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An assessment of the contributions of COVID 19 examination, revision and educational broadcast to stem students: A case study

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Abstract

This study examines the impact and effectiveness of educational broadcast methods implemented during the COVID-19 pandemic for secondary school students in Asaba, Delta State, Nigeria. Following the outbreak of COVID-19 in March 2020 and subsequent school closures, the Delta State Government adopted various educational broadcast methods and e-learning approaches to ensure educational continuity. Through a systematic analysis, this research investigates the level of utilization of educational broadcast methods, evaluates opportunities provided by the state government, identifies implementation challenges, and examines factors influencing technology acceptance among secondary school students. The study employs both quantitative and qualitative methodologies to assess the effectiveness of these emergency educational measures. Findings reveal significant variations in the utilization of educational broadcast methods among students, highlighting disparities in access and adoption. The research also uncovers critical challenges including inadequate internet facilities, insufficient teacher training in educational broadcasting methods, and technological infrastructure limitations. This study contributes to the growing body of knowledge on emergency remote education in developing countries and provides valuable insights for policymakers and educators in implementing effective distance learning solutions during crisis periods. The findings emphasize the need for improved technological infrastructure, enhanced teacher training programs, and more inclusive educational broadcast strategies to ensure equitable access to quality education during emergencies.

Keywords: Educational Broadcasting; E-learning Adoption; COVID-19 and Education; Technology Acceptance in Education; Remote Learning Challenges

1. Introduction

The outbreak of Covid-19 cases in Nigeria by March 2020 led to the closure of schools across the country. Since Delta State was not affected at first, the Delta State Government felt reluctant in closing state boarders and restricting movement within and outside the state. It is pertinent to note that the declaration of 5 cases of Covid-19 in Delta State spread across the 25 Local Government Areas was a shock to the State Government, which eventually led to the closing down of all activities. This, of course, prompted the State Government in adopting educational broadcast methods in the teaching and learning of secondary and tertiary institution students why examining the adverse effect of the Covid-19 pandemic and preventing the diseases from spreading further. As time went by, Covid-19 cases in Delta State increased from 5 to 250 by the end of August 2022, with over 16 fatalities recorded (NCDC, 2020) putting fear and panic over residents of the State, which eventually resulted to total lockdown restricting students from engaging in conventional academic activities and the adoption of educational broadcast methods and e-learning in impacting knowledge into students (Enebeli, 2020).

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Studies showed that the restriction of movement in all parts of the world, due to the Covid-19 pandemic, had greater effects on the educational system, especially in Nigeria. Secondary school students and students of higher institutions were mainly subjected to e-learning teaching during the severe pandemic outbreak (Elvis, 2020). The effect of the pandemic on the educational system was such that affected the governments, school management, teachers, and students. The process of learning during the Covid-19 pandemic was significantly different than the conventional learning approach. In a much wider range, academic learning during the Covid-19 outbreak was based on e-learning which restricted students to their own work, forcing a bigger responsibility of the online teaching and learning results and their own development. The inner motivation and the ability of time management especially huge amount of data consumed receiving online lectures were also considered. The effectiveness of distance education and mobile learning in didactic practices in education is determined mostly by the attitude of the students rather than by modern digital devices (Zhang et al., 2020).

Despite the constant innovative approaches adopted by teachers from the western world, traditional approaches to teaching and assessments in Nigerian secondary and tertiary institutions have constantly been practiced. Most institutions were not able to fully utilize e-learning or take full advantage of it during the Covid-19 outbreak (Bhuasiri, et al., 2021; Markus & Robey, 2020). These failures have hindered most teachers in using educational broadcasting methodologies in delivering their lectures, and undertake rigorous research works online. According to Elvis (2020), e-learning facilities are adequate and accessible to users, and most teachers are comfortable with utilization of various facilities during classes compared to most public tertiary institutions although, the utilization has not been maximized especially for examination, revision and educational broadcast to secondary school students in Asaba. However, attitude of students during e-learning and teaching, inadequate internet facility, inadequate training of teachers on educational broadcasting methods affects the successful adoption (Bhuasiri, et al., 2012; Chuang et al. 2019; Eze et al., 2013).

The emergence of educational broadcasting technologies and the ubiquitous connectivity of internet and networks improve man's ingenuity and opportunities given that societies consciously depend on real-time information to be proactive and to discount the effects of environmental changes (Bates and Jenkins, 2017; Al-Gahtani, 2016; Eze and Chinedu-Eze, 2018). Students prefer to cope with classroom teaching and learning than educational broadcast methods since online teaching and learning adopted by the government during the Covid 19 pandemic involved huge investment in the state of the art ICT platforms owing to the need to build competitive advantage amidst decreasing cost of technologies in the contemporary information systems (IS) market especially in the educational sector (Awa, et al., 2021; Maldonado, et al., 2021). Educational broadcast methods plays key role in the teaching and learning of students in secondary schools (Al-Gahtani, 2016; Wang, 2019), particularly in the educational milieu, where the academia and consultants progressed from providing simple teaching aids to interactive learning environments.

The following questions were raised to guide the study

- Is there significant difference in the level of utilization of educational broadcast methods among secondary school students in Asaba?
- Are there opportunities provided opportunities provided by the Delta State Government on Covid 19 examination, revision, and educational broadcast to secondary school students in Asaba?
- What are the challenges faced in adopting educational broadcast methods and e-learning among secondary school students in Asaba?
- What are the factors influencing the acceptance of educational broadcast methods and e-learning technology in secondary schools within Asaba?

2. Literature Review

It is difficult to give an account of educational broadcasting in countries where broadcasting is largely or wholly a matter of private management and where the larger and more important stations and networks are private commercial enterprises. Nevertheless, considerable numbers of educational transmissions are made in Nigeria by universities and colleges and sometimes by municipal or state-owned stations (Aboderin, 2011). The Public Broadcasting Service in Nigeria has increased the amount of educational and generally more thought-provoking material available on the air, and in some countries use broadcasts not only to support the work of teachers in schools but also to combat illiteracy and to impart advice to isolated rural populations in matters of public health, agricultural methods, and other social and practical subjects. A similar use of broadcasting is made in most of the tropical countries of Africa (Aboderin, 2011).

Nigeria has the most ambitious educational-broadcasting output in West Africa. Each of its two television and AM radio services is devoted wholly to education, while general television services and FM radio also transmit material of this

nature. Japan prepares programs for primary, secondary, and higher education, special offerings for the mentally and physically handicapped, and a wide range of transmissions under the general heading of "social education," which includes foreign languages, vocational and technical instruction, advice on agriculture, forestry, fisheries, and business management, plus special programs for children, adolescents, and women. The educational broadcasts of Nigeria reach more than 90 percent of Nigerian's primary and secondary schools (Zhang, *et al.*, 2020).

In Nigeria broadcasting service devotes more than one-half of its radio output to educational and cultural broadcasts in the arts, letters, and sciences; and on television about 14 percent of its first and second networks are devoted to adult education. Primary and secondary instruction is offered, as are refresher courses for teachers and university-level courses. Although Italian radio devotes less than 1 percent of its output specifically to educational programs for children, nearly 20 percent is given to cultural and allied offerings. Educational television began in Nigeria with courses of a vocational nature, followed by transmissions aimed at secondary schools. In Nigeria special programs were initiated for areas where there are no secondary schools. By the early, 17 percent of Nigeria television time was devoted to educational and school broadcasts and 4 percent to cultural programs (Oguzor, 2011).

Nigerian radio offers a comprehensive service of educational and cultural broadcasting, with the output on television higher than that on radio. There is also a substantial output of adult education at the primary, secondary, and university levels, with about 1,400 school broadcasts a year, and Nigeria has concentrated on vocational training and refreshment for teachers. Nigeria broadcasting, by contrast, has been used much less for formal education. In Nigeria more than two and a half hours of school and continuing education broadcasting are broadcast weekly on the radio; in addition, nearly eight hours of educational television are transmitted every week (Nbina *et al.*, 2021).

2.1. Educational Broadcast and Classroom Teaching and Learning

The classroom is a dynamic environment, bringing together students from different backgrounds with various abilities and personalities. Being an effective teacher therefore requires the implementation of creative and innovative teaching strategies in order to meet students' individual needs. Whether you've been teaching two months or twenty years, it can be difficult to know which teaching strategies will work best with your students (Al-Gahtani, 2016). As a teacher there is no 'one size fits all' solution, so here is a range of effective teaching strategies you can use to inspire your classroom practice.

2.1.1. Visualization

Bring dull academic concepts to life with visual and practical learning experiences, helping your students to understand how their schooling applies in the real-world. Examples include using the interactive whiteboard to display photos, audio clips and videos, as well as encouraging your students to get out of their seats with classroom experiments and local field trips (Ahmed, 2020).

2.1.2. Cooperative learning

Encourage students of mixed abilities to work together by promoting small group or whole class activities. Through verbally expressing their ideas and responding to others your students will develop their self-confidence, as well as enhance their communication and critical thinking skills which are vital throughout life (Allen & Seaman, 2013). Solving mathematical puzzles, conducting scientific experiments and acting out short drama sketches are just a few examples of how cooperative learning can be incorporated into classroom lessons.

2.1.3. Inquiry-based instruction

Pose thought-provoking questions which inspire your students to think for themselves and become more independent learners. Encouraging students to ask questions and investigate their own ideas helps improve their problem-solving skills as well as gain a deeper understanding of academic concepts. Both of which are important life skills (Anene, Imam and Odumuh, 2014).

2.1.4. Differentiation

Differentiate your teaching by allocating tasks based on students' abilities, to ensure no one gets left behind. Assigning classroom activities according to students' unique learning needs means individuals with higher academic capabilities are stretched and those who are struggling get the appropriate support. This can involve handing out worksheets that vary in complexity to different groups of students, or setting up a range of work stations around the classroom which contain an assortment of tasks for students to choose from. Moreover, using an educational tool such as Quizalize can

save you hours of time because it automatically groups your students for you, so you can easily identify individual and whole class learning gaps (Asogwa, 2011).

2.1.5. Technology in the classroom

Incorporating technology into your teaching is a great way to actively engage your students, especially as digital media surrounds young people in the 21st century. Interactive whiteboards or mobile devices can be used to display images and videos, which helps students visualize new academic concepts. Learning can become more interactive when technology is used as students can physically engage during lessons as well as instantly research their ideas, which develops autonomy. Mobile devices, such as iPads and/or tablets, can be used in the classroom for students to record results, take photos/videos or simply as a behaviour management technique. Plus, incorporating educational programs such as Quizalize into your lesson plans is also a great way to make formative assessments fun and engaging (Silva, 2017).

2.1.6. Behaviour management

Implementing an effective behaviour management strategy is crucial to gain your students respect and ensure students have an equal chance of reaching their full potential. Noisy, disruptive classrooms do no encourage a productive learning environment, therefore developing an atmosphere of mutual respect through a combination of discipline and reward can be beneficial for both you and your students. Examples include fun and interactive reward charts for younger students, where individuals move up or down based on behaviour with the top student receiving a prize at the end of the week. 'Golden time' can also work for students of all ages, with a choice of various activities such as games or no homework in reward for their hard work (Naqvi, 2017).

2.1.7. Professional development

Engaging in regular professional development programmes is a great way to enhance teaching and learning in your classroom. With educational policies constantly changing it is extremely useful to attend events where you can gain inspiration from other teachers and academics. It's also a great excuse to get out of the classroom and work alongside other teachers just like you! Sessions can include learning about new educational technologies, online safety training, advice on how to use your teaching assistant(s) and much more. Being an effective teacher is a challenge because every student is unique, however, by using a combination of teaching strategies you can address students' varying learning styles and academic capabilities as well as make your classroom a dynamic and motivational environment for students (Naqvi, 2017).

2.2. Teaching and Learning in Secondary Schools

Collaborative learning is a group-based learning approach in which learners are mutually engaged in a coordinated fashion to achieve a learning goal or complete a learning task. With recent developments in smartphone technology, the processing powers and storage capabilities of modern mobiles allow for advanced development and the use of apps. Many app developers and education experts have been exploring smartphone and tablet apps as a medium for collaborative learning (Naidu, 2016). Computers and tablets enable learners and educators to access websites as well as applications. Many mobile devices support m-learning. Mobile devices such as clickers and smartphones can be used for interactive audience response feedback. Mobile learning can provide performance support for checking the time, setting reminders, retrieving worksheets, and instruction manuals. Such devices as iPads are used for helping disabled children in communication development as well as in improving physiological activity, according to the iStimulation Practice Report. Computers in the classroom have been shown to increase rates of engagement and interest when computers and smart devices are utilized educationally in classrooms (Naidu, 2016).

2.2.1. Virtual classroom

A virtual learning environment (VLE), also known as a learning platform, simulates a virtual classroom or meetings by simultaneously mixing several communication technologies. Web conferencing software enables students and instructors to communicate with each other via webcam, microphone, and real-time chatting in a group setting (Maduhusudhan, 2018). Participants can raise hands, answer polls, or take tests. Students can whiteboard and screencast when given rights by the instructor, who sets permission levels for text notes, microphone rights, and mouse control. A virtual classroom provides an opportunity for students to receive direct instruction from a qualified teacher in an interactive environment. Learners can have direct and immediate access to their instructor for instant feedback and direction (Maduhusudhan, 2018).

The virtual classroom provides a structured schedule of classes, which can be helpful for students who may find the freedom of asynchronous learning to be overwhelming. Besides, the virtual classroom provides a social learning environment that replicates the traditional "brick and mortar" classroom. Most virtual classroom applications provide a recording feature. Each class is recorded and stored on a server, which allows for instant playback of any class over the course of the school year (Markus and Robey, 2018). This can be extremely useful for students to retrieve missed material or review concepts for an upcoming exam. Parents and auditors have the conceptual ability to monitor any classroom to ensure that they are satisfied with the education the learner is receiving.

In higher education especially, a virtual learning environment (VLE) is sometimes combined with a management information system (MIS) to create a managed learning environment, in which all aspects of a course are handled through a consistent user interface throughout the institution. Physical universities and newer online-only colleges offer to select academic degrees and certificate programs via the Internet. Some programs require students to attend some campus classes or orientations, but many are delivered completely online. Several universities offer online student support services, such as online advising and registration, e-counseling, online textbook purchases, student governments, and student newspapers. Due to the COVID-19 Pandemic, many schools have been forced to move online. As of April 2020, an estimated 90% of high-income countries are offering remote learning, with only 25% of low-income countries offering the same (Elvis, 2020).

2.3. Educational Broadcast and E-Learning

Understanding educational broadcast and eLearning is simple. Educational broadcast and eLearning is learning utilizing electronic technologies to access educational curriculum outside of a traditional classroom. In most cases, it refers to a course, program or degree delivered completely online. There are many terms used to describe learning that is delivered online, via the internet, ranging from Distance Education, to computerized electronic learning, online learning, internet learning and many others. Zhang (2018) defined educational broadcast and e-Learning as courses that are specifically delivered via the internet to somewhere other than the classroom where the professor is teaching. It is not a course delivered via a DVD or CD-ROM, video tape or over a television channel. It is interactive in that you can also communicate with your teachers, professors or other students in your class. Sometimes it is delivered live, where you can “electronically” raise your hand and interact in real time and sometimes it is a lecture that has been prerecorded. There is always a teacher or professor interacting/communicating with you and grading your participation, your assignments and your tests. Educational broadcast and E-learning has been proven to be a successful method of training and education is becoming a way of life for many citizens in Nigeria.

Educational broadcast and E-learning seems to be on the verge of becoming the new learning paradigm. Some estimated that the educational broadcast and e-learning market has a growth rate of up to 35% (Sun, 2018). However, the benefits of such systems cannot be realized if learners do not accept or use the system in an appropriate manner (Pavlou, 2013) and (Lin, 2017). It is therefore important to investigate the determinants of e-learning acceptance and utilization to assist VLE designers and lecturers in building systems that are useful and accepted by the end-user, being the learners.

Electronic-learning technologies provide a window of opportunity for educational institutions to exploit and use technology to complement and support the teaching and learning processes for example, learning management system (LMS) is used as support for delivering, tracking and managing training/education to provide good academic outcomes. E-learning is the use of Information and Communication Technology (ICT)-supported teaching and learning methods whose use in educational institutions is gaining momentum with the passage of time (Omwenga, 2014).

Khan (2015) pointed that educational broadcast and e-learning has been described in various ways as learning using a number of different technologies and methods for delivery e.g. Computer Based Training (CBT), Internet-based training (IBT), Web-based instruction (WBI), advanced distributed learning(ADL), distributed learning (DL), distance learning, online learning (OL), mobile learning (or m-learning) or remote learning and learning management systems (LMS). In E-learning system, students are able to interact anytime from wherever with different instructional material (text, sound, pictures, video and so on) through Internet. In addition, learners can communicate with teachers and classmates both individually and as a group discussion with the use of message boards, instant message exchanges and video conferencing (Al-Ammari and Hamad, 2018).

Khan (2015) suggests that e-learning system is used for an open, flexible, and diverse E-learning environment. Moreover, educational broadcast and e-learning system can be analyzed as an inventive approach for delivering, learner-centered, interactive, and facilitated learning environment to anyplace, anyone, anytime by utilizing the features and resources of different digital technologies along with other types of learning materials suited for an open, distributed, and flexible learning environment (Ibid, 2018).

UNESCO's (2018) World Education Report shows that, educational systems in most universities around the world are under increasing pressure to use the new ICT to teach students the knowledge and skills they need in the modern technological world using e-learning technologies, but it has been found out that some schools still lack adequate ICT infrastructure for effective e-learning. It is also found out that increasing numbers of educators are convinced of e-learning's technology potential despite lack of precise ability to demonstrate clear gains from it.

In Nigeria, government is actively working with private sectors to encourage technology based e-learning system to improve education and enhance learners' understanding of abstract concept as well as to increase their interest in e-learning technology for example, a study conducted by Hui *et al*. (2018) showed that technology-assisted learning improves students' acquisition of the kind of knowledge which requires abstract conceptualization and reflective observation, but adversely affects students' ability to obtain knowledge which requires concrete experience. Technology-assisted learning is better for vocabulary learning than face-to-face learning, but it is comparatively less effective in developing listening comprehension skills. According to Master Plan for IT in education report 2001, majority of students state that IT helps to increase their knowledge (Lim, 2014).

Nigeria is also initiating to step toward the same path with vision of integrating ICT into its education system. Government of Nigeria initiated a pilot study of e-Learning of Math in Secondary Schools in Nigeria from 2009 with the support of TQI-SEP (Teaching Quality Improvement in Secondary Education Project). Each lab contains five laptops, five wireless internet modems, two digital cameras, multimedia projector, webcam, printer, pen drive, interactive board, e-Learning CD, speaker, generator etc. This initiative will ensure primary ICT knowledge as well as ICT based education for the students and also enhance the teaching capacity of the teachers (Samakal, 2010). The Use of technology to facilitate learning is accepted to be of value across educational institutions. Government of Nigeria has taken cognizance of the institutional support required for resources in e-learning and formulated the national mission on education through ICT. However, the focus is still largely on getting the infrastructure and creating the e-learning content. It is necessary to consider the individual factors that play an important role in the acceptance and utilization of e-learning technology. For example, attitude of students and teachers towards e-learning technology may affect their acceptance of the technology in the teaching-learning process. While there have been studies to understand the factors of the instructors (e.g release time for staff to engage in e-learning) and students (e.g. learning style) in acceptance of e-learning separately, a comprehensive view that considers both students and teachers in the same model is lacking (Fidelis, 2018; Marvis, 2017).

It is recognized that unless the individual factors of teachers and students are considered, potential of e-learning will not be fully utilized, thus lowering the return on investment (Yuen & Ma 2018). Developing countries like India which are in the infancy stage of e-learning adoption cannot afford to fail in the e-learning implementation. Hence, it is essential to take cognizance of the user (teachers and students) as the major factor in any technology-enhanced learning environment. Thus, it is important to consider both factors relating to the key players students, teachers and institution in the implementation of e-learning.

3. Methodology

3.1. Research Design

The research design employed for this is the descriptive survey research design. This is to enable the researchers have a true reflection on the assessment on the contributions of Delta State Covid 19 examination, Revision, Educational broadcast to secondary school students in Asaba.

3.2. Population for the Study

The population of this study comprise of male and female students in secondary schools within Asaba, Delta State. There are about 1,920 secondary school students in Asaba out of which only 30% (300 respondents) of the total population (1,920) comprising male and female secondary school students will be used as the population of the study. About 300 students were used as the study population in which 60 students each from each selected schools will be used as the sample size in this study.

3.3. Sample and Sampling Technique

The researcher adopted the simple random sampling technique in selecting students (300 in number) across the selected secondary schools in Asaba. This is because, the researcher found out that it was not possible to collect data from the entire population hence a sample of three hundred (300) respondents comprising of male and female was

drawn from the population. The sample of the 60 students each from the selected secondary schools within Asaba will be based on the proportional random sampling method.

3.4. Research Instrument

The research instruments that will be used to obtain data for the study include the questionnaire. The questionnaire will contain two (2) sections; section A will contain demographic data of respondents which will include sex, years of experience and cadre. Section B of the questionnaire will contain items structured on a 5-point likert scale of SA for Strongly Agree (5), A for Agree (4), U for Undecided (3), D for Disagree (2) and SD for Strongly Disagree (1).

3.5. Validity of Research Instrument

The research instrument (questionnaire) was submitted to the project supervisor for scrutiny and necessary corrections. Thereafter, it was administered to the targeted population. This is an indication that the instrument is measuring what it ought to measures and therefore valid.

3.6. Reliability of Research Instrument

The test re-test method was used to test the reliability of the questionnaire. A total 30 respondents were given the questionnaire at an interval of two weeks at separate occasions. The 30 respondents were not included in the sample size of the study. Thereafter, the Chi-Square statistical technique was used to find the significant relationship that exists between the variables for the purpose of determining the reliability of the instrument. This shows that the instrument was measuring what it tends to measure and therefore reliable. The data obtained was subjected to correlation analysis using Pearson Product Moment Correlation Coefficient (PPMC) statistical tool and the Cronbach alpha value obtained was placed at 0.83 indicating that the instrument is valid and reliable.

3.7. Method of Data Collection

Data collection will commence with the use of self-developed questionnaire. The questionnaire has two parts; part A aims at measuring the personal information of the respondents and part B, aims at measuring the assessment on the contributions of Delta State Covid 19 examination, Revision, Educational broadcast to secondary school students in Asaba. A guide directed to secondary school students in which the questions was merely constructed to obtain information from the respondents that would help in determining the student's academic performance in the study area. The questionnaires were both close ended and open structured. The questionnaires were personally administered by hand and the same method was employed in collection, and thereafter, the questionnaires were collected after filling them so as to ensure appropriateness.

The data for this study were collected from two main sources: the primary and secondary sources. The primary sources are related to direct observation, oral interview and the use of questionnaire. While journals, extracts, magazines, textbooks and further reading from unpublished Thesis and Seminar papers are the secondary sources to be used.

3.8. Method of Data Analysis

The data obtained will be analyzed with the aid of descriptive and inferential statistics. Research questions earlier stated will be analyzed with mean and standard deviation while the postulated hypotheses will be tested using the Pearson Product Moment Correlation Coefficient (PPMCC) statistical tool. This will be done with the aid of the Statistical Package for the Social Sciences (SPSS, version, 21).

3.9. Data Presentation

3.9.1. Questionnaire Return Rate

Out of the 292 copies of the questionnaires administered, only 250 copies were returned after an interval of one week of completion indicating 86% return rate. The implication for this study is that a good response rate was achieved from the respondents.

3.9.2. Class of Respondents

Table 1 Class of Respondents

Class	No of Respondent	Percentage (%)
JSS 3	135	54
SSS 3	115	46
Total	250	100

Source: Fieldwork, 2021.

Table 4.1 shows the class of the respondents in the selected secondary schools in Asaba. It could be deduced that 54% of the respondent are in JSS 1 while 46% are in SSS 3 indicating that majority of the certificate class students have knowledge about the outbreak of COVID-19 cases which led to the closure of schools across the country affected certificate classes most (JSS 3 and SS 3 classes).

3.9.3. Sex of Respondent

Table 2 Sex Distribution of Respondents

Sex	No of Respondent	Percentage (%)
Male	145	58
Female	105	42
Total	250	100

Source: Fieldwork, 2021.

Table 4.2 shows that 58% of the respondents are male while 42% are female. This implies that more males attended to the questions raised than females. This is an indication that the study population comprise of more male than female gender since there are more male students than females in Asaba. This is because male tend to keen interest in education matters than the female folks.

3.10. Usage of Educational broadcasting in assessing COVID-19 examination and revision in secondary schools

Table 3 Respondents' notion of accessibility of examination revision materials in secondary schools during Covid-19 outbreak

Response	No of Respondent	Percentage (%)
Agree	53	21
Strongly Agree	110	44
Disagree	33	13
Strongly Disagree	55	22
Total	250	100

Source: Fieldwork, 2021.

From table 4.3, about 21% of total respondents comprising of male and female students agreed that educational broadcasting can be used to assess COVID-19 examination and revision in secondary schools, 44% strongly agreed to this view, 13% disagreed to this view and 22% strongly disagreed to the researcher's opinion. This means that educational broadcasting can be used to assess COVID-19 examination and revision in secondary schools.

3.11. Level of utilization of educational broadcast methods among secondary school students

Table 4 Respondents' notion on the level of utilization of educational broadcast methods among secondary school students

S/N	QUESTIONS	SA	A	D	SD
1.	Educational broadcast methods are not adequately utilized among secondary school students	15 (6%)	220 (88%)	10 (4%)	5 (2%)
2.	Educational broadcast facilities are adequate and accessible to certificate class students	113 (45%)	83 (33%)	30 (12%)	10 (10%)
3.	Teachers in urban schools are more comfortable with the utilization of various educational broadcasting facilities during online classes compared to those in rural schools	78 (31%)	63 (25%)	48 (19%)	61 (25%)
4.	The utilization of educational broadcasting facilities has not been maximized especially for examination and revision to secondary school students	78 (31%)	145 (58%)	15 (6%)	13 (5%)
5.	Educational broadcasting offers potential learners an alternative and innovative learning environment compared with traditional learning and, thus, represents media-based innovation in education	192 (77%)	10 (4%)	33 (13%)	15 (6%)

Source: Fieldwork, 2021.

Data presented in Table 4.4 shows that the response of the respondents towards the level of utilization of educational broadcast methods among secondary school students. It could be deduced that 94% of the respondents agreed that educational broadcast methods are not adequately utilized among secondary school students while 6% disagreed. Also, 78% agreed that educational broadcast facilities are adequate and accessible to certificate class students while 22% disagreed. Similarly, 56% agreed that teachers in urban schools are more comfortable with the utilization of various educational broadcasting facilities during online classes compared to those in rural schools while 44% disagreed. In the same vein, 89% agreed that the utilization of educational broadcasting facilities has not been maximized especially for examination and revision to secondary school students while 11% disagreed. Conclusively, 81% strongly agreed that educational broadcasting offers potential learners an alternative and innovative learning environment compared with traditional learning and, thus, represents media-based innovation in education while 19% disagreed. This implies that there is variation in the level of utilization of educational broadcast methods among secondary school students in Asaba.

3.12. Opportunities provided and the contributions of Delta State Government on COVID-19 examination, revision, and educational broadcast to secondary school students

Table 5 Respondents' notion on opportunities provided and the contributions of Delta State Government on COVID-19 examination, revision, and educational broadcast to secondary school students

S/N	**QUESTIONS**	**SA**	**A**	**D**	**SD**
1	The Delta State Government have provided opportunities and in turn contributed to COVID-19 examination, revision, and educational broadcast to secondary school students	45 (18%)	115 (46%)	50 (20%)	40 (16%)
2	The emergence of educational broadcasting technologies provide opportunities on real-time information to certificate class students	190 (76%)	20 (8%)	25 (10%)	15 (6%)
3	Provision of educational broadcast methods by the government plays key role in the teaching and learning of students in secondary schools	95 (38%)	45 (18%)	53 (21%)	58 (23%)
4	The government during the COVID-19 pandemic embarked on rigorous programs that promote the use of educational broadcasting methods for effective contact teaching and learning.	73 (29%)	20 (8%)	75 (30%)	83 (33%)

5	Government during the COVID-19 pandemic encouraged the development of cognate skills needed to make socio-economic contributions in the knowledge world through educational broadcasting	35 (14%)	68 (27%)	75 (30%)	73 (29%)
	Educational broadcast is one of the most significant educational innovations driven by expanding array of digital technology enabled platforms	48 (19%)	155 (62%)	23 (9%)	25 (10%)

Source: Fieldwork, 2021.

Data presented in Table 4.5 shows that the response of the respondents towards the opportunities provided and the contributions of Delta State Government on COVID-19 examination, revision, and educational broadcast to secondary school students. It could be deduced that 64% of the respondents agreed that the Delta State Government have provided opportunities and in turn contributed to COVID-19 examination, revision, and educational broadcast to secondary school students while 36% disagreed. Also, 84% strongly agreed that the emergence of educational broadcasting technologies provide opportunities on real-time information to certificate class students while 16% disagreed. Similarly, 56% strongly agreed that provision of educational broadcast methods by the government plays key role in the teaching and learning of students in secondary schools while 44% disagreed. In the same vein, 63% of the respondents disagreed that the government during the COVID-19 pandemic embarked on rigorous programs that promote the use of educational broadcasting methods for effective contact teaching and learning while 37% agreed to this view.

In addition, 59% disagreed that government during the COVID-19 pandemic encouraged the development of cognate skills needed to make socio-economic contributions in the knowledge world through educational broadcasting while 41% agreed. Conclusively, 81% of the respondents agreed that educational broadcast is one of the most significant educational innovations driven by expanding array of digital technology enabled platforms while 19% disagreed. This implies that there are opportunities provided and the contributions of Delta State Government on COVID-19 examination, revision, and educational broadcast to secondary school students in Asaba.

3.13. Challenges faced in adopting educational broadcast methods among secondary school students

Table 6 Respondents notion on challenges faced in adopting educational broadcast methods among secondary school students

S/N	QUESTIONS	SA	A	D	SD
1	The adoption of educational broadcast methods in impacting knowledge into students	70 (28%)	83 (33%)	43 (17%)	55 (22%)
2	failures have hindered most teachers in using educational broadcasting methodologies in delivering their lectures, and undertake rigorous research works via online	115 (46%)	68 (27%)	60 (24%)	8 (3%)
3	Attitude of students during learning and teaching due to inadequate internet facility, inadequate training of teachers on educational broadcasting methods affect the successful adoption	103 (41%)	93 (37%)	18 (7%)	38 (15%)
4	In Delta State, the continual reduction of education budget affects the adoption of educational broadcast methods in secondary schools	58 (23%)	70 (28%)	60 (24%)	63 (25%)
5	Secondary schools have suffered limited resources, awareness, inadequate manpower and training, instability in energy, and poor internet and network facilities in their bid to exploit complete utilization of educational broadcast facilities.	85 (34%)	73 (29%)	48 (19%)	45 (18%)

Source: Fieldwork, 2021.

Data presented in Table 4.6 shows that the response of the respondents towards the challenges faced in adopting educational broadcast methods among secondary school students. It could be deduced that 61% of the respondents strongly agreed that the adoption of educational broadcast methods in impacting knowledge into students while 39% disagreed. Also, 73% agreed that failures have hindered most teachers in using educational broadcasting methodologies in delivering their lectures, and undertake rigorous research works via online while 27% disagreed. Similarly, 78% agreed that attitude of students during learning and teaching due to inadequate internet facility, inadequate training of

teachers on educational broadcasting methods affects the successful adoption while 22% disagreed. In the same vein, 51% agreed that in Delta State, the continual reduction of education budget affects the adoption of educational broadcast methods in secondary schools while 49% disagreed. Conclusively, 63% of the respondents strongly agreed that secondary schools have suffered limited resources, awareness, inadequate manpower and training, instability in energy, and poor internet and network facilities in their bid to exploit complete utilization of educational broadcast facilities while 37% disagreed. This means that there are challenges faced in adopting educational broadcast methods among secondary school students in Asaba.

3.14. Factors influencing the acceptance of educational broadcast methods in secondary school

Table 7 Respondents' notion on factors influencing the acceptance of educational broadcast methods in secondary school

S/N	QUESTIONS	SA	A	D	SD
1	Inadequate finance is a major factor influencing the acceptance of educational broadcast methods in secondary schools	155 (62%)	48 (19%)	25 (10%)	23 (9%)
2	Students prefer to cope with classroom teaching than educational broadcast methods	20 (8%)	190 (76%)	15 (6%)	25 (10%)
3	Students are not acquainted with online teaching and learning adopted by the government during the COVID-19 pandemic	60 (24%)	115 (46%)	8 (3%)	68 (27%)
4	Lack of technical-know-how influence the acceptance of educational broadcasting methods in secondary schools	145 (58%)	13 (5%)	78 (31%)	15 (6%)
5	School administrators need to build competitive advantage amidst decreasing cost of technologies in the contemporary information systems before educational broadcasting can be widely accepted	83 (33%)	113 (45%)	10 (10%)	30 (12%)

Source: Fieldwork, 2021.

Data presented in Table 4.7 shows that the response of the respondents towards the factors influencing the acceptance of educational broadcast methods in secondary school. It could be deduced that 81% of the respondents agreed that inadequate finance is a major factor influencing the acceptance of educational broadcast methods in secondary schools while 19% disagreed. Also, 84% agreed that students prefer to cope with classroom teaching than educational broadcast methods while 16%. Similarly, 70% agreed that students are not acquainted with online teaching and learning adopted by the government during the COVID-19 pandemic while 30% disagreed. In the same vein, 63% agreed that lack of technical-know-how influence the acceptance of educational broadcasting methods in secondary schools while 37% disagreed. Conclusively, 78% of the respondents agreed that school administrators need to build competitive advantage amidst decreasing cost of technologies in the contemporary information systems before educational broadcasting can be widely accepted while 22% disagreed. This is evidence that there are noticeable factors influencing the acceptance of educational broadcast methods in secondary school in Asaba.

3.15. Data Analysis

3.15.1. Research Question One

What are the significant differences in the level of utilization of educational broadcast methods among secondary school students in Asaba?

The researchers relied on data present under Table 4.4 to answer this research question. Standard deviation statistics was used for data analysis with decision rule as follows.

Table 8 Response to research question one

S/N	Questions	Agree	Disagree	Mean	SD	Decision
1	Educational broadcast methods	235	15	3.13	1.67	Agree
2	Educational broadcast facilities	196	40	2.54	1.60	Agree
3	Teachers in urban schools	141	109	2.58	1.65	Agree
4	The utilization of educational broadcasting facilities	223	28	2.66	1.74	Agree
5	Educational broadcasting offers potential learners	202	48	2.96	1.88	Agree
	Total			2.77	1.71	

Agree if calculated mean score is greater than standard mean score (2.50) and disagree if calculated mean score is less than standard mean score (2.50) ; Source: Fieldwork, 2021

Table 4.8 shows level of utilization of educational broadcast methods among secondary school students in Asaba. The table indicates that the mean score of the respondents is 2.77 is greater than the standard mean score of 2.50 with standard deviation of 1.71 indicating that there is significant differences in the level of utilization of educational broadcast methods among secondary school students in Asaba.

3.16. Research Question Two

What other opportunities was provided by the Delta State Government on COVID-19 examination, revision, and educational broadcast to secondary school students in Asaba?

The researcher relied on data present under Table 4.5 to answer this research question. Standard deviation statistics was used for data analysis with decision rule as follows.

Table 9 Response to research question two

S/N	Questions	Agree	Disagree	Mean	SD	Decision
1	The Delta State Government have provided opportunities	160	90	3.33	1.62	Agree
2	The emergence of educational broadcasting technologies	210	40	2.71	1.87	Agree
3	Provision of educational broadcast methods by the government	140	111	2.76	1.82	Agree
4	The government during the COVID-19 pandemic	93	158	2.46	1.63	Disagree
5	Government during the COVID-19 pandemic encouraged	103	148	2.41	1.64	Disagree
11	Educational broadcast is one of the most significant educational innovations	203	48	2.95	1.72	Agree
	Total			2.77	1.72	

Agree if calculated mean score is greater than standard mean score (2.50) and disagree if calculated mean score is less than standard mean score (2.50); Source: Fieldwork, 2021

Table 4.9 shows the other opportunities provided by the Delta State Government on COVID-19 examination, revision, and educational broadcast to secondary school students in Asaba. The table indicates that the mean score of the respondents is 2.77 is greater than the standard mean score of 2.50 with standard deviation of 1.72 indicating that there are other opportunities provided by the Delta State Government on COVID-19 examination, revision, and educational broadcast to secondary school students in Asaba.

3.17. Research Question Three

What are the challenges faced in adopting educational broadcast methods and e-learning among secondary school students in Asaba?

The researcher relied on data present under Table 4.6 to answer this research question. Standard deviation statistics was used for data analysis with decision rule as follows.

Table 10 Response to research question three

S/N	Questions	Agree	Disagree	Mean	SD	Decision
1	The adoption of educational broadcast methods	153	98	3.13	1.61	Agree
2	Failures have hindered most teachers in using educational broadcasting methodologies	183	68	2.58	1.63	Agree
3	Attitude of students during learning and teaching	196	56	3.19	1.64	Agree
4	In Delta State, the continual reduction of education budget affects the adoption	128	123	2.56	1.48	Agree
5	Secondary schools have suffered limited resources	158	93	2.64	1.62	Agree
	Total			2.82	1.59	

Agree if calculated mean score is greater than standard mean score (2.50) and disagree if calculated mean score is less than standard mean score (2.50); Source: Fieldwork, 2021

Table 4.10 shows the challenges faced in adopting educational broadcast methods and e-learning among secondary school students in Asaba. The table reveals that the mean score of the respondents is 2.82 which is greater than the standard mean score of 2.50 with standard deviation of 1.59 indicates that there are challenges faced in adopting educational broadcast methods and e-learning among secondary school students in Asaba.

3.18. Research Question Four

What are the factors influencing the acceptance of educational broadcast methods and e-learning technology in secondary schools within Asaba?

The researcher relied on data present under Table 4.7 to answer this research question. Standard deviation statistics was used for data analysis with decision rule as follows;

Table 11 Response to research question four

S/N	Questions	Agree	Disagree	Mean	SD	Decision
1	Inadequate finance is a major factors	203	48	3.08	1.79	Agree
2	Students prefer to cope with classroom teaching	210	40	3.13	1.75	Agree
3	Students are not acquainted with online teaching	175	76	2.80	1.67	Agree
4	Lack of technical-know-how	158	93	2.55	1.77	Agree
5	School administrators needs to build competitive advantage	196	40	3.07	1.75	Agree
	Total			2.93	1.75	

Agree if calculated mean score is greater than standard mean score (2.50) and disagree if calculated mean score is less than standard mean score (2.50); Source: Fieldwork, 2021

Table 4.11 shows the factors influencing the acceptance of educational broadcast methods and e-learning technology in secondary schools within Asaba. The table reveals that the mean score of the respondents is 2.93 is greater than the standard mean score of 2.50 with standard deviation of 1.75 indicating that there are other factors influencing the acceptance of educational broadcast methods and e-learning technology in secondary schools within Asaba.

3.19. Discussion of Findings

The result of the findings obtained from research question one showed that there is significant differences in the level of utilization of educational broadcast methods among secondary school students in Asaba since the computed mean value (2.77) is greater than the standard mean value (2.50) and at 0.05 level of significance. This corroborates with the

findings of Elvis (2020) who observed that, the utilization rate of educational broadcasting methods increased during the Covid-19 outbreak.

The result of the findings obtained from research question two showed that there are other opportunities provided by the Delta State Government on COVID-19 examination, revision, and educational broadcast to secondary school students in Asaba since the computed mean value (2.77) is greater than the standard mean value (2.50). This conforms with the findings of (Enebeli, 2020) and Bhuasiri, *et al*. (2021) who found that the process of learning during the COVID-19 pandemic is significantly different than the conventional learning approach. The findings of Bates and Jenkins (2017) who observed that, the emergence of educational broadcasting technologies and the ubiquitous connectivity of internet and networks improve man's ingenuity and opportunities given that societies consciously depend on real-time information to be proactive and to discount the effects of environmental changes. They concluded that, the effect of COVID-19 outbreak on the educational system is such that affected the governments, school management, teachers, and students.

The result of the findings obtained from research question three showed that there are challenges faced in adopting educational broadcast methods and e-learning among secondary school students in Asaba since the computed mean value (2.82) is greater than the standard mean value (2.50). The findings of Markus and Robey (2020) and Bhuasiri, *et al*. (2021) who observed that most institutions are not able to fully utilize e-learning or get full advantages of it during the COVID-19 outbreak. They found that these failures have hindered most teachers in using educational broadcasting methodologies in delivering their lectures, and undertake rigorous research works via online.

The result of the findings obtained from research question four showed that there are other factors influencing the acceptance of educational broadcast methods and e-learning technology in secondary schools within Asaba since the computed mean value (2.93) is greater than the standard mean value (2.50). The findings of Eze, *et al*. (2013) and Chuang, *et al*. (2019) who observed that, the attitude of students during e-learning and teaching, inadequate internet facility, inadequate training of teachers on educational broadcasting methods are major factors which affect the successful adoption.

4. Conclusion

From the research findings, the following conclusions were drawn:

- There is significant difference in the level of utilization of educational broadcast methods among secondary school students in Asaba.
- There are other opportunities provided by the Delta State Government on COVID-19 examination, revision, and educational broadcast to secondary school students in Asaba.
- There are challenges faced in adopting educational broadcast methods and e-learning among secondary school students in Asaba.
- There are other factors influencing the acceptance of educational broadcast methods and e-learning technology in secondary schools within Asaba.

Recommendations

Based on the research findings, the following recommendation were made:

- Secondary school students and students of higher institutions should be subjected to e-learning teaching during any deadly pandemic outbreak.
- A wider range of academic learning should be based on e-learning which will restrict students to their own work, forcing a bigger responsibility of the online teaching and learning results leading to students development. This will improve the academic performance of students.
- The effectiveness of distance education and mobile learning in didactic practices in academic education should be determined by the attitude of the students rather than by modern digital devices.
- Most institutions should fully utilize e-learning by taking full advantages of educational broadcasting techniques. This will enhance teaching and learning in secondary schools.

Educational broadcast methods which play key role in the teaching and learning of students in secondary schools should be encouraged particularly in the educational milieu, where the academia and consultants progressed from providing simple teaching aids to interactive learning environments.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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