



3. A Statistical Study on Impact of COVID -19 Pandemic on Quality of Education in Nigeria

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ABSTRACT

In this article, a short statistical study on impact of COVID-19 on quality of education in Nigeria has been confined. We suggest that our leaders and mentors must constantly think ahead to prepare for what to come and turn challenges into opportunities.

Currently we are in post pandemic operating in different business climate than two years ago, whilst we are in pandemic era, we absolutely leverage on digital cloud platform followed by closure of primary, secondary, and tertiary educational institution, as an alternative strategy to continue students learning, it is noteworthy to state that during the pandemic era migration to remote education in Nigeria especially of pupil's - teachers, Students-Lecturers primary-secondary education, Student-lecturers in tertiary education had to transmit under virtual mode with attendant's problem of connectivity, broadband issue and decaying ICT infrastructure, when available but mostly non-available, while 73% of urban possess television and / 4G android phone and interconnectivity, while less than 38% was recorded in Rural household in Nigeria..

KEYWORDS

Statistical Analysis, Covid -19 Pandemic Period, Quality of Education, Data Collection, Exclusion Criteria.

1. Introduction:

Covid-19 pandemic has revolutionized digital and online education globally across both Urban and Rural-areas –the under-served. According to 2019 executive summary on poverty and inequality by NBS-National bureau of Statistics 40.1% of the population in Nigeria are classified poor four in 10 has per capital expenditure below \$400 Most families earn below \$1 per day and are faced with harsh economic realities especially during lock-down, hence most cannot afford TV hence the shift to Portable Solar radio UNICEF report maintained that 10.5 million of our children (5-14) years are not in School, 61% of (6-11) years regularly attend primary school whilst in North east and North-West part in Nigeria girl-child are not enroll in School, we have been struggling prior to Covid 19 to educate our Children in School as Nigeria contribute 20 % global total out of school

1.1 Covid -19 Pandemic Period in Nigeria:

The times of Covid-19 has unmasked substantial inequality in Education sector necessitating tireless work of salvaging this imbalance by government, nongovernmental and private sectors as we have severely diminishing youth who cannot garnered necessary skill to stay ahead in the future, necessitating aids from all the aforementioned sectors in terms of investment in qualitative education tools for conventional purely academics, and vocational and technical schools of the future alongside revamping entire educational sectors through qualitative reforms in National curriculum in post pandemic an effective way of bridging gap of inequality e.g. According to Naira metric recent by CHIKE OLISAH November 26 2020- CACOVID- Coalition against Covid-19 plan N150 billion youth investment development programme to create 4 million jobs- this is to help the Federal government drive to reduce unemployment, at select training cent re across the country under this programme students will be trained on craft work, plumbing, masonry and other artisanal related skills which is in high demand in Nigeria, these programme will be certified by the appropriate standard board and will be eligible to receive loans to support their entrepreneurial pursuits N25 Billion already domiciled in fund, also CACOVID in collaborating with Bankers committee shall also be investing over N40 Billion to complete National theatre to complete the creative cent re, Lagos in four select areas namely ICT and software design/ development, fashion, music and movies for out of school graduates.

2. Quality of Education During Covid -19 In Negeria:

As on April 21st 2020 approximate 1.723 billion leaners have been affected with sudden closure of schools in response to the pandemic as at this time according to UNESCO monitoring 191 countries implemented nationwide closure, 5 local closures followed concurrently by other countries impacting 98.4% of World student population. Several universities in Nigeria did not prepare for any contingency that may affect education such as COVID19 pandemic lockdown; however, the management teams of some institutions were able to provide guidance and support to ensure that learning activities continued and students were assessed online. This was mostly possible because school closure occurred in an era when technological innovations and digitalization in educational context are readily available. In this study, we explored the educational challenges caused by COVID-19 in Nigeria.

The authors got feedbacks from both students and teachers on their experiences, issues and successes following online teaching. The study was therefore aimed at providing basis for developing contingency strategies as well as suggesting methods that may be useful in improving online teaching in Nigerian universities.

2.1 Methods:

A cross-sectional study was carried out to explore the impact of COVID-19 lockdown on education in Nigeria. Student- and teacher-targeted questionnaires were developed using Google Forms. The questionnaires were designed to measure satisfaction using five-point Likert scale questions, in five different categories: virtual classrooms (VC), course learning outcomes (CLO), alternative method of assessment (AMA), impact of online teaching (IOT) and satisfaction (SAT).

The questionnaires were outlined to recognize challenges and hurdles faced by students and teachers engaging in virtual learning. Before usage, the questionnaires were given to student and teacher volunteers and thereafter revised and amended based on their comments.

2.2 Data Collection:

A shortened version of the URL to access the questionnaires developed with Google Forms was distributed to various institutions in Nigeria. The survey links were distributed to students and teachers through the University's email and various social media platforms in the different institutions. The teacher-targeted questionnaire was distributed to faculty members irrespective of their departments, while student-targeted questionnaire was distributed amongst students in various departments and program year.

Consenting volunteer faculty members provided awarded marks when assessments were conducted virtually (online) during COVID-19 2020 lockdown and the traditional face-to-face (offline) assessment conducted in the previous session (2019) in four courses selected randomly. The names of the students as well as matriculation numbers were deleted to shield their identity.

2.3 Exclusion Criteria:

All students taught and assessed virtually during the COVID-19 pandemic lockdown were included in this study. Students who were not taught and assessed online were excluded from this study. Also, teachers who did not participate in virtual teaching and assessment of students were excluded. An opening question of if students were taught and assessed virtually as well as if teachers were involved in online teaching/assessment was used to filter out students and teachers not fit to participate in this study.

2.4 Statistical Analysis:

Results from the five-point Likert scale questions in both the student- and teacher-targeted questionnaires were presented in diverging stacked bar charts. Awarded marks and satisfaction grouped by program and program year were presented using box plot.

Satisfaction was also demonstrated and compared on a five-point scoring system with 1 being the lowest part (very poor) and 5 the highest part (excellent) of the scale. Correlation analysis between students' satisfaction and variables of Likert scale was done using nonparametric Spearman's rank coefficient. Unpaired two-tailed unequal variance t-test was used to determine significant difference between marks awarded during virtual learning (2020) and traditional face-to-face teaching (2019). Data analysis was done using Tableau v3 and Statistical Package for the Social Sciences (SPSS) for windows, version 23.0 (SPSS Inc., Chicago, IL, USA).

2.1 Results Demographic Details:

Table 1: Demographic characteristics of participants in the student- and teacher-targeted questionnaires (n = 703)

Variable	No. of respondents (%)	
	Students	Academics
<i>Institution name</i>	281 (40%)	14 (23%)
Bayelsa Medical University (Public medical university)		
Edwin Clark University (Private university)	56 (8%)	8 (13%)
Edo University, Iyamho (Public university)	178 (25%)	8 (13%)
Michael and Cecilia Ibru University (Private university)	156 (22%)	25 (42%)
PAMO University of Medical Sciences (Private medical university)	32 (5%)	5 (8%)
<i>Gender</i>	307 (44%)	36 (60%)
Male		
Female	396 (56%)	24 (40%)
<i>Program category</i>	501 (71%)	49 (82%)
Sciences		
Non-sciences	202 (29%)	11 (18%)
<i>Program year</i>	202 (29%)	–
First year		
Second year	165 (23%)	–

Variable	No. of respondents (%)	
	Students	Academics
Third year	178 (25%)	–
Fourth year	158 (22%)	–
<i>Highest academic qualification</i>	692 (98%)	–
O’Level		
B.Sc	11 (2%)	–
M.Sc	–	13 (19%)
Ph.D	–	47 (81%)
<i>Job title</i>	–	10 (17%)
Assistant Lecturer		
Lecturer II	–	5 (8%)
Lecturer I	–	7 (12%)
Senior Lecturer	–	21 (35%)
Associate Professor	–	10 (17%)
Professor	–	7 (12%)

A fair number of students claim they did not gain all knowledge and skills expected in some courses taught virtually. One possible reason for this claim may be due to distractions as well as limited student–student and student–teacher interactions. While students agree that the number of assignments was too many and instructions were unclear, teachers favored more assignments and oral examinations. Result from our study showed that these perceived large number of assignments and unclear instructions negatively influenced student’s satisfaction significantly ($p < 0.05$). Although many distance learning tools provide platform for online examinations, teachers tend to have negative perception as students are not invigilated and malpractice becomes inevitable. Indeed, our survey showed that many teachers believe that there is an increase in tendency for examination malpractice when assessment was conducted virtually.

Students were not in favor of oral examination, and some of the reasons maybe they usually involve wide scope. Our findings also showed that teachers agree it was difficult assessing student’s abilities and performance with distance learning tools and that grades were not an accurate reflection of student’s knowledge. Aside the possibility of cheating during virtual examination, one other possible reason for the teacher’s opinions may be most of the assessments were multiple-choice questions which are quite easy to answer. Alternative methods of assessments involving assignments, essays, reports, quizzes, oral assessments, etc. are highly encouraged. Also, problem-based learning (PBL) as part of student-centered teaching strategies is also a suitable method and it is highly encouraged in distance learning. Some benefits of problem-based learning are that it promotes exchange of ideas among students and encourages independence, unlike traditional face-to-face teaching where students tend to memorize lecture materials.

Many teachers believe that these alternative methods of assessment enhanced student's skills and that it should be used more often in traditional face-to-face teaching, especially in courses that are assessed using multiple-choice questions. These alternative methods of assessment can easily be aligned with course learning outcome as it focuses on student's performance and quality of work done.

E-learning chosen alternative to be used in reaching out to students in lock down did not successfully work because of lack of infrastructures and unemployment of ICT in Public schools, we only recording negligible impact in our private school, because only children of the riches which amount to approximate average 15% across board have opportunity as their parent can afford the pay humongous amount to fuel their education. Our survey revealed that teachers believe that students have gained higher marks during online assessment when compared with traditional face-to-face teaching.

Indeed, teacher's response was in agreement with our findings which revealed that students had statistically significant ($p < 0.05$) higher marks during online assessment (COVID-19 lockdown) when compared with the previous session (traditional face-to-face teaching).

It has been observed higher marks in all courses during COVID-19 lockdown when compared with previous sessions that were not taught virtually. The fact that during COVID19 lockdown, a fair number of assessments were multiple-choice questions and students can sometimes find answers to questions online may be a possible explanation for the higher marks gained by students. One of the ways to manage these discrepancies in scores is to utilize more of problem-based learning which would encourage critical thinking and make it less easy to find answers online. Some students fear that virtual learning may decrease their practical skills, hence affecting their chances of employment.

It is actually expected that science students doing practical-based courses would fear loss of practical skills since they were mostly taught alternative to practical skills virtually. It is therefore encouraged that practical classes be organized post-lockdown for these set of students. Student's chances of employment would not be affected by online lectures as distance learning using virtual learning tools has been embraced worldwide. We observed that students in their fourth year were less satisfied with the way the institution managed educational processes during the lockdown when compared with students in first to third year.

One reason for this observation may be the higher level tends to be more difficult and sometimes involves more practical sessions. Generally, some of the findings from this study were in agreement with the study conducted in Saudi Arabia on pharmaceutical education during the COVID-19 lockdown. Statistical analysis revealed that poor network connection influenced student's satisfaction negatively during virtual learning. Therefore, there is need for the government and telecommunication industries to improve on network coverage and broadband services. The last pandemic that affected the world occurred in 1918. However, there are some events aside pandemics and diseases such as war and crisis that can result in shutting down of schools and other places of learning. One example is the Nigerian civil war (1967–1970) which had a huge impact on educational institutions. Hence, there is need for educational institutions to develop contingency strategies and methods that may be useful for emergency teaching and remote learning. These strategies may include.

3. Advice and Recommendation:

Government at the three-tier Level-Federal-State-Local government, need to revamp our educational sectors, most especially the public schools by provide right infrastructure and employment of ICT-experts who will be charged with the responsibility of redesigning teaching, learning through social **media platform such as**

- a. Google for schools to create, distribute and grade assignments in a paperless with purpose of streamlining the process of sharing files between teachers/lecturer and students.
- b. What's app chat message is also a free ware platform message and voice over IP services owned by face-book to allow text message, voice message, to make voice all, video calls and share message documents, just like other Zoom and Blogs
- c. Covid -19 pandemic has affected greatly higher education, secondary and primary alike in Nigeria , the closure of these schools necessitated all tiers of educational institutions to switch to remote mode as alternative strategy to continue student learning, but these exclude privately owned educational institutions with readymade infrastructures well enabled through repurposing fit enough to mitigate against foreseeable challenges of Covid 19, it is noteworthy to state that migrating to remote mode involved all stakeholders undergoing training on Virtual mode with attendant problem of connectivity, broadband issues and decayed ICT infrastructure across public institutions, most of these stakeholders were faced with challenges of online teaching with minimal communication to support learning development.

Most Universities involved on-line teaching provided students with learning materials and pre-recorded lecture video, Remote teaching was done through online management systems through online system such as Canvas, Zoom, Edmodo, Google class room and Microsoft system. Course material and pre-recorded were send to student's e-mail, uploaded to learning software, what's app platform online-teaching in Nigeria were asynchronous and synchronous which involve student communicating and completing activities at their pace and transmitting live video and audio with feedback (Hrastinsk-2008). Management of all these tiers of education ensured that the quality of teaching was done via virtual choice.

4. Outcomes of Research:

We conclude some of following outcomes of our present study:

- a. Out of 703 students and 60 teachers from five different local Universities in Nigeria revealed that all participants had less 50% difficulties with internet connection.
- b. Students-67%, teachers 59% had limited interactions with one another negatively affecting students' satisfaction.
- c. Students 67%- were split on most appropriate method of assessment
- d. Teachers-63%- had difficulty to assess students' abilities and performance- their assignment and oral examination
- e. Student 40% were concerned about no assignment given
- f. Teachers 84% belief there are increase tendency for examination malpractice, as the teachers 83% had difficulty in explaining complex issues

5. Future of Education in Nigeria:

In midst of today's landscape, we need to ask ourselves an important question.

How Does Degrees/Professional Qualification Impact Work Life in Nigeria?

This question Xray the need for foundational shift on how academic and industry should collaborate effectively to influence the future of our education as the effort from government at level 1 to create an enabling environment through qualitative and quantitative reforms over many decades remain insignificant and inconsequential with little on no impact our quality of education at all levels here in Nigeria. Education of the future is about the future skilling to keep pace in rapid advance in technology and emerging opportunities across the industries.

Keeping Pace with Constant Changes: Today's workforce & learners need to focus on life time learning, reskilling, finding ways to adopt to changing professional flow of knowledge.

Focus On Disruptive Era:

The need to keep pace with constant changes in learning has become increasingly acute in time of Covid-19 disruptive era as the pandemic has fundamentally disrupted how all the sectors-most especially Educational sectors operate, The importance of digital platform, loud collaboration and automated system as well as ability for people to be engaged effectively are now critical to operation success, hence the reliance on digital platform in the entire digital landscape across all sectors within a Country economy. **Flexibility** is the way of the future learning as a fundamental obligation for everyone but our present educational system is not properly equipped to tackle this challenge, there is need for Educationist and government as policy maker to intervene at all levels-tertiary-secondary-primary levels by making education more flexible based in specific skillsets as against the usual 4 years' programs in sciences, and liberal art curricula often **called badging or micro credentialing**

Our quest for flexibility will allow the following these includes-

- Students and workers to pick up the design manufacturing skills such as 3D printing, human centered designs/CNC programming needed as technology evolve.
- It also allows stackable and personalized approach for acquiring skills, one step further like scout accomplishing different task helping leaners any level to prepare for specific assignment much more quickly than traditional classroom training.

6. Impact Assessment:

Generative learning systems and intelligent learning can also be used to steer students towards the skill and classes for them to evolve and succeed, hence the need for radical change in our education reforms necessitating constant change in curriculum making it a part of life learning. This nascent type of learning modalities with flexibility and flexible

credentialing system will allow students, schools, Universities, College of technology, Colleges of Education and other intermediaries to have some form of alignment a define criteria from moving for one level to another. This initiative will allow employer to match qualified candidate with right job without this, many students in these schools will forever be waiting for present curricula to catch with what is happening in the real World right now.

7. Opportunities:

- a. **Autodesk Certification-** just recently launched a new single destination learning platform offering industry-align credentials that emerging and seasoned professional can earn to keep pace and knowing what next to learn.
- b. **Tool Validation-** this provide the need for the validation of tools required in today's job roles that is highly significant hence possessing techy credential will go a long-way to help professional advance in specific application of technologies used in their works such as command map for future skilling.

There is need for immediate skill training of our Nation community colleges and vocational school as well as work force training Centre. Our present government in Nigeria need to specially as a matter of urgency intervene with significant investment through grants, CACOVID support fund in our underutilized sector of education system deemphasizing and spreading the important message that four-year degree is not only part to succeed.

8. Conclusive Remarks:

- a. Based on data from UNESCO shows that the peak closure of the school was at the beginning of April 2020, when about 1.6b students were affected across the globe across 194 Countries.
- b. Federal Ministry of Education in Nigeria directed closure of school as appropriate, same were opened October 2020 through consenting volunteers.
- c. Community colleges need to provide strong vocation education as starting point to teach next generation technology, our changing economy underscore this importance in the view of high rate of our youth unemployment, our youth is over 65% of our population of 180million, approximately, who are jobless roaming around the street, some involve in criminal activities for survival.
- d. Our schools need to become recognize of what they ought to become in NIGERIA being a special purpose vehicle for the alignment of both academic and industry requirement, this will give opportunity for students at all level to be matched with skill and competence for the right job as this will make Nigeria true Cent re for life time learning.

9. References:

1. Akther J., Influence of UNESCO in development of lifelong learning, 2020.
2. Anake U.M., Alonge Achuen-E. S. & Egbe T Coronavirus.
3. **Maurya V.N., Aremu Bashiru and Odugbemi Kenny**, Contribution to Impact of COVID-19 and Sustainable Approach in Africa, International Interdisciplinary Conference on Covid and its impact on Human Rights- IICCHR – 2022, Sponsored by Gujarat State Human Rights Commission, Government of Gujarat, India.
4. UNESCO 2a&2b March 13, May 27 Covid educational disruption and response.