asked to indicate the willingness to participate in the study. The researchers employed the service of the school administrators as well as teachers to help forward the instrument link to their students and the students filled and submitted accordingly. The link of the developed instrument was shared to students across their learning platforms accordingly. Concerning the students who engaged in clustered offline learning, the teachers engaged them by attesting to the printed questionnaire as well as interview.

Based on research ethics and to ensure high

standards of professionalism, graduates' consent was sought for through research consent forms that were presented to the students. Both private and public-school students participated voluntarily in the study and there was no coercion of any sort. The respondents were told to freely partake or withdraw at any time without any repercussions. Also, confidentiality of the participants was not compromised in preventing insecurity that could be felt by any participant. To ensure the study met the professional and institutional standard, ethical issues of confidentiality and privacy, and free and informed consent were addressed. With regards to confidentiality and privacy, the researcher ensured that the identity of the participants was made anonymous, and no sensitive personal information was collected from the participants to ensure participants' protection. Also, the researchers ensured that information not relevant to the purpose of this study was not collected from the respondents in the process of this study.

To ensure free and informed consent in this study, participants were informed in detail about the nature of the research and the purpose of the survey. They were required to give their consent in collecting the data required without any intimidation such as coercion or manipulation. Again, participants were allowed to provide the necessary data of their own free will and individuals, who did not wish to participate were, allowed to exercise that right without consequences. In addressing the plagiarism issue, all works cited in the study were referenced.

The analysis and interpretation of data obtained through the questionnaire were done using descriptive and inferential statistics. Frequency, mean and percentage were used to analyze the responses to the research questions given. Hypothesis one was tested using Man-U Whiteny at 0.05 significance level so as to test whether private and public students are likely to derive the same adaptation to technological learning. The analyses will be done using AMOS statistical package at 95% confidence interval and 0.05 level of significance.

## RESULTS AND DISCUSSION

Out of the 2500 students sampled across schools in Nigeria sampled, 2219 were properly filled and returned and was thus used for the analysis in this study.

*Research question one: What technological learning means was introduced by your school during this lockdown?*

Table 1. Technologies adopted for learning during lockdown

S/N	Technological Learning tools	Frequency	Percent
1.	WhatsApp	949	42.8%
2.	Education.gov.ng (Nigerian government Education links)	202	9.1%
3.	Zoom	788	35.5%
4.	Google meet	211	9.5%
5.	Facebook	706	31.8%
6.	Other Mobile apps for Learning	1012	45.6%
7.	School Websites	837	37.7%
8.	Clustered Learning	354	16.0%
9.	Electronic Media	792	35.7%

The technological tools which students used to keep themselves engaged with learning activities during the lockdown was been investigated and the results presented in table 1. It indicated that most of the students used mobile apps for learning during the pandemic with percentage of 1012 (45.6%). The ease of use, usability and the fact that some of these apps could be used offline could be the reason why most students adopt these mobile apps for learning during the lockdown when students were not given the chance to attend their regular schools to perform their regular classroom activities. Also 949 (42.8%) of the respondents used WhatsApp for instructional activities in the pandemic crisis. WhatsApp platform is a very common social media platform used by many Nigerians and this is been adopted for learning activities too.

Out of the total respondents sampled in this study, 202 (9.1%) of them agreed to have used the Education.gov.ng (Nigerian government Education links) for their learning during the lockdown. Most of the students claimed not to find enough materials on the site and that could be the reason for the low turnout but others claimed not to be aware of such government educational links for learning during lockdown. But some states also have their class links during the lockdown instance is the Ogun digital Classroom via Ogundigiclass.ng which gives free access to SmartUp App for secondary school students in Ogun State which is a leveraging emerging technology to help kids discover their purpose unleash their potentials and build their

future together. Furthermore, 788 (35.5%) of the entire population embraced the zoom applications for instruction to cover up the classroom activities during the recent pandemic which affect the entire globe. Google meet was another platform employed by the students for learning activities during the lockdown as 211 (9.5%) of the whole respondents sampled in this study claimed to use this platform during the lockdown. Although many people perceived Facebook to be a social media and its only used for social activities but according to the outcome of this research on Covid-19 706 (31.8%) respondents made known to have used the Facebook platform to engage learning from their teachers during the lockdown.

Other Mobile apps for learning was used by the students during the lockdown, these learning apps was used by almost half of the respondents and thus 1012 (45.6%) of them acclaimed to use these learning apps for instructional activities during the Covid pandemic lockdown. There were some schools who already have their institutional websites designed for their school, some of these schools took the advantage of the lockdown to engage their staffs and students in classroom instruction. 837 (37.7%) of the entire population adopt the school websites for learning during the lockdown. There were some of the students who reside in a very remote areas where no internet

connection nor TV, Radio and other electronic media. Some of these students never allow the lack of infrastructure to be a barrier and lag behind their peers in the urban areas, they thus engaged in a clustered Learning where they are grouped to allow a minute class of lower number to avoid the spread of the virus and they could also observe the social distancing as recommended by the Nigerian center for Disease control (NCDC) and the Nigerian Presidential Task Force (PTF). From the information gathered, a teacher who reside in the city claimed to go to one of the schools during the pandemic to organize an innovative media clustered learning for the students. Out of the entire population, 354 (16.0%) students engaged in this clustered learning during the lockdown. There were some class lessons organized and available on Radio and Television programmes during the lockdown. Example of such is shown on Ogun state Television, Wazobia TV, Galaxy Television, Channels TV among others. Out of the whole students sampled for this study, 792 (35.7%) of them used the Electronic Media for instructional activities during the lockdown. Based on these findings, most of the students participated in technological learning during the lockdown.

*Research question two: How do students adapt to this new technological learning?*

**Table 2. Students adaptation to the new technological learning**

S/N	Items	SA	A	D	SD
1.	The fear of adapting to the learning style without teachers and peer's physical appearance was my concern of worry as at when the lockdown started	1001 45.1%	728 32.8%	346 15.6%	144 6.5%
2.	I initially find the distance education uneasy and data consuming	956 43.1%	582 26.2%	239 10.8%	442 19.9%
3.	I never thought learning without teachers' visibility is relatively achievable	464 20.9%	502 22.6%	568 25.6%	685 30.9%
4.	Electricity power supply was a huge barrier while learning with the technologies during lockdown	914 41.2%	697 31.4%	308 13.9%	300 13.5%
5.	My perception as regards the learning' assessment on the platform was not free of malpractice but it was accomplished as most of the questions were technical	695 31.3%	503 22.7%	510 23.0%	511 23.0%
6.	It was uneasy to adapt to the technological learning but I later get used to the method after some weeks of the lockdown	1319 59.4%	400 18.0%	282 12.7%	218 9.8%
7.	Students were distracted with other online and electronic activities on the platform. However, I later blend to devote fully to the learning activities	495 22.3%	505 22.8%	718 32.4%	501 22.6%
8.	My siblings and friends contributed to distraction during the learning tasks but my parents control the happenings	662 29.8%	376 16.9%	643 29.0%	538 24.2%
9.	The learning with these technologies were lively as against my expectation of a bored class activities	598 26.9%	508 22.9%	778 35.1%	335 15.1%
10.	Network instability was an issue learning during the lockdown.	718 32.4%	197 8.9%	1186 53.4%	118 5.3%

Note that SA=Strongly Agree, A=Agree, D=Disagree and SD=Strongly Disagree

How students adapt to the technological learning results revealed in table 2. The findings indicated during the lockdown was also investigated and the that 1001 (45.1%) of the respondents strongly



agreed that the fear of adapting to the learning style without teachers and peer’s physical appearance was their concern of worry as at when the lockdown started, 728 (32.8%) of the respondents agreed, 346 (15.6%) of the respondents disagreed while 144 (6.5%) of the respondents strongly disagreed. In similar view, 956 (43.1%) strongly agreed to the statement that they initially find the distance education uneasy and data consuming, 582 (26.2%) of the respondents agreed, 239 (10.8%) disagreed while 442 (19.9%) of the entire respondents strongly disagreed with the statement. Others followed suit as shown in table 2. Based on the findings, it was established that the Nigerian students adapt to the new technological learning introduced during lockdown amidst several difficulties.

*Research question three: Does this reaction to this technological learning vary by school ownership?*

Hypothesis one: There is no significant difference between the reaction of private and public’ students to the technological learning

Table 3. Mann Whitney U results on students’ reactions to technological learning relating to private and public

School Ownership	N	Mean Ranks	Rank Sum	U	p
Private	1238	14.40	246.82	37.500	.021
Public	981	12.18	178.25		

Table 3 represents that there is significant difference between public and private Nigerian students’ reactions to the technological learning introduced for learning during lockdown [U = 37.500, p < .05]. When mean ranks considered private students’ adaptation to the technological learning introduced during lockdown are significantly higher than those of public students.

*Discussion*

The findings established that the technologies which students use for learning during lockdown includes WhatsApp, Nigerian government Education links, Zoom, Google meet, Facebook, Other Mobile apps for Learning, School Websites, Clustered Learning, and Electronic Media. Students utilize social media as an incorporated tool with a number of websites and application tools (Athukorala, 2018). Some of the schools who value

the importance of the digitalized learning invested into it even when there was no lockdown from COVID pandemic. In addition, the study of Onojah *et al.* (2020) concluded that undergraduate students have good proficiency level on the utilization of social media for learning. Also, Falade and Alimi (2015) concluded that Mobile learning is a new form of education that integrates e-learning with mobility in the process of delivering or receiving the instructional contents.

Furthermore, it was inferred that Nigerian students adapt to the new technological learning introduced during lockdown amidst several difficulties. In support of this finding, Jamari *et al.* (2017) established that adapting platforms that are not meant for learning is not an easy task but is achievable with appropriate guidelines and planning for both teachers and students. The use of the Web as an educational tool has provided teachers with a wide range of new and exciting teaching experiences that are not possible in traditional classroom (Nam & Smith-Jackson, 2017).

Also, it was deduced from this study that there is significant difference between public and private Nigerian students’ reactions to the technological learning in favour of the private schools. But Clement and Grace (2017) established no significant difference in the achievement of private and public schools’ students taught Oral English with game techniques.

**CONCLUSION**

Based on the findings of this study, some conclusions are found: (1) The technological tools which students used to keep themselves engaged with learning activities during the lockdown are mostly other mobile apps. (2) It was established that the Nigerian students adapt to the new technological learning introduced during lockdown amidst several difficulties. (3) There is significant difference between public and private Nigerian students’ reactions to the technological learning introduced for learning during lockdown. Therefore, the educational authorities and the school system should encourage students to adopt technologies for learning in other to prepare them for any challenges ahead. Besides, there is urgent need for government and stakeholders to provide schools in Nigeria with the resources required for digitalized learning systems, immediate need for ministry of education to organise seminars, conferences and workshops

and training for teachers on how to adopt several technological tools for their instructional activities which will prepare them for future distance learning, and there is a need to bridge the gap between private and public students' adaptation to new learning style as a result of COVID to level up with the school ownership differences.

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