THE IMPACT OF COVID-19 SCHOOL CLOSURE ON THE EFFECTIVE TEACHING AND LEARNING OF COMPUTER STUDIES IN SECONDARY SCHOOLS IN ANAMBRA STATE.

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Abstract

This study investigated the impact of Covid-19 School closure on the effective teaching and learning of Computer studies in secondary schools in Anambra State. The survey design was adopted. The population for this study comprises of 79 computer studies teachers and 2670 SS2 students in secondary schools in Awka education zone of Anambra state. sample consisted of 50 computer studies teachers and 100 students randomly drawn from 10 secondary schools in Awka Education Zone. The instrument for data collection was a 45 item Impact of Covid-19 School Closure Questionnaire (ICSQ) with a reliability coefficient of 0.81 obtained using Cronbach's Alpha, while mean and standard deviation were used for data analysis. Results show that Covid-19 school closure resulted in poor teaching and learning of computer studies due to poor digital skills, non-availability/accessibility of e-learning platforms and technology devices, difficulty in assessing students' abilities and performances among others. Based on the findings, some recommendations were made, which include, provision of the necessary materials needed for effective e-learning, intensive training of both teachers and students by government on the use of ICT for teaching and learning.

Introduction

Covid-19 (coronavirus disease) is an infectious disease caused by a newly discovered coronavirus. This disease is caused by a new strain of coronavirus. 'CO' stands for corona, 'VI' for virus, and 'D' for disease. Formerly, this disease was referred to as '2019 novel coronavirus' or '2019-nCov' (WHO 2020).I n the months after December 2019 and up to the present, the coronavirus disease, a highly contagious illness, has afflicted the global populace. Presently, the disease had killed over 6.9 million people globally and infected over 766 million people worldwide, while having a death statistics of over 3 thousand in Nigeria, and 266 thousand confirmed cases (WHO, 2023). The symptoms include, sore throat, fever, runny nose, dry cough, sneezing, shortness of breath, and other breathing difficulties and in very serious cases, can lead to pneumonia, multiple organ failures and even death. The incubation period ranges from 1-14 days during which infected persons can be asymptomatic. The human-human transmission routes are droplet inhalation, direct transmission through coughing and sneezing, as well as contact transmission such as feco-oral, nasal and eye mucous membrane contacts, (Ogolodum, Mbaba, Alazigha, Erondu, Egbe, Golden, Ugwuanyi, Achu & Eke, 2020). Presently, treatment of COVID-19 patients is mainly supportive as there is yet no specific antiviral therapy or curative vaccine formulated. COVID-19 has no boundaries and spreads very fast. Therefore, to flatten the epidemiological curve and prevent morbidity and mortality attributable to COVID-19, governments have relied on a variety of containment strategies, including a range of physical and social distancing measures (Barasa et al., 2020; Viner et al., 2020).many tactics have been used by many nations to enforce physical separation, including the complete closure of the economy and educational institutions (Nicola et al., 2020; UNESCO, 2020).

Before the outbreak of the worldwide coronavirus pandemic, the world was at that point managing a learning crises, as confirmed by high quantities of poverty. With the spread of the

corona viruses, the education system is confronted with another crisis, as over 160 nations (as of march 24, 2020) has mandated schools to be closed, affecting at least 1.5 billion pupils and students. Prolonged shutting down of schools may cause not only loss of learning temporarily but also further misfortune in human capital and decreased economic opportunities over the long term. With the closing of schools, countries are exploring options for remote learning and the use of other educational resources to mitigate the loss of learning. This involves capitalizing on work already started and addressing ever-present challenges like degrees of accessibility of learning materials within communities to ensure equity in accessing quality education. The life-threatening nature and rapid transmission of this virus and the resultant closure of schools significantly affected global education systems, especially in African countries. Numerous African academic learning environments and other educational institutions were ordered to close in order to manage the spread of the virus. According to UNESCO (2020), an estimated number 776.7 million students were obstructed worldwide by the closure of schools resulting from the COVID-19 pandemic.

At the moment, not much studies have been carried out on the impact of COVID-19 concerning students' achievement in educational studies particularly in computer studies in senior secondary schools, although there are available data in literature directly related to medical sciences and practices. Regrettably, education will be greatly affected by COVID-19 and therefore, the impact of this disease should be incorporated into educational studies for the government at various levels to make adequate provisions for learners and their teachers across the globe (Sintema, 2020). With medical personnel and researchers who are working tirelessly in the laboratory to come up with a lucrative therapy or a vaccine to combat COVID-19, it is a welcome idea from the government to shutdown schools to protect learners from possible risks of contracting COVID-19 due to the daily increase in the number of confirmed cases across the country.

In Nigeria, Secondary Schools are operated in sessions. Each session comprises of three terms, and each terms has up to 13-14 weeks of active teaching and learning. With the present situation of COVID-19 in Nigeria, secondary schools are under lock and key. Students' effort and preparation towards their examination have been adversely affected by this global pandemic which has forced every one 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 loss of learning hours. Therefore, the impact of this pandemic will be strongly felt by students in terminal and national examination classes and loss of contact hours (Sintema & Phiri, 2018). COVID-19 pandemic affects academic programs thereby leading to major disruptions in academic activities (Aiyedun & Ogunodu, 2020).

The general situation observed is that the closure of schools, colleges, and universities by the federal and state governments was an unguent need of this situation of the time which prevailed in most states in Nigeria. However, UNESCO (2020) reported that school closure carries very high social, educational and economic costs. In Anambra State, for instance, the general shutting down of activities nationwide automatically changed the lifestyle of the populace with a corresponding adverse effect on the various aspect of economic growth, education inclusive. School as one of these sectors of the economy was also affected and in turn affected the academic progress as well. This is because they had to announce for either cancellation or rescheduling of exam dates, and other school activities, so as to curtail the spread of the virus.

Nevertheless, the step could have effect on the social and mental growth of students. Teaching and learning after the re-opening of school activities have been striving to stand and gain its feet. This difficulty could be as a result of the impact of the multiplying effect of COVID-19 school closure. It is imperative to note that quality education is necessary to achieve an overall academic

excellence. Hence the crux of the study is to empirically determine the impact of COVID-19 school closure on effective teaching and learning of computer studies in secondary school in Anambra State.

Research Question

The following research questions guided the study.

1. What is the impact of COVID-19 school closure on the teaching of computer studies in secondary schools in Anambra State?
2. What is the impact of COVID-19 school closure on the learning of computer studies in secondary schools in Anambra State?
3. What are the Government interventions on the COVID-19 Pandemic in Secondary Education in Anambra State?

Method

A survey research design was adopted for this study. This research work was carried out in Awka education zone Anambra state, Nigeria. The total population of the study was 79 computer studies teachers and 2670 computer studies students. Out of the entire teacher population of teachers and students in the zone, (50) teachers and (100) students were sampled because this number is a good representative of the general population. Simple random technique was used to select the sample size. "Impact of COVID- 19 School Closure Questionnaire (ICSQ)". The instrument is divided three sections, A, B, C. Section A contains items on the impact of COVID- 19 school closure on the teaching of computer studies, section B contains items on the impact of COVID- 19 school closure on the learning of computer studies, while section C contains items on actions and decisions taken by the Government for the intervention on the COVID- 19 pandemic in secondary education. The questionnaire is structured on a 4 point Likert format rating scale of Strongly Agree (4points), Agree (3points) Disagree (2points), Strongly Disagree (1point). The validity of the instrument was carried out by three experts. Two experts from the Department of Science Education (Computer Science option), and the third validate from the Department of Measurement and Evaluation all from Nnamdi Azikiwe University, Awka. The reliability of the instrument and internal consistency of the questionnaire items was established using Cronbach Alpha coefficient. The data collected yielded Cronbach Alpha reliability coefficients of 0.78, 0.85, and 0.78 for sections A, B and C respectively, with an overall reliability coefficient of 0.81, indicating a high reliability of the questionnaire items.Copies of the data collection instrument were administered personally by the researcher with the help of two research assistants who were briefed on the purpose of research and how to ensure total retrieval of the instrument. Arithmetic mean was used in answering the research questions, while standard deviation was used to determine the closeness or otherwise of the respondents' rating from the mean. Decision for the items and research questions was based on the item mean and cluster mean retrieved to the cut off mean of 2.50. Any item or cluster that has a mean score equal to or above 2.50 is agreed while any item with mean score that is less than 2.50 is disagreed.

Result

Research Question 1: What is the impact of COVID-19 school closure on the teaching of computer studies in secondary schools in Anambra State?

Table 1: Mean scores on the impact of COVID-19 school closure on the teaching of computer studies in secondary schools in Anambra State.

S/N	Item	N	Mean	Remark
1	Within the period of covid 19, online lessons on computer studies were on going in all school in Anambra	50	1.74	Disagree
2	Students were actively engaged in computer studies practical activities	50	1.90	Disagree
3	During the online lesson on computer studies, effective classroom management was maintained	50	1.82	Disagree
4	The online class work for students was more effective than the traditional classroom work	50	1.98	Disagree
5	The number of students was more effective than the traditional classroom lesson	50	1.86	Disagree
6	There is high level of comprehension in the online classroom lesson by the students than the traditional classroom	50	1.52	Disagree
7	The pandemic paved was for communication between computer teachers and the students	50	1.74	Disagree
8	When the scheduled time for the lesson begins, the teacher has to wait for all the students to join.	50	1.90	Disagree
9	The teacher losses quite a lot of time because of students interrupting the lesson	50	1.94	Disagree
10	It is harder to administer examination in an online lesson	50	2.92	Agree
11	Online learning enable content self learning more than classic face to face learning	50	2.64	Agree
12	The technical skills of an online learning of computer studied improve the technical efficiency of the teacher	50	2.70	Agree
13	One of the benefits of teaching on online is flexibility	50	3.30	Agree
14	In the classroom environment, face to face contact with students is favored over an online classroom setting	50	3.24	Agree
15	Online learning attracts learners because they gain high experience than the normal classroom learning of computer skills.	50	1.90	Disagree
	GRAND MEAN		**2.21**	

In table 1 above, 10 items (1, 2, 3, 4, 5, 6, 7, 8, 9, & 15) appear below the average mean of 2.5 indicating “disagreed” while 5 items, (10, 11, 12, 13 & 14) appear above the average mean of 2.5 indicating “agreed”. Findings point out that difficulty to administer examination online, promoting self-learning, improvement of technical efficiency of teachers, flexibility in online teaching and preference for face-to-face teaching over online classroom setting are impacts of COVID-19 school closure on teaching of computer studies.

Research Question 2: What is the impact of COVID-19 school closure on the learning of computer studies in secondary schools in Anambra State?

Table 2: Mean scores on the impact of COVID-19 school closure on the learning of computer studies in secondary schools in Anambra State.

S/N	Item	N	Mean	Remark
1	Digital equipment (phone/tablet, laptop/computer) were made available for the online lesson	100	1.81	Disagree
2	There is effective interaction and communication with teachers within the pandemic in the area of computer studies practical application	100	2.29	Disagree
3	The students provided personalized or group learning feedback to the teacher effectively during the pandemic	100	1.76	Disagree
4	The quality of online learning content (e.g., courses, multimedia content. Audio, audio-video etc.) is impressive.	100	1.87	Disagree
5	There is motivation to learn online within the pandemic	100	1.78	Disagree
6	Online assessment/examination is better than classroom	100	1.57	Disagree
7	There is social isolation in online learning of computer studies	100	2.76	Agree
8	Online learning reduces interaction with teachers and friends	100	2.55	Agree
9	The online recorded lessons are useful for studies	100	3.15	Agree
10	The quality of online teaching of computer studies is satisfactory.	100	1.99	Disagree
11	Online lessons pave way for students to learn actively on their own pace	100	2.23	Disagree
12	There is a great access to online materials than the traditional classroom materials	100	2.31	Disagree
13	Online learning is fun and enjoyable	100	2.21	Disagree
14	Students actively participated in the online learning than the conventional classroom learning.	100	2.35	Disagree
15	There is effective learning method in online learning than the conventional classroom learning.	100	1.81	Disagree
	GRAND MEAN		**2.16**	

In table 2 above, respondents disagreed with 12 items (1, 2, 3, 4, 5, 6, 10, 11, 12, 13, 14,15) as they fall below the 2.5(average mean) margin. Items (7, 8, & 9) are accepted as the impact of COVID-19 school closure in the learning of Computer studies.

Research Question 3: What are the actions and decisions taken by the Government for the intervention on the COVID-19 Pandemic in Secondary Education in Anambra State?

Table 3: Mean scores on the actions and decisions taken by the Government for the intervention on the COVID-19 Pandemic in Secondary Education in Anambra State.

S/N	Item	N	Mean	Remark
1	There are equipment and resources for improving teaching and learning in schools	50	1.88	Disagree
2	The government provided wash facilities including soap, hand sanitizers and girls' dignity kits in school.	50	2.68	Agree
3	Government established and adequately equipped dispensaries and clinic as appropriate	50	1.70	Disagree
4	There are adequate classroom and learning spaces to maintain safe distancing in schools	50	1.76	Disagree
5	Provided better ventilated classroom	50	1.70	Disagree
6	Government provided better solar power and alternative energy sources for electricity and boreholes for water	50	1.62	Disagree
7	Government trained teachers, administrators and other education personnel o safety and hygiene measures	50	2.74	Agree
8	Government fumigated schools before school reopening within the COVID-19 pandemic	50	3.00	Agree
9	Government provided strategic places for running water facilities for washing of hands	50	1.76	Disagree
10	Government provided the sensitization banners, posters etc. on COVID -19	50	3.10	Agree
11	Government provided learners with printed materials, online learning, radio or TV programmes	50	1.82	Disagree
12	Government conducted online training for teachers to prepare teachers to teach in a way that safeguard the health, safety, and security of the learners.	50	1.92	Disagree
13	Government ensured a School COVID-19 referral system, including protocols and procedures to take if learners, teachers, administrators and other education personnel become unwell while in school.	50	1.70	Disagree
14	Government developed detailed protocols and provide facilities and measures for the maintenance of two-meter safe distancing.	50	2.06	Disagree
15	Government recruited additional teachers and education personnel to guarantee prescribed safe distancing teacher-learner ratio	50	1.72	Disagree
	GRAND MEAN		**2.08**	

In table 3 above, respondents disagreed with items (1, 3, 4, 5, 6, 9, 11, 12, 13, 14, 15) as they fall below the average mean rating of 2.5. Items (2, 7, 8, & 10) are accepted as the actions and decisions taken by the Government for the intervention on the COVID-19 Pandemic in Secondary Education in Anambra State.

Discussion

From table one, findings point out that difficulty to administer examination online, promoting self-learning, improvement of technical efficiency of teachers, flexibility in online teaching and preference for face-to-face teaching over online classroom setting are impacts of COVID-19 school closure on teaching of computer studies. One of the challenges of online teaching as noted by both students and teachers was the limited interactions they had with one another, and this limited interaction negatively affected student satisfaction significantly. Hunter et al. (2003) have previously proposed that for effective distance learning, student–student as well as student–teacher interaction is fundamental.

Following the findings in table two, it was also observed that factors such as social isolation in learning, reduced interaction with teachers and friends, ineffective communication with teachers, lack of motivation, preference for classroom examination/assessment over online and ineffective learning for students are impacts of COVID-19 school closure on learning of computer studies. This is in line with Aiyedun and Ogunodu (2020), who proposed that the COVID-19 pandemic affects academic programs thereby leading to major disruptions in academic activities. The lack of a well developed e-learning platform in the secondary school educational sector is a driving factor of these negative impacts of school closure on effective learning of computer studies. To promote learning, adequate learning materials should be provided to help foster an overall academic excellence.

Findings in table 3 show the decisions taking by government for the intervention of COVID-19 pandemic in secondary schools. These interventions include; the provisions of facilities, training of teachers and administrators on safe hygiene measures, fumigation of schools before reopening, and provision of sensitization banners. However, findings of the study indicate that there is need to provide adequate classrooms with learning spaces to maintain safe distancing, access to clean water supply, access to solar power or alternative energy source and provision of learning materials to support e-learning, thus indicating a poor implementation of the intervention measures.

The results of the current study have repercussions for educational policy, practice, and development with reference to the use of e-learning or digital learning. First of all, as the schools progressively reopen, it is important to reconsider education in terms of what, where, how, and when students should learn. Information and communication technology is also slowly but surely transforming all levels of education. Therefore, blended learning, computer-assisted learning, and other IT-enhanced learning methodologies should be taught to students in primary and secondary schools. As a result, there is a growing need to revalidate and modify teaching and learning strategies for all students.In the future, this will assist in overcoming access issues and learning challenges, ensuring that distance obstacles do not impede instruction, and ensure that academic sessions are not jeopardized. Therefore, it is essential that primary and secondary schools have access to internet infrastructures, educational resources, and instructional tools. Learning may take place regardless of place or time if the teachers and students are well-trained and have access to ICT tools. In order to implement e-learning in an emergency, school funding is essential and will be of the utmost importance. As schools resume, initiatives are required to close the achievement gaps between urban and rural schools and to provide e-learning materials for improved learning.

Recommendations

It is recommended that:

1. A short course addressing the usage of online learning management systems: Zoom, Google Classroom, Edmodo, etc. should be added to the school's curriculum.

2. The ministry of education should create a document explaining student-friendly teaching techniques and evaluation procedures. During an emergency teaching situation, this material can be helpful.
3. Infrastructure for distance learning should be improved especially in public school.

Conclusion

In Nigeria, education suffered significantly under the COVID-19 lockdown. It was difficult for both students and teachers to transition to remote learning during the pandemic and to use unique emergency teaching techniques. The main disadvantage of virtual learning over the conventional face-to-face teaching technique was the absence of student-student and student-teacher interactions. A student-friendly handbook that will assist students with processes and evaluation techniques is necessary because the majority of students are still getting used to virtual learning.

The majority of Nigerian institutions are now utilizing distance learning resources for the first time, so it is advised that the Federal Government of Nigeria and the Ministry of Education use the COVID-19 pandemic lockdown as an opportunity to invest in and promote virtual learning in Nigerian institutions.

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