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Impact of Covid-19 Pandemic on Students Learning Outcomes in Universities in Osun State, Nigeria

Wpływ pandemii Covid-19 na proces edukacji studentów na uniwersytetach Osun w Nigerii

Introduction

Qualitative education remains the fulcrum for global development and freedom. Therefore, all hands must be on deck worldwide to formulate policies that will enhance qualitative education right from elementary school to tertiary institution, and continuous, effective monitoring must be well established to check all factors that may frustrate this global pursuit. Hence, most societies

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require children to attend school for a specified number of years or until they reach a certain age. Many of the benefits of schooling occur in part because students learn some new knowledge or skills that enhance their ability to communicate, solve problems, and make decisions.

Over the years, poverty and malnutrition have been implicated to have a far-reaching consequence on the academic performance of school children globally (Humble, Dixon, 2017; Sawaya, 2016). Though Nigeria as a country is blessed immensely with extraordinary economic resources such as oil, cocoa, rubber and plantations, however, the country is not spared from the global trends of poverty as accessibility to quality education is a big challenge for the majority of the poor masses in the country (Ismail, 2010). From time immemorial, various governments in Nigeria have launched different Poverty Eradication or Poverty Alleviation schemes to eradicate poverty and malnutrition in the country, but it seems this goodwill of the various governments have become avenues for corrupt politicians to embezzle and gather ill-gotten wealth.

The main objective of university education in Nigeria is to train students to acquire the requisite knowledge and skills to enable them contribute effectively to national development (Federal Government of Nigeria, 2020). This training requires periodic assessment and evaluation in the form of examinations to ascertain the level of competence of students. Most educational institutions around the world cancelled in-person instruction and moved to remote learning and teaching in March 2020 in an attempt to contain the spread of COVID-19. The corona virus COVID-19 outbreak disrupted life around the globe in 2020. As in any other sector, the COVID-19 pandemic affected education in many ways.

According to the World Health Organization (WHO) 2020, corona viruses are a family of viruses that cause illnesses ranging from the common cold to more severe diseases such as Severe Acute Respiratory Syndrome (SARS) and the Middle East Respiratory Syndrome (MERS). These viruses were originally transmitted from animals to people. SARS, for instance, was transmitted from civet cats to humans while MERS moved to humans from a type of camel. Several known corona viruses are circulating in animals that have not yet infected humans.

According to the WHO, signs of infection include fever, cough, and shortness of breath and breathing difficulties. In more severe cases, it can lead to pneumonia, multiple organ failure, and even death. Current estimates of

the incubation period – the time between infection and onset of symptoms – range from one to 14 days. Most infected people show symptoms within five to six days. However, infected patients can also be asymptomatic, meaning they do not display any symptoms despite having the virus in their systems.

Several governmental measures have been taken to counteract the risk of disease spreading. These measures include travel restrictions, mandatory quarantines for travellers, social distancing, bans on public gatherings, closure of schools and universities, closure of businesses, self-isolation, asking people to work at home, curfews, and lockdown. Authorities in several countries worldwide have declared either lockdown or curfew as a measure to break the fast spread of virus infection. These measures have a negative worldwide effect on business, education, health, and tourism.

It is evident that perception shapes one's knowledge and the adoption of safety measures concerning the transmission of an infection. Data obtained from the students' attitudes towards COVID-19 could help target interventions needed to improve the knowledge of students regarding Corona Virus. Superstitious beliefs have largely shaped the perception of most Nigerians regarding the source and cause of COVID-19 (Chukwuorji, Iorfa, 2020). At the onset of the COVID-19 outbreak in Nigeria, the infected persons belonged to either the political class or high socioeconomic cadre (Chukwuorji, Iorfa, 2020). The characteristic prevalence of COVID-19 infection among this group of persons accorded COVID-19 the name "a disease of the rich and mighty" (Nwaubani, 2020). Few months into the COVID-19 outbreak in Nigeria, perceptions revolved around immunity to COVID-19 among the religious folks with a disregard of bans on religious gatherings (Lichtenstein et.al., 2020). Such perceptions could have been influenced by several factors. Social media platforms such as WhatsApp, Facebook and Twitter have been used to spread false news on COVID-19, resulting in panic disorder and anxiety among some persons and shunning of safety measures among others (Aluh, Onu, 2020). Among students, physical distancing, social isolations, and restriction of religious and social gatherings among others have been opined as alien solutions in overcoming the COVID-19 pandemic in Nigeria and Africa at large (Olapegba, 2020).

In Nigeria public discussions frequently focused on educational standards. The public's unhappiness becomes more prominent following the release of the West African Senior School Certificate Examination results during

COVID-19. Student learning outcomes do not match the government and parental investment. All stakeholders are concerned about why the system is turning out graduates with poor results. To them, it is questionable whether or not teachers in the public secondary schools, the most important factor in the effectiveness of schools and in the quality of a child's education, are competent to teach effectively.

Statement of the Problem

The closure of schools for several months in Nigeria was a major source of concern for many. At the initial stage of COVID-19 outbreak, no one knew it would have lasted for how long and that much to warrant the closure of schools for about 7 months in Nigeria. Initial measures taken by many governments ranged from 15 to 30 days, but one could have been seen to be unreasonable to have imagined such scenario in which this situation lasted for four months or more, or as in the case of Spain and Italy where the decision was announced not to resume face to face classes for the rest of the academic year which normally ends in June.

While the impact of the pandemic on education was abrupt and in the majority of cases there was no contingency plan other than to attempt to continue classes remotely, it is important that we start to conceptualize a way out of this crisis, ensuring the highest possible degree of inclusion and equity. Indeed, one could say that the pandemic adds a further degree of complexity to education globally, but particularly in the region, because of the unresolved challenges it faced such as growth without quality, inequities in access and achievement, and the progressive loss of public financing. Students' effort and preparation towards their examination have been adversely affected by this global pandemic which has forced everyone into unprepared self-isolation. As of now, Nigeria does not have a well-developed e-learning platform for schools that can cushion the effect associated with the loss of learning hours. Therefore, the effect of this pandemic will be strongly felt by the students in tertiary institutions due to the loss of contact hours. Consequently, there is the need to investigate the impact of COVID-19 pandemic on students' learning outcomes in Osun universities in Nigeria.

Purpose of the Study

The general purpose of the study was to investigate the impact of COVID-19 pandemic on students' learning outcomes in the universities in Osun State, Nigeria. To be specific, therefore, the purposes of the study were to:

1. examine the impact of COVID-19 pandemic on students' learning outcomes in the universities in Osun, Nigeria;
2. determine the difference in the learning outcomes of students depending on the type of school;
3. ascertain if gender could differentiate the learning outcomes of the respondent students in Osun, Nigeria, under the COVID-19 pandemic situation.

Research Question

The following research question was generated for the study:

What is the impact of COVID-19 pandemic on students' learning outcomes in the universities in Osun, Nigeria?

Research Hypotheses

H_{01} There is no significant difference in the students' learning outcomes, depending on the type of school.

H_{02} Gender does not significantly differentiate the learning outcomes of the respondent students in Osun, Nigeria, under the COVID-19 pandemic situation.

Research Design

Descriptive survey research was adopted for this study since it involves collecting and analyzing data gathered from a sample considered to be representative of the population, and generalizing the findings.

Population of the Study

The population for this study comprised all students from the universities in Osun State, Nigeria.

Sample and Sampling Technique

The researcher employed simple random sampling to select students from the universities in Osun State, Nigeria. These were: Obafemi Awolowo University, Osun State University and Joseph Ayo Babalola University. Simple sample ensures the adequacy probability that every subject has equal chances of being selected in all. One hundred and twenty students were randomly selected each from a federal (Obafemi Awolowo University), a state owned (Osun State University) and a privately owned university (Joseph Ayo Babalola University) in Osun State, making a total of 360 respondents.

Research Instrument

A Validated Questionnaire was used for the study titled: Impact of COVID-19 Pandemic on Students' Learning Outcomes in the Universities in Osun State, Nigeria, Questionnaire (ICPSLOOQ). The research instrument consisted of two sections (A and B), section A elicited responses on the demographic data of the respondents while section B is sub-divided into three sections with relevant items that were used to elicit relevant responses from the respondents in line with the research question and hypotheses. The questionnaire was formulated on a five (5) point Likert scale.

Validity of the Instrument

The questionnaire was validated by a medical epidemiologist, a biology educator and an expert in test construction. This is to determine the effectiveness and appropriateness of the instrument, to reduce ambiguity in the contents and structures of the sentences used, and in order to establish the construct validity. The validator's corrections and modifications were used to improve the quality of the instrument.

Reliability of the Instrument

The instrument was subjected to test-retest method for a period of three weeks to ascertain the internal consistency of the instrument. It was administered on twenty (20) respondents who were not part of the study sample after which their responses were subjected to Pearson Product Moment

Correlation (PPMC) to determine the reliability of the instrument, a reliability coefficient of 0.83 was obtained which was an indication that the instrument was reliable and fit for use.

Procedure for Data Collection

The researcher obtained permission from the management of the universities involved in the study, as well as the consent of the respondents before the administration of the instrument. The instrument was administered on the respondents by the researcher employing the help of two research assistants. The exercise required the immediate completion and retrieval of the instrument. The exercise lasted for a period of three weeks.

Data Analyses Technique

Data collected was subjected to descriptive statistics specifically mean, standard deviation and frequency counts. A one-way ANOVA is used for three or more groups of data, to gain information about the relationship between the dependent and independent variables and t-test is a statistical test that is used to compare the means of two groups for likely differences. Taking into account the number of study groups, therefore, the two hypotheses formulated for this study were verified using two testing tools namely: ANOVA and t-student tests.

Results and discussions

Demographic Information

Table 1. *Gender distribution of the respondents*

Gender	Frequency	Percentage
Male	132	36.7
Female	228	63.3
Total	**360**	**100.0**

Source: own study.

Table 1 shows that 63.3% of the respondents (228) were female undergraduate students, while 36.7% (132) were males.

Table 2. *School type of the respondents*

School type	Frequency	Percentage
Federal	120	33.3
State	120	33.3
Private	120	33.4
Total	**360**	**100**

Source: own study.

Table 2 above shows the school type distribution of the universities used for the study. There was an even distribution of the respondents across federal, state and private universities in Osun State, Nigeria, with 120 picked from each of the school types.

Table 3. *Respondents' Level of Study*

Level of study	Frequency	Percentage
100	81	22.5
200	71	19.7
300	79	21.9
400	107	29.7
500	22	6.1
Total	**360**	**100**

Source: own study.

Table 3 shows the respondents' level of study. The results showed that most of the respondents numbering 107 (29.7%) were 400 level students, followed by 200 level students numbering 81 (22.5%), while 79 respondents (21.9%) were 300 level students, the least of them were 500 level students who were only 22 in number (6.1%). It is worth noting that most respondents fall within the age brackets of 15 and 35.

Research Question: What is the impact of COVID-19 on students learning outcomes in the universities in Osun, Nigeria?

In answering this research question, the students' responses to the instrument items were analysed. Frequency counts, percentages, mean and standard deviation of each of the items are presented in the Table 4 below.

Table 4. *Impact of Covid-19 Pandemic on Students' Learning Outcomes*

SN	ITEMS	SA	A	UN	D	SD	MEAN	SD
1	Covid-19 pandemic affects the academic calendar of the University	258 (71.7)	94 (26.1)	2 (0.6)	3 (0.8)	3 (0.8)	1.33	0.62
2	Students find it difficult to attend physical lecture	146 (40.6)	165 (45.8)	25 (6.9)	17 (4.7)	7 (1.9)	1.82	0.89
3	Covid-19 pandemic has relationship with reduction of manpower in education	116 (32.2)	168 (46.7)	58 (16.1)	18 (5.0)	0	1.94	0.83
4	As a result of Covid-19, students can search for related materials without receiving lectures	5 (1.4)	36 (10.0)	34 (9.4)	160 (44.4)	125 (34.7)	4.01	0.98
5	I was able to improve in E-learning due to Covid-19 pandemic	15 (4.2)	36 (10.0)	18 (5.0)	133 (36.9)	158 (43.9)	4.06	1.12
6	It is more difficult for me to focus during online teaching in comparison to on-site teaching.	14 (3.9)	48 (13.3)	23 (6.4)	160 (44.4)	115 (31.9)	3.87	1.12
7	My performance as a student has improved since on-site classes were cancelled	5 (1.4)	36 (10.0)	34 (9.4)	160 (44.4)	125 (34.7)	3.56	1.14
8	My performance as a student has worsen since on-site classes were cancelled.	58 (16.1)	93 (25.8)	76 (21.1)	100 (27.8)	33 (9.2)	2.88	1.24

9	I have adapted well to the new teaching and learning experience brought by Covid-19	18 (5.7)	57 (15.8)	61 (16.9)	132 (36.7)	92 (25.6)	3.62	1.17
10	I can figure out how to do the most difficult work since on-site classes were cancelled.	14 (3.9)	55 (15.3)	50 (13.9)	145 (40.3)	96 (26.7)	3.71	1.13
11	Covid-19 enables schools to embrace e-learning	8 (2.2)	28 (7.8)	44 (12.2)	139 (38.6)	141 (39.2)	4.05	1.01
12	I get disturbed with online class because of the Internet problems	121 (33.6)	145 (40.3)	51 (14.2)	31 (8.6)	12 (3.3)	2.08	1.06
13	I have full knowledge regarding media used for online education during Covid-19 pandemic	10 (2.8)	49 (13.6)	51 (40.2)	156 (43.3)	94 (26.1)	3.76	1.07
14	I enjoy taking class from home than from school	32 (8.9)	77 (21.4)	61 (16.9)	109 (30.3)	81 (22.5)	3.36	1.28
15	I am satisfied with measures for pandemic prevention and control	29 (8.1)	56 (15.6)	66 (18.3)	115 (31.9)	94 (26.1)	3.53	1.25

Source: own study.

Table 4 shows the frequency counts, percentages, means and standard deviations of the items. It revealed that the means of the students' responses range from 1.33 to 4.06 while the standard deviations of the students' responses ranged from 0.62 to 1.28

Research Hypothesis 1: There is no significant difference in the learning outcomes of students depending on the type of school.

Before the hypotheses was tested, a descriptive analysis of students' responses to the impact of COVID-19 on students' learning outcomes based on school type was done. This included the total number, mean and standard deviation of the scores. The results are presented in Table 5 below.

Table 5. *Descriptive Statistics of School Type*

SCHOOL TYPE	N	MEAN	SD
Federal	120	46.90	6.02
State	120	47.61	4.69
Private	120	48.21	5.01

Source: own study.

Table 5 shows the descriptive statistics of the students, the impact responses of COVID-19 on students' learning outcomes based on school type. It revealed that equal number of respondents were selected from each of the school types, 120 each, totaling 360 respondents. It further showed that students' responses to the COVID-19 impact on students' learning outcomes from the federal university had a mean and standard deviation of 46.90 and 6.02, respectively; while students' responses from the state university had a mean and standard deviation of 47.61 and 4.69; and students' responses from the private university had a mean and standard deviation of 48.21 and 5.01. Furthermore, the hypothesis was tested using Analysis of Variance (ANOVA) statistic at 5% level of significance. The result is presented in Table 6

Table 6. *ANOVA of School Type*

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	102.939	2	51.469	1.852	0.158
Within Groups	9921.183	357	27.790		
Total	10024.122	359			

Source: own study.

The result of analysis of variance in the table shows an F value of 1.852 and significance level of 0.158. Since the Sig. value is > 0.05, it implies there is no significant difference in the students' learning outcomes depending on the type of school.

Research Hypothesis 2: Gender does not significantly differentiate the respondent students' learning outcomes in Osun, Nigeria, under the COVID-19 pandemic situation.

To test this hypothesis, an independent sample t-test was conducted. The result is presented in Table 7 below.

Table 7. *T-test of Gender*

GENDER	N	MEAN	SD	T	Sig.
MALE	132	48.24	4.95	1.82	0.07
FEMALE	227	47.19	5.44		

Source: own study.

The result of independent t-test shows that 132 were males while 227 were females. It further showed that the males had a mean and standard deviation of 48.24 and 4.95, respectively, while the females had a mean and standard deviation of 47.19 and 5.44. The result revealed that there is no significant difference in the learning outcomes of students based on their gender (t = 1.82; Sig. = 0.07).

Summary of the Findings
1. The findings of the study revealed that COVID-19 pandemic has a negative effect on the students' learning outcomes in Osun, Nigeria.
2. The findings also revealed that there is no significant difference in the learning outcomes of the students, depending on the type of school.
3. Finally, the findings revealed that gender does not significantly differentiate the learning outcomes of the respondent students in Osun, Nigeria, under the COVID-19 pandemic situation.

Discussion of Findings

Research Question

Results on Research Question revealed that due to the outcome of the investigation, COVID-19 pandemic affected academic calendar of schools, specifically the federal universities as they could not resume when state and private universities resumed. As a result of COVID-19 pandemic, some universities could not adjust their academic calendar with others. Though

social media gives access to information, some students still find it difficult to concentrate during online classes. Such students widely known as the youngsters are constantly on social media and they concentrate more on sharing irrelevant information with one another than academic programmes. The learning outcomes of some students have improved since the online classes were cancelled; some students spent the lockdown period in rural areas where there is no network. Stiggings (2011) sees learning outcome as something a learner do or achieve at school, college or university, in class, in a laboratory or field work. Went ling (2015) concludes that learning outcome refers to the achievement of individual's objective into various types of knowledge and skills. The aforementioned items, which were listed in the instrument with which investigation was conducted, were thus used as determinants of learning outcomes.

The findings are in support of Jabe (2020) which revealed that the virus has affected people regardless of nationality, level of education, income or gender. But the same has not been true for its consequences, which have hit the most vulnerable the hardest. Education is no exception. Students from privileged backgrounds, supported by their parents, and eager and able to learn, could find their way past closed school doors to alternative learning opportunities. According to Ogunode (2020), coronavirus pandemic has exposed the socio-economic inequalities of the Nigeria education system as a result of the increase in the mismanagement of the resources allocated to the education system. Lin (2020) found out that children experienced little disruption in their learning, because the authorities of schools do not ensure their schools are well equipped with ICT infrastructures and they can't afford remote learning. Sintema (2020) discovered that learners from vulnerable and disadvantaged communities without access to computers and other devices outside school will however be left struggling. Ogunsaju (2014) states that the academic standard in all Nigerian educational institutions has fallen considerably below societal expectations as a result of COVID-19. However, this result is in contrast with Olapegba (2020) who found out that COVID-19 has profound the use of virtual learning to replace face to face teaching and this improved students' learning outcomes. Ojoawo (2019) states that it is difficult to measure the specific impact of school closures, because it varies from place to place, person to person; the impact may be positive or effective on individuals as the case may be.

Hypotheses One

The result also revealed that there is no significant difference in the learning outcomes of students, depending on the type of school. The finding is in the support of Ekemade (2020), that there is no significant difference in the students' learning outcomes irrespective of the school (public or private) during pandemic. Oyinloye and Imenda (2019) discovered that the universities in Nigeria took this advantage to further develop their ICT section to create platforms in reaching out to their students, even while in their respective homes with their parents' guidance. However, this result is in contrast with Ogunsaju (2014) who found out that there is significant difference in the students' learning outcomes as some private universities immediately swift to action at the beginning of the lockdown, the university's ICT unit developed a software to reach out to their students in their various homes, they teach and even conducted examinations as at when due. Akinlabi (2020) found out that there is significant difference in the students' learning outcomes between private and public university, as private universities have enough ICT facilities and softwares that are able to view learners in the comfort of their homes, to detect the students face, and ensure nobody is helping them write their exams. Ojoawo (2019) found out that children in private schools experienced little disruption in their learning, because the authorities of most standardized private schools do ensure their schools are well equipped with ICT infrastructures and they can afford remote learning.

Hypotheses Two

The result also revealed that gender does not significantly differentiate the learning outcomes of the respondent students in Osun, Nigeria, under the COVID-19 pandemic situation (F = 1.852, sig 0.158). The finding is in the support of Akinlabi (2020) who hypothesized that there is no significant difference between the performance of male and female university students during COVID-19. Chukwuorji and Iorfa (2020) found out that both male and female benefits from online/virtual learning during Covid-19. Euba (2020) found out that, as a result of COVID-19, students were able to stay connected and unable to study hard irrespectively of gender. However, this result is in contrast with Jabe (2020) that there is significant difference in the learning outcomes between male and female students. Lin (2020) found out that female students make use of virtual learning to study while male students used it in other way.

Conclusions

Today in all learning institutions, secondary schools, universities managements, student environments, religious gathering, market women, medical personnel, government etc., if COVID-19 pandemic will not make academic condition get worse, with prayers we all should comply and support the measures for pandemic prevention and control.

From this study, it was concluded that the catastrophe posed by the coronavirus on the education in Nigeria has revealed to us the benefits of online/virtual teaching. A large number of children whose education was completely disrupted for months due to COVID-19 pandemic is a great disaster to the national growth. The consequences could be felt in economies and societies in the years to come. In Nigeria, nearly all school-children were affected by the lockdown. In a time like this, there is no other option than to adapt to the dynamic situation and accept the change as disasters will continue to occur and technologies will likely help us in managing them. One good effect of COVID-19 pandemic is that it has forced some schools, which were earlier reluctant to change, to accept modern technology. At this present age, the importance of online education cannot be overemphasized. Coronavirus disaster could be beneficial to the education sector and could bring a lot of surprising outcomes if well utilized.

With the help of online teaching, a large number of students can be taught by a single teacher at the same time. However, accessibility, affordability, flexibility, learning pedagogy, life-long learning, and unstable educational policies are some of the challenges that affect online pedagogy. It is line with these that the researcher provides some creative solutions to the problems facing virtual method of teaching in Nigeria since it can be concluded that online teaching is the panacea to the educational disruption in the time of pandemic and crisis. In countries such as Nigeria, education should be viewed as a high government priority by increasing the awareness of pressing need to educate the country's children, especially those from low-income families, as this will benefit the country's economy in the years to come. Aids provided in this direction can be viewed as an investment in human capital; the more educated a country is, the more productive it is.

Recommendations

Basing on the findings of the study, it was recommended that:

1. Government should see the need to build good schools and equip them with modern digital facilities that can aid online education by providing digital devices as well as consistent Internet connections and facilities.

2. Government should ensure inclusion of online teaching such as integrated digital learning platforms, video lessons, broadcasting through radio and TV etc. to supplement the normal classroom teaching even when there is no pandemics or disaster.

3. Educators as well as students must be trained on how to handle and use online educational devices. Educators must spend quality time to prepare and make their lessons creative, interactive, relevant, student-centred and group-based.

4. Parents should pay personal attention to monitor and supervise their children until they adapt to online teaching environment.

5. Government aid is needed in terms of investing in educational tools of the future alongside a total revamp of the educational sector as reforms in the post-pandemic national curriculum would be an effective way to bridge the gap in inequality.

Abstract: The study investigated the impact of COVID-19 pandemic in the process of education of students from Osun Universities in Nigeria. The study is a descriptive one; a sample of 360 students from the universities in Osun State formed the participants for the study. The instrument for data collection was a questionnaire structured by the researcher for data collection and its reliability level was 0.83. Data collected were analysed, using descriptive statistics, specifically mean, standard deviation, frequency counts and Person Product Moment Correction (PPMC). The findings of the study revealed that COVID-19 pandemic has negative effect on students' learning outcomes from Osun State in Nigeria. The study revealed that there is no significant difference in the learning outcomes of students, depending on the type of school. Finally, the findings revealed that gender does not significantly differentiate the learning outcomes of the respondent students in Osun, Nigeria, under the COVID-19 pandemic situation. The following recommendations were made: government should consider the need to

build good schools and equip them with modern digital facilities; government should ensure inclusion of online teaching such as integrated digital learning platforms, video lessons, broadcasting through radio and TV etc. to supplement the normal classroom teaching; educators as well as students must be trained on how to handle and use online educational devices; educators must spend quality time to prepare and make their lessons creative, interactive, relevant, student-centred and group-based; parents should pay personal attention to monitor and supervise their children until they adapt to online teaching environment; and government aid is needed in terms of investing in educational tools of the future alongside a total revamp of the educational sector as well as reforms in the national curriculum post-pandemic.

Keywords: COVID-19, pandemic, learning outcomes, universities, school type

Streszczenie: W artykule przedstawiono wyniki badania dotyczącego wpływu pandemii COVID-19 na osiągnięcia w nauce studentów uniwersytetów w Osun w Nigerii. Badanie miało charakter opisowy. Wzięło w nim udział 360 studentów z uniwersytetów w stanie Osun. Narzędzie do zbierania danych stanowił opracowany przez badacza kwestionariusz, którego poziom rzetelności wyniósł 0,83. Zebrane dane zostały przeanalizowane przy użyciu statystyk opisowych, w szczególności średniej, odchylenia standardowego, liczby częstości i korekcji momentu produktu osoby (PPMC). Wyniki dowiodły, że pandemia COVID-19 ma negatywny wpływ na to, jakie rezultaty osiągają studenci w stanie Osun w Nigerii. Wykazały również brak znaczącej różnicy w wynikach uzyskiwanych przez studentów w zależności od typu szkoły, jak również płci. Przedstawiono następujące rekomendacje: rząd powinien dostrzegać potrzebę budowania dobrych szkół i wyposażania ich w nowoczesne urządzenia cyfrowe oraz zapewnić włączenie nauczania online, takiego jak zintegrowane cyfrowe platformy edukacyjne, lekcje wideo, nadawanie przez radio i telewizję itp. w celu uzupełnienia nauczania w klasie; nauczyciele i uczniowie muszą być przeszkoleni w zakresie obsługi i korzystania z urządzeń edukacyjnych online; nauczyciele są obowiązani poświęcić czas na przygotowanie i sprawić, aby ich lekcje były kreatywne, interaktywne, zorientowane na ucznia i oparte na grupie; do obowiązków rodziców należy poświęcanie uwagi monitorowaniu i nadzorowaniu dzieci, dopóki nie przystosują się do środowiska nauczania online, a pomoc rządu jest potrzebna w zakresie inwestowania w narzędzia edukacyjne przyszłości wraz z całkowitą przebudową sektora edukacyjnego w postaci reform krajowego programu nauczania po pandemii.

Słowa kluczowe: pandemia, efekty uczenia się, uczelnie, typ szkoły

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