IJAAR PUBLISHING®

International Journal of Research in Education and Sustainable Development | ISSN: **2782-7666**
Vol. 2, Issue 11 (November, 2022) | www.ijaar.org/ijresd

LOCKDOWN POLICIES AND LEARNING OF MATHEMATICS DURING STAY-AT-HOME ORDERS – A COVID-19 CASE STUDY IN IBADAN, NIGERIA

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Abstract

COVID-19 is the most recent pervasive pandemic that disrupt teaching and learning with the closure of schools. The purpose of this study is to investigate lockdown policies and learning of mathematics during stay-at-home orders during covid-19 pandemic. The study particularly focuses on the effectiveness of using educational broadcast: telecast and radio as a means of teaching and learning mathematics in terminal basic classes during the lockdown era in Oyo state, Nigeria. It also considered the effectiveness and challenges of implemented covid-19 education policies after school re-opening by comparing private and public primary schools. Descriptive research design and purposive random sampling techniques were used to select 100 participants through secondary data. Three objectives were raised to guide the study while data collected was analysed using content analysis. Major findings revealed that the use of educational broadcast (telecast and radio broadcast) to teach and learn mathematics during lockdown among primary school pupils were not effective. The study also revealed that primary school pupils lost interest in academic activities and that they were vulnerable to assault and abuse during the lockdown. Also, barriers encountered during the re-opening of schools differ in private and public primary schools in Oyo state Nigeria. The study therefore recommends that Government (public primary school) and school owners (of private primary school) should upgrade their techniques on teaching and learning of lessons online so as to cater for any future impromptu actions that may disrupt academic calendar. Government should ensure enabling environment that will make new policies like policies on school reopening easy to implement.

Keywords: COVID-19 Pandemic, educational Broadcast, lock-Down Policy, Mathematics, Basic School Students, Oyo State.

Introduction

The COVID-19 (coronavirus disease) is extremely communicable and viral infection caused by SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus 2) and the virus has been responsible for over 900,000 deaths across countries of the world (WHO, 2020). The World Health Organization (WHO) declared it a pandemic on the 11th of March of the same year. The scourge of Covid-19 led to a serious shift in the dynamics of the educational industry, not only Nigeria but also all around the world, with several schools having to switch to remote learning and online schooling. Adapting to this new normal in developed countries was also a serious concern for parents, school owners, teachers and students (UNESCO, 2020), however, countries with low human development index and technological penetration such as Nigeria are at a disadvantage (Abhilasha, 2020).

As a consequence of the pandemic, former capital of Nigeria the Lagos State government on March 18, 2020 suspended all congregations above fifty people for the next four weeks. The state government also ordered stay-at-home for all public officers in the categories of lower and middle level. Besides, the Federal government and other state government followed suit on closure of schools, airspace, worship centers and the national borders (Ewodage, 2020). This led to school closures across the country, disrupting conventional classroom teaching which accounts for more than 98% of medium of learning in the country. In adapting to the lockdown order of the government, schools directed teachers to conduct online classes, but these schools failed to give teachers needed materials for online classes.. Teachers find themselves in a different teaching environment where all their students are present within android phone or a computer screen as they deliver study content via online meetings and learning platforms. Besides that, not all teachers and students are able to possess android phone, data service and computer. In class assessments have been replaced with online assessments for the time being, however, there is no empirical data about the impact of these new innovations in teaching mathematics to student performance and learning outcomes (Charles, Musiliuand Amos, 2018).

This research holds high significance in current turbulent and troubled times, especially since no recent event of this magnitude has upended the educational sector to this extent. There is a potential to gain novel insights for educators, policy makers, and parents on how to effectively plan for execution of online delivery of learning as this may become the new normal. Perienen (2020) submitted that basic schools have shifted to online teaching and learning. As education is shifting towards online learning accessibility of phones, laptops, tablets and computers both at home and school has remained a big problem in the country. It is not surprising that primary schools that provide elementary education are shifting to online classes.

Jean (2020) submitted that educators of Belize recognized the fact that online learning would not be accessible to students without internet connectivity and therefore drew on the history of their country by the use of school radio to reach their youngest citizens located in remote locations without internet.

The main objective of this paper is to examine how the lockdown policies affected learning of mathematics during stay-at-home orders and after school reopening particularly for terminal classes using Nigeria's largest city, Ibadan, as a case study. On a micro level, the analysis will also consider the effectiveness of implemented policies and barriers encountered in the process. The study will therefore compare these challenges between private and public primary school students, teachers and school heads during learning in stay-at-home orders and after school reopening particularly for terminal classes in Oyo state.

Literature Review

UNESCO (2020) submitted that more than four hundred million students were not in their various schools while more than two hundred countries had shut down various parastatals. Simon and Hans (2020) found out that global closure of schools has also affected examinations of students across the world. UNESCO (2020) again submitted that 87 percent of students (1.5 billion learners) were affected by this stay at home order. Lockdown is an emergency protocol to prevent people, groups of people, or communities from large gatherings, leaving or entering from or to an area. Lockdown protocols can only be established by authorities. In the security context, Lockdown can mean isolating an area. This protocol, overseas, is often applied in schools or in public facilities such as hospitals in the event of a matter of force majeure (Jones et al., 2017). Lockdown is also done with the prohibition of holding meetings involving many people, closing schools, and public places. Thus, the risk of a corona virus transmission in communities outside the lockdown region can be reduced.

In the case of COVID 19, the federal and state government of Nigeria have come up with different lockdown policies, none of these policies had allowed operation of schools at all levels. By 20th March, 2020, over 70% of the world's learners were impacted by closure, with 124 countries closing school (UNESCO, 2020). On 23rd March, 2020 schools across the country were closed. . Meanwhile, all of the public and private schools were still into their school terms. To help students complete their term successfully, some of these schools shifted to educational broadcast via school on air (television and radio) and online teaching via Google Classroom, Remind, Seesaw, Zoom and so on.

Olumuyiwa (2020) highlighted a common problem with on-line learning. According to the researcher, most of the communication are one way due to the absence of physical interaction. This means that although on-line teaching is a good platform, yet subjects like mathematics will be difficult to teach because teachers cannot ascertain if students are doing the task themselves. Many schools are moving away from traditional face-to-face classroom to e-learning of which Nigeria is not left out. Meanwhile this has been very challenging with teaching and learning mathematics which is a compulsory subject for students. Oyo and some southwestern states in Nigeria commenced an emergency educational broadcast through school-on-air: television and radio broadcast program to teach mathematics and English language for students terminal classes who are at the verge of sitting for WAEC (West African Examination Council) and entrance examination into junior secondary schools in order to reduce the spread of COVID-19 and to provide alternative way of learning (Vanguardngr, 2020).

Perienen (2020) conducted a research on learning mathematics and found that effective technology enhances teaching and learning mathematics during covid-19 pandemic. Eddie and José (2020) found out that necessary online material increased teaching and learning of mathematics during the stay at home order. However, none have focused on the effectiveness of using educational broadcast: telecast and radio as a means of teaching which is a prevalent method of teaching mathematics during the lockdown era in Oyo state, Nigeria. This is a major gap that this study wants to fill. There is a need to therefore investigate the impact of this and other lockdown policies on mathematics among pupils in terminal classes in primary schools.

While the directives by the government, although laudable, are far from being feasible. The question that is begging for answer is that “to what extent do these and other lockdown

policies impact learning mathematics during stay-at-home orders?" Students at all levels, especially primary and secondary school students have been facing serious challenges learning during the stay-at-home order, particularly students from financially disadvantaged backgrounds. Some of the challenges they face include but not limited to different applications and technical issues, burden on parents, additional tasks for working parents, mobile network issues, lack of developing social skills, duration of teaching online vs. face-to-face sessions, plenty of distractions in home environment, non-availability of teaching material and resources, too many assignments and activities, prolonged screen time and teacher's inexperience in terms of online delivery (Zhou, Li, Wu & Zhou, 2020). As a result, there is a glaring need to re-examine the lockdown policies and the obstacles to learning Mathematics during stay-at-home orders, using Nigeria's largest city as a case study.

Research Questions

The following are the research questions that were answered

1) How do lockdown policies affect learning of mathematics during stay-at-home orders in Ibadan?
2) What are the impacts of lockdown policies on learning during stay-at-home orders among primary school pupils in terminal classes?
3) How effective is the educational broadcast (telecast and radio broadcast) on teaching and learning of mathematics during lockdown among primary school pupils in terminal classes?
4) How effective is the implementation of lockdown policies?
5) What are the barriers encountered in the process of implementing lockdown policies?

Research Method

The theoretical framework of this study lies on the role of technology in teaching and learning processes. The famous idea that digital technology facilitates the teaching and learning processes and organises the activities of teaching and learning is relevant to this study (Säljö, 2010). Qualitative data techniques were used to critically compare the challenges encountered between private and public primary schools during learning in stay-at-home orders and after school reopening in Ibadan, Oyo state.

Sampling Strategy

The sampling strategy that was used in selecting the sources of data for comparative education on the challenges encounter between private and public primary schools during learning in stay-at-home orders and after school reopening in Oyo state is the purposive random sampling techniques. Purposive random sampling technique enables a researcher on a particular study to use his/her judgment to select cases that will best enable him/her to achieve the stated main and specific objectives (Cohen, Manion, & Morrison, 2008). Though the data gather from purposive random sampling technique unique and specific yet purposive random sampling technique is very arbitrary and is sometimes very close to subjectivity. It also involves very small representatives from the population of the study. This method, purposive random sampling technique, was used for this in order to guarantee full representation, limit bias and accuracy of the data. The sampling strategy for this study consisted of relevant department in the ministry of education, private and public primary schools, teachers and students in the sampled area. 20 school heads at 10 each from private and public primary schools, 40 teachers: 2 teachers from each of the 10 private and 10 public primary schools, 40 students: 2 students from each of the 10 private and 10 public primary schools. There were one hundred (100) total participants for this study.

Sources of Data

The source of data for this study is secondary data. It was used in both explanatory and descriptive research. Ministry of education, private and public primary school heads, teachers and students were interviewed. These types of data are mostly used in both survey type and descriptive research. Descriptive research method like surveys and interviews were also used in this study. The research questions and other interview questions that were asked during the interview were presented in appendix 2.

Data Analysis

The gathered data were presented on the challenges encountered between private and public primary schools during learning in stay-at-home orders and after school reopening for terminal classes in Oyo state. The data were analyzed using content analysis. Content analysis is a tool to determine the presence of certain words, themes or concepts within qualitative data. The gathered data were juxtaposed to compare the challenges encounter between private and public primary schools during learning in stay-at-home orders and after school reopening.

Results and Data Analysis

Table 1: Participants of the Study

Status	**Private Primary Schools**	**Public Primary Schools**
School Heads	10	10
Teachers	20	20
Students	20	20
Total	**50**	**50**

Table 1 presents total participants for this study. Ten school heads from private primary schools and ten school heads from public primary schools, twenty teachers from private primary schools and twenty teachers from public primary schools, twenty students from private primary schools and twenty students from public primary schools. A total of one hundred participants; fifty participants from private primary schools and fifty participants from public primary schools in Ibadan, Oyo State.

Objective 1: to examine how the lockdown policies affected learning of mathematics during stay-at-home orders in Ibadan.

Table 2: Effect of Lockdown Policies on Learning During Stay-At-Home Orders (Decision making process: decisions were reached when more than fifty percent of participant made the same decision)

Status	Private Primary Schools			Public Primary Schools		
	School Heads	Teachers	Students	School Heads	Teachers	Students
Impromptu closing of school	A	A	A	A	A	A
Cancelling of mass gathering	NA	NA	A	NA	NA	A
Disruption of conventional classroom teaching	A	A	A	A	A	A
Online classes	NA	NA	NA	A	A	A
Online meetings	NA	NA	U	U	U	U

A = Affected, NA = Not Affected, U = Undecided. Decision making process: decisions were reached when more than fifty percent of participant made the same decision.

Table 2 reveals the effect of lockdown policies on learning of mathematics during stay-at-home orders. Impromptu closing of school affected learning during stay-at-home orders in both private and public primary schools in Ibadan. Only the students in both private and public primary schools believed that cancelling of mass gathering affected their learning during stay-at-home orders. All the stakeholders believed that disruption of conventional classroom teaching affected learning during stay-at-home orders. All the stakeholders in public primary schools believed that online classes affected learning during stay-at-home orders, while stakeholders in private primary schools believed that online classes did not affect learning during stay-at-home orders. School heads and teachers in private primary schools believed that online meetings did not affect learning of mathematics during stay-at-home orders, while stakeholders in public primary schools believed that online meetings affected learning of mathematics during stay-at-home orders.

Table 3: Impact of Lockdown Policies on Learning (Decision making process: decisions were reached when more than fifty percent of participant made the same decision)

Status	Private Primary Schools			Public Primary Schools		
	School Heads	Teachers	Students	School Heads	Teachers	Students
Online tools like: Google classrooms, WhatsApp, Telegram, Zoom Television and Radio Broadcast are available for learning	Yes	Yes	No	No	No	No
Teachers lack the technical know how to handle online tools	No	No	Yes	Yes	Yes	Yes
Students lack the needed devises for online classes.	Yes	Yes	Yes	Yes	Yes	Yes
Schools lack capacity to adopt online learning	No	No	No	Yes	Yes	Yes
Availability of electricity supply	Yes	Yes	Yes	No	No	No
Parental ignorance on handling online tools	Yes	Yes	Yes	Yes	Yes	Yes
Radio mathematics classes is not effective for primary pupils	Yes	Yes	Yes	Yes	Yes	Yes
Students lost interest in academic activities at home	Yes	Yes	Yes	Yes	Yes	Yes
Students became vulnerable to assault and abuse	Yes	Yes	Yes	Yes	Yes	Yes

Decision making process: decisions were reached when more than fifty percent of participant made the same decision.

Table 3 reveals the impact of lockdown policies on learning during stay-at-home orders among primary school pupils in terminal classes. The table reveals that online tools like: google classrooms, WhatsApp, telegram, zoom television and educational broadcast were available for learning in private primary schools than public primary schools. Though the pupils in private primary schools believed that these tools were not available. This was due to the fact that most pupils in private primary schools used their parents' devices for the online classes. Students in both private and public primary schools lacked the needed devises for online classes. Public primary schools lacked capacity to adopt online learning, this could due to non-availability of electricity supply in public primary schools. Response from a particular pupil revealed his parents told him to listen to radio when there was no light to watch a

particular program on the television. Parental ignorance on handling online tools in both private and public primary schools. Radio mathematics classes were not effective for primary pupils in both private and public primary schools. Students lost interest in academic activities at home in both private and public primary schools. Students became vulnerable to assault and abusein both private and public primary schools.

The table reveals teachers' perspectives on online tools like: Google classrooms, WhatsApp, telegram, zoom television and educational broadcast were available for learning in private primary schools than public primary schools. They believed that online tools were available especially in private primary schools. Response from teachers in public schools revealed that most of them did not have laptops or phones that supported most of these devices. Teachers in public primary schools lacked the technical know-how in handling online tools.

School heads in both private primary and public primary schools agreed that lockdown policies affected learning of mathematic in their various schools. School heads in public primary schools agreed that they lacked capacity to adopt online learning, this could due to non-availability of electricity supply in public primary schools.

Table 4: Impact of Educational Broadcast on Teaching and Learning Mathematics

Status	Private Primary Schools			Public Primary Schools		
	School Heads	Teachers	Students	School Heads	Teachers	Students
Use of educational broadcast(telecast and radio)	NE	NE	NE	NE	NE	NE
Students' evaluation	NE	NE	NE	NE	NE	NE
Standard of teaching	NE	NE	NE	E	E	NE
Questions from Students	NE	NE	NE	E	E	NE
Teachers' assessment	NE	NE	NE	E	E	NE
Students' understanding (measured after school reopening)	NE	NE	NE	NE	NE	NE

NE = Not Effective, E = Effective. Decision making process: decisions were reached when responses were more than average.

Table 4 reveals how educational broadcast (telecast and radio broadcast)achieve the objective of teaching and learning of mathematics during lockdown among primary school pupils in terminal classes. The findings reveal that use of educational broadcast in teaching and learning mathematics during lockdown among primary school pupils was not effective in both private and public primary schools. Students' evaluation was not effective in both private and public primary schools with the use of educational broadcast to teach and learn mathematics during lockdown. Standard of teaching mathematics among primary school pupils with educational broadcast was not effective in the perspective of private primary schools, while school heads and teachers in public primary schools believed that the standard of teaching mathematics among primary school pupils with educational broadcast was effective. School heads and teachers in public primary schools were involved in educational broadcast. They also believed that questions from students during the educational broadcast was effective, they claimed that some students did send questions to platforms that were released during the educational broadcast. They were also of the opinion that assessing these students was effective because they did respond to those who answered their questions through various platforms. Stakeholders in both private and public primary schools believed that students' understanding that was assessed after school reopening was not effective.

Responses from interviews revealed that impromptu closing of school and disruption of conventional classroom teaching on 23rd March, 2020 by Nigerian government affected both private and public primary schools in the city. Online classes were available for students/pupils in private primary schools in various platforms like WhatsApp, Facebook, Google classroom, while their counterparts in public primary schools lack access to these online services. Public school teachers revealed that television and radio programmes (school on air) that are organised by the state government are beneficial to students/pupils in both private and public schools, but students/pupils in private schools benefit more on these services than students/pupils in public schools because of access to these services. Stakeholders in both private and public primary schools were of the opinion that the use of educational broadcast (telecast and radio broadcast) to teach and learn mathematics during lockdown among primary school pupils did not achieve the stated objectives. They also revealed that primary school pupils lost interest in academic activities and that they were vulnerable to assault and abuse during the lockdown.

> In responding to a question on "What are the impacts of lockdown policies on learning during stay-at-home orders among primary school pupils in terminal classes?" a private school head said that there were no provisions for pupils who could not afford to receive learning through online during the lockdown. This led to gaps of knowledge among these pupils. Some of them could not even afford to listen to lesson on television and radio programmes.

Regarding the first objective that examines how the lockdown policies affected learning during stay-at-home orders, the result revealed that lockdown policies like impromptu shutting down of school, cancelling of mass gathering, disruption of conventional classroom teaching, online classes, television and radio programmes (school on air) affected learning of mathematics during stay-at-home orders in both private and public primary schools (with more negative effect in public primary schools) in Ibadan, Oyo state, Nigeria. This is in agreement with the finding of Olumuyiwa (2020) who highlighted a common problem with on-line learning and submitted that most of the communication are one way due to the absence of physical interaction.

Objective 2: to examine the effectiveness of implementing lockdown policies.

Table 5: Effectiveness of Implementing Lockdown Policies

Status	Private Primary Schools			Public Primary Schools		
	School Heads	Teachers	Students	School Heads	Teachers	Students
Pocket (handy) sanitizer	HI	HI	HI	HI	HI	NI
General use sanitizer	HI	HI	HI	HI	HI	HI
Decontamination of school environment	I	-	-	NI	-	-
Social/physical distance	HI	HI	HI	HI	HI	HI
Use of infrared thermometer	HI	HI	HI	NI	NI	NI
Suspension of sporting activities	HI	HI	HI	HI	HI	HI
Use of face mask or face shield	HI	HI	HI	HI	HI	HI
Availability of hand washing spots	HI	HI	HI	HI	HI	HI

HI = Highly Implemented, I = Implemented, NI = Not Implemented. Decision making process: HI = when compliance is more than average, I = when compliance is average, NI = when compliance is less than average

Table 5 reveals the effectiveness of implementing lockdown policies. The findings reveal that pocket (handy) sanitizers were available for school heads and teachers in both private and

public primary schools in the city, while students in private primary schools were with their pocket (handy) sanitizers, students in public primary schools did not have pocket (handy) sanitizers. Both private and public primary schools made general sanitizer available for general use. Some of private primary schools decontaminated their school environment, while public primary schools did not decontaminate their school environment. Social/physical distances were highly implemented in both private and public primary schools. Infrared thermometers were available in private primary schools but were not available in public primary schools. Both private and public primary schools suspended their sporting activities after reopening of school after the lockdown in Oyo state. All the stakeholders (school heads, teachers and students)in both private and public primary schools made use of either face mask or face shield with availability of hand washing spots.

Responses from the field revealed that pupils in public primary schools did not have pocket (handy) sanitizer in the city. School head in both private and public primary schools were responsible for sanitizers that were for general use. Public primary schools could not use infrared thermometer because there is no one to provide it. Some private primary schools provide face mask or face shield for their pupils with no face mask or face shield while public primary schools could not provide face mask or face shield for their pupils with no face mask or face shield.

> In responding to a question on the effectiveness of implementing lockdown policies, a private school head confirmed that the process of implementing lockdown policies was very much effective as most parents were in support of the lockdown policies.

Concerning the second objective which is to examine the effectiveness of implementing lockdown policies, the result indicated that policies on school reopening like general use of sanitizer, decontamination of school environment, social/physical distance, use of infrared thermometer, suspension of sporting activities, use of face mask or face shield, hand washing buckets and basins were highly implemented in both private and public primary schools in Ibadan, Oyo state, Nigeria. This was possible, because only pupils in the terminal classes resumed, while majority of the pupils were still at home. This is in line with the finding of Eddie and José (2020) who worked on type of digital technological tools that mathematics students may use during the covid-19 closure period and found out that as long as students have the necessary digital devises, access to affordable internet and supply of electricity, digital learning in mathematics allows students to even study at the comfort of their homes.

Objective 3: to examine barriers encountered in the process of implementing lockdown policies.

Table 6: Barriers in Implementing Lockdown Policies

Status	Private Primary Schools			Public Primary Schools		
	School Heads	Teachers	Students	School Heads	Teachers	Students
Infrared thermometer	A	A	A	NA	NA	NA
Sources of water	A	A	A	A	A	A
Sanitizer	A	A	A	A	A	A
Decontaminants for school environment	A	A	A	NA	NA	NA
Adequate chairs and tables to ensure social/physical distance	A	A	A	A	A	A
Hand washing buckets and basins	A	A	A	A	A	A

A = Available, NA = Not Available.

Table 6 reveals barriers encountered in the process of implementing lockdown policies in both private and public primary schools in the city. The findings reveal that infrared thermometer were not availability in public primary schools. Sources of water and sanitizers were availability in both private and public primary schools. Decontamination of school environment was a problem in public primary schools because the cost is beyond the school heads. Adequate chairs and tables that enable social/physical distance together with hand washing buckets and basins were availability in both private and public primary schools.

Responses from interviews and observations revealed that school heads in public primary schools could not provide necessary tools like infrared thermometers to test pupils' temperature, decontaminants for school environment andface mask or face shield for pupils who do not come to school with one. Though sanitizers were available in both private and public primary schools, yet they were not enough. School heads in private schools were faced with criticism from some parents about the security of their children from contacting COVID-19 and spreading it to the family.

> In responding to a question on "What are the barriers encountered in the process of implementing lockdown policies?" a public school head said that the major barriers he was faced with was lack of needed materials. He claimed that some students will not come to school with either nose cover or face shield. Source of water is another challenge.

Some of these school heads in public primary schools said they had been banned from asking pupils to bring money and had been directed to interact with PTA (Parent-Teacher Association). Parents through this association were not willing to contribute to money and materials for schools' development. School heads who still want to remain in government job will rather utilise few available resources rather than coercing pupils to bring money.

Lastly on the third objective which is to examine barriers encountered in the process of implementing lockdown policies. The result indicated that barriers encountered in the process of implementing policies on reopening of school in public primary schools include lack of necessary tools like infrared thermometers to test pupils' temperature, decontaminants for school environment and face mask or face shield for pupils who do not come to school with one. While those in private schools were faced with criticism from some parents about the security of their children from contacting COVID-19 and spreading it to the family. It was equally revealed that stakeholders in both private and public primary schools submitted that the use of educational broadcast (telecast and radio broadcast) to teach and learn mathematics during lockdown among primary school pupils was not effective. They also revealed that primary school pupils lost interest in academic activities and that they were vulnerable to assault and abuse during the lockdown.

This is in agreement with the finding of Simon and Hans (2020) who found out that closure of schools interrupted the teaching for students around the world; the closure also coincided with a key assessment period and many exams have been postponed or cancelled. The result is also in line with the finding of UNESCO (2020) who tracked the impact of the pandemic on education and found out that barely four months of the pandemic 87 percent of the world's students 'that is 1.5 billion learners' have been affected by school closures. The bulk of these students are enrolled in primary and secondary schools. This is also in line with Jean (2020) who drew on the history of their country by the use of school radio to reach their youngest citizens located in remote locations without internet.

Conclusion

Going by the objectives of this study, various relevant literatures that were reviewed, methodology and the findings, the following conclusions were made;

Lockdown policies like impromptu shutting down of school, cancelling of mass gathering, disruption of conventional classroom teaching, online classes, television and radio programmes (school on air) affected learning of mathematics during stay-at-home orders in both private and public primary schools (with more negative effect in public primary schools) in Ibadan, Oyo state, Nigeria.

Policies on school reopening like general use of sanitizer, decontamination of school environment, social/physical distance, use of infrared thermometer, suspension of sporting activities, use of face mask or face shield, hand washing buckets and basins were highly implemented in both private and public primary schools in Ibadan, Oyo state, Nigeria. This was possible, because only pupils in the terminal classes resumed, while majority of the pupils were still at home.

Barriers encountered in the process of implementing policies on reopening of school in public primary schools include lack of necessary tools like infrared thermometers to test pupils' temperature, decontaminants for school environment and face mask or face shield for pupils who do not come to school with one. While those in private schools were faced with criticism from some parents about the security of their children from contacting COVID-19 and spreading it to the family.

Stakeholders in both private and public primary schools were of the opinion that the use of educational broadcast (telecast and radio broadcast) to teach and learn mathematics during lockdown among primary school pupils was not effective. They also revealed that primary school pupils lost interest in academic activities and that they were vulnerable to assault and abuse during the lockdown.

Recommendations

Going by the objectives of this study, various relevant literatures that were reviewed, methodology and the findings, the following recommendations were made;

Government (public primary school) and school owners (of private primary school) should upgrade their techniques on teaching and delivery of lessons online so as to cater for any future impromptu actions that may disrupt academic calendar.

Parents should engage their children on latest tools that are needed for online learning of mathematics and make sure that their children are not using them in negative ways.

Government (public primary school) and school owners (of private primary school) should make necessary changes that will accommodate challenges generated by online learning of mathematics so as to make these pupils relevant in the 21st century.

Government (public primary school) and school owners (of private primary school) should come up with online teaching and the learning activities of mathematics that will accommodate both the teachers and the students even after the stay-at-home order.

Lastly, government should ensure enabling environment that will make new policies like policies on school reopening easy to implement.

References

Abhilasha, S. (2020). A Relationship Study of Kindergarten Students During Lockdown in Context of Human Development and Technology Adopted. *International ResearchJournal of Modernization in Engineering Technology and Science,2*(4)/April-2020,333 - 335.

Charles, O. O., Musiliu, A. A. &Amos, O. O. (2018). Students Awareness and Utilization of Educational Broadcasts to Learn In Ogbomoso, Oyo State Nigeria. *Turkish Online Journal of Distance Education-TOJDE, 19*(3), Article 13. 182 – 192.

Cohen, L., Manion, L., & Morrison, K. (2008). The Methodology of Educational Research. Athens: Metaichmio.

Eddie, M. &José, M. (2020). Is COVID-19 the Gateway for Digital Learning in Mathematics Education? Contemporary educational technology ISSN: 1309-517X (Online) 2020, 12(2), ep269, Available at:https://doi.org/10.30935/cedtech/7949

Ewodage, R. (2020). COVID-19: How We Plan to Implement Social Distancing In Lagos Markets, Transport System – Sanwo-Olu. Available online at https://www.channelstv.com/2020/03/22/covid-19-how-we-plan-to-implement-socialdistancing-in-lagos-markets-transport-system-sanwo-olu/

Federal Ministry of Education, (2020). Guidelines for Schools and Learning Facilities Reopening After Covid-19 Pandemic Closures.

Jean, D. K. (2020). School Radio: Finding Innovation in Reaching Remote Learners in Belize. Australian International Academic Centre PTY.LTD. *International Journal of Education & Literacy Studies. IJELS*,8 (3), 90 - 97.

Jones, N. M., Thompson, R. R., Schetter, C. D., & Silver, R. C. (2017). Distress and rumor exposure on social media during a campus lockdown. Proceedings of the National Academy of Sciences of the United States of America. https://doi.org/10.1073/pnas.1708518114

Olumuyiwa, O. (2020). These Nigerian teachers are leveraging edtech to keep classes going. 26 March. Available at: https://techcabal.com/2020/03/26/virtual-learning-google-classroom/ (Accessed: 23 August 2020)

Oyo State Emergency Operations Centre, (2020).Advisory for Schools And Learning Facilities On Covid-19.Oyo State Covid-19 Task Force.

Perienen, A. (2020). Frameworks for ICT Integration in Mathematics Education - A Teacher's Perspective. *Eurasia Journal of Mathematics, Science and Technology Education*, *16*(6), 1 – 12.

Roy, D. (2020). Trying to homeschool because of coronavirus? Here are 5 tips to help your child learn. March. https://theconversation.com/trying-to-homeschool-because-of-coronavirus-here-are-5-tips-to-helpyour-child-learn-133773

Säljö, R. (2010). Digital tools and challenges to institutional traditions of learning: technologies, social memory and the performative nature of learning. Journal of Computer Assisted Learning, 26:53–64.

Simon B. & Hans H. S. (2020) Schools, skills, and learning: The impact of COVID-19 on education. https://voxeu.org/article/impact-covid-19-education

United Nations Education Scientific and Cultural Organization (2020). COVID-19 Educational Disruption and Response. Retrieved from: https://en.unesco.org/covid19/educationresponse

Vanguardngr (2020).Oyo commences radio lessons for primary school pupils. 23 April. Available at: https://www.vanguardngr.com/2020/04/oyo-commences-radio-lessons-for-primary-school-pupils/ (Accessed: 23 August 2020)

WHO (2020). World Health Organization Clinical Management of Severe Acute Respiratory Infection When Novel Coronavirus (nCoV) Infection is Suspected. Available online: https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-issuspected Accessed on 15 July 2020.

Willig, C. (2008). Introducing qualitative research in psychology: Adventures in theory and method. London: Open University Press.

Yin, K. Y. 2003. Case Study Research: design and methods. Sage Publications. U.K.

Zhou, L., Li, F., Wu, S., & Zhou, M. (2020). School's Out, But Class's On, The Largest Online Education in the World Today: Taking China's Practical Exploration During The COVID-19 Epidemic Prevention and Control as an Example. Best Evidence of Chinese Education 4.2 (2020) 501-519. http://dx.doi.org/10.2139/ssrn.3555520

Appendix 1
The following is a summary of the guidelines

Before Opening

1. Create temporary isolation space and fully equipped clinics before reopening.

2. Establish a referral system, including protocols and procedures to take if learners, teachers, administrators and other education personnel become unwell while in school.

3. Construct additional structures and classroom

4. Employ more teachers and care-givers

5. Seek grant and loans to procure soap, bucket and ensure regular safe water supply

6. Ensure constant supply of learning and instructional materials

7. Pay salaries on time.

8. Consultations and communication exchanged should be held with parents, teachers, learners and communities to understand and address common concerns.

9. Conduct Risk assessments with the best interests of the learners, teachers and other education personnel in mind. (For early years, younger primary school children and those with additional needs.)

10. Develop appropriate mental health and psychosocial support services that address stigmatization and discrimination to assist learners, teachers, administrators, and other education personnel and their families to cope with the effects of COVID-19 and continued uncertainties of the pandemic.

When Opened (In Class and School Environment)

11. Maintain social distancing of 2m in every class

12. Organize learners and children into small groups with consistent membership and compliance to the two-metres safe distancing guideline.

13. Use out-door learning model

14. Apply staggered attendance (Learners come to school at different times)

15. Platooning of classes (classes should be divided into morning and afternoon shifts)

16. Continue distance learning and sought modalities to improve on it.

17. Use blended learning model for classes with high vulnerability

18. A gradual and phased reopening of school levels (prioritizing learners who are vulnerable, have reduced access to distance learning modalities, and/or are in examination classes.)

Government Inputs and Reviewed policies

19. Review of existing policies, practices and risk mitigation strategies in the use of schools for other purposes, such as distance learning centres, temporary shelters and isolation.

20. Staggered use of school facilities to ensure compliance with the NCDC guidelines

21. Development and dissemination of safe school reopening checklist to assist appropriate evidence-based decisions to reopen schools.

22. Disinfection and fumigation of facilities, including hostel accommodation, with particular attention given to those used as temporary isolation and treatment centres and for other purposes during the pandemic.

23. Provide grants for purchase of basic amenities and prompt payment of salaries

24. Sensitize, train and build capacity of teachers, administrators and other education personnel to effectively use and comply with the School COVID-19 Referral System and protocols for safe distancing and hygiene in schools.

25. Make adequate provisions for school feeding where applicable to encourage learners to return and sustain attendance.

26. Federal and States Ministries if Education should decide when to reopen after due consultations with the Presidential Task Force on COVID-19, Federal Ministry of Health, National Centre for Disease Control (NCDC), and other critical stakeholders, including non-state education providers, teachers' unions, PTAs, and school based management committees (SBMCs).

27. Establish a team of supervisors comprising of Educationist, Health and Environmental workers to certified each school safe for resumption

FEDERAL GOVERNMENT SAID ALL STAKEHOLDERS SHOULD PREPARE;
Covid 19 Prevention Protocol to be put in place in our School.

1. Teachers are to resume July 6th

2. Primary 6, JSS 3, SSS 3 students are to resume July 13th

3. Schools open from 8 am - 12 noon; Mondays to Fridays

4. Hand washing spots to guarantee regular washing of hands by students, teachers or anyone entering the school.

5. Sitting arrangement in classes must be mapped 2 metres away from each other to prevent body contact.

6. It is compulsory for all students and teachers to use face masks. Parents are also to use face masks anytime they are coming to drop or pick their children from school.

7. Assembly, social gatherings and sport activities are suspended for now.

8. Infrared thermometer to test body temperature at the entrance of the school. Anybody with high body temperature should not be allowed into the school.

9. No use of air conditioners in classrooms but well-ventilated classes.

10. Food vendors are not allowed in schools. Pupils/students are to bring their food, snacks etc. from home.

11. No going out of the classrooms except when going to the rest room (toilet) which must be under close monitoring by care giver or teacher.

12. No handshakes, hugging, physical contact or collecting of things like books, pen, spoon, cup, food, water etc. from one another.

13. Birthday Celebrations/gifts in school is suspended.

14. If any child/teacher shows any symptoms of Covid 19/malaria; such should not be allowed to come to school, he or she must stay home to be treated or call Covid 19 NCDC agents.

15. Students/pupils and teachers must have a pocket (handy) sanitizer for their personal use anywhere they go apart from the general one provided by the school.

16. Decontamination of classes, object surfaces and school environment frequently is compulsory.

17. Only one entrance to the school premises will be accessible to everyone for proper monitoring.

18. EOC (Emergency Operations Centers) will be going round schools to determine compliance with the Covid 19 Prevention protocols put in place by schools.

Appendix 2

1) How does lockdown policies affect learning of mathematics during stay-at-home orders in Ibadan?
2) Does impromptu closing of school affect learning of mathematics during stay-at-home orders?
3) Does cancelling of mass gathering affect learning of mathematics during stay-at-home orders?
4) Does disruption of conventional classroom teaching affect learning of mathematics during stay-at-home orders?
5) Do online classes affect learning of mathematics during stay-at-home orders?
6) Do online meetings affect learning of mathematics during stay-at-home orders?
7) What are the impacts of lockdown policies on learning during stay-at-home orders among primary school pupils in terminal classes?
8) How do online tools like: Google classrooms, WhatsApp, Telegram, Zoom Television and Radio Broadcast affect learning during lockdown policies in private and public primary schools?
9) How do schools, teachers and students cope with online teaching and learning?
10) How effective is the educational broadcast (telecast and radio broadcast) on teaching and learning of mathematics during lockdown among primary school pupils in terminal classes?
11) How does educational broadcast (telecast and radio) affect learning during lockdown policies in private and public primary schools?
12) How do schools, teachers and students cope with educational broadcast (telecast and radio) in teaching and learning?
13) How effective is the implementation of lockdown policies?
14) How achievable are pocket (handy) sanitizer, general use sanitizer, decontamination of school environment, social/physical distance, use of infrared thermometer, suspension of sporting activities, use of face mask or face shield and availability of hand washing spots after school reopening?
15) What are the barriers encountered in the process of implementing lockdown policies?
16) What are the barriers encountered in the use of pocket (handy) sanitizer, general use sanitizer, decontamination of school environment, social/physical distance, use of infrared thermometer, suspension of sporting activities, use of face mask or face shield and availability of hand washing spots after school reopening?