

Digital Facilities for Managing West African Senior School Certificate Examination (WASSCE) in Rivers State

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Abstract

This study investigated digital facilities for managing West African Senior School Certificate examination in Rivers State. Four research questions and four hypotheses guided the study. A descriptive research design was adopted. The population of the study was 636. The sample size for the study was 300 comprising 140 Principals and 160 Vice Principals in the 318 public senior secondary schools in Rivers State. Proportionate Stratified sampling Technique was used to select the sample. The instrument for data collection was a questionnaire titled: "Digital Facilities for Managing West African Senior School Certificate Examination (WASSCE) Questionnaire (DFMWSSCEQ). The instrument was validated by the four experts two from the Department of Educational Management, and others from the department of Guidance and Counselling of Ignatius Ajuru University of Education. The reliability of the instrument was done using test-retest method which gave a reliability index of 0.78. Mean and standard deviation scores were used to answer the research questions, while independent t-test was used to test the null hypotheses at 0.05 level of significance. The findings among others revealed that to a low extent Principals and vice principals are not using digital facilities such as CCTV, biometric identification and metal detector for managing West African Senior School Certificate Examination (WASSCE) in Rivers state. It was concluded that digital facilities such as CCTV, biometric identification and metal detector are not for managing West African Senior School Certificate Examination (WASSCE) in Rivers state. Based on the findings, it was recommended that examination bodies (WAEC) should procure more digital facilities in order to manage the examination in schools while school administrators, teachers, invigilators and examination officials should be taught on how to use the devices in examination centres.

Keywords: Digital facilities, Management, West African Senior School Certificate Examination, WAEC, Rivers State.

I. Introduction

Technology has become an important source of innovation and improvement for many sectors across the globe. In the education sector, particularly, the application of digital facilities has become a critical part of teaching and learning process in the school both inside and outside the classroom setting. Albin (2020) stated that some stakeholders consider the digital facilities as effective learning facilities and have invested huge amount of money to adopt them in the education system during the last two decades. Some studies suggest that most schools that have fully adopted digital facilities have recorded immense advancement in terms of learning outcome and improvement of teaching methods. It is however, clear what effect the applications of digital facilities have on the administration of students examination. According to Olaniyi (2006) digital facilities is all about the use of computers in the administration, monitoring and recording of examination.

Digital facilities adoption in this study is understood as a gradual switching over to automation of the technology in educational process not only in administrative activities like students admission, registration, and evaluation but also developing a customized method of managing examination using computers. The teachers as well as the students are allowed access to the digital facilities along with its all services and the specialized online tools. The adoption of digital facilities such CCTV, metal detector, biometric identification etc. in some Nigerian schools has reportedly facilitated the educational processes to a great extent in administration of examination. However, there are varying opinions of people on the centrality of digital facilities in the examination processes in schools. For some, ICT is the thing in modern learning and failure to switch over to technology -based learning is seen as failure in learning process enhancement. To Hamidi, Meshkat, Razaee and Jafari (2020) and Capan (2019) stated that one of the enduring problems of the 21st century education system is lack of putting technology before education. According to them, educational planners and technology advocates only think of the technology first and then investigate the educational applications of this technology only later. On the other hand, Gulbahar and Guven (2019) opined that, the adoption of technological facilities use in teaching and learning improves learning outcome.

Examination is one of the major tools to measure students' achievement in the schools; this must be handled with all the necessary knowledge in order to ensure its effectiveness. In the context of this paper, examination refers to the measurement of students' abilities across various academic subjects. With the advancement in digital facilities in the education system, the method of administering examination has switched from the manual, traditional to computerized methods. For instance, its usage in the Unified Tertiary Matriculation Examination (UTME) where the candidates are using Computer Based Test (CBT) unlike the Pencil and Paper Test (PPT) in tertiary institutions. Another usage of digital facilities is its applications in Result Management System (RMS) in tertiary institutions where all the students' results are monitored and managed by the advent of digital facilities. In this sense, it is imperative to also note that without the effective management, all the digital facilities cannot be operating at the optimum level. Management on the other hand refers to the abilities to use available resources without wastage for achieving results.

West African Senior School Certificate Examinations (WASSCE) is a form of summative evaluation undertaken by all the secondary schools in Nigeria and other west African countries. WAEC result is crucial for students' progression to higher education, influencing university admissions and scholarship opportunities. They also play a role in future career prospects as employers often consider WAEC performance. West African Senior School Certificate Examinations (WASSCE) is managed and controlled by the West African Examinations Council (WAEC). It is an examination board that conducts standardized tests in 5 English-speaking countries of West Africa (Ghana, Nigeria, Sierra Leone, Liberia and the Gambia). It is responsible for determining examinations required in the public interest, conducting those exams, and awarding certificates. It was established in Nigeria in (1952) with head office in Yaba Lagos state. WAEC's mission includes promoting academic and moral excellence and contributing to sustainable human resource development. Secondary school is a six-year form of education which children receive after primary school before proceeding to the tertiary level of education. According to the National Policy of Education (Federal Republic of Nigeria, 2004). Secondary education is the form of education attended by children after primary education and before tertiary education. Secondary educations exist within the ambit of the law and are supervised by the Ministry of Education and its State agencies.

Rivers state is one of the thirty-six in Nigeria, and is located in the southern part of Nigeria, with a population of 6,567, 244. The major occupation of the Rivers people are oil production, fishing, and farming with major agricultural produces Cassava. The topography of the area is 75% swampy with water above the surface of the land.

II. Statement of the Problem

There is a universal outcry in Nigeria over two decades due to poor conduct of West African Senior School Certificate Examinations (WASSCE) by the West African Examination Council (WAEC) This, until it is given proper definition and control measures, its eradication will continue to be worrisome by individuals and the society at large. The most pathetic experience is the recent (2025) West African Senior School Certificate Examinations (WASSCE) which has left the stakeholders, parents, and most especially the students (candidates) into traumatic and psychological imbalance. The issue according to the board has emanated from series of problems such as inefficiency or inadequacy of technologists (experts), poor system professionals, poor or inadequate power supply, inadequate materials etc. It is also observed that the West African Examinations Council (WAEC) is left behind the scene of the digital facilities which is facilitating the education system across the globe. As a result of this, the West African Examinations Council (WAEC) is losing her credence from Nigerians. It is based on this background that this paper sought to examine digital facilities for managing West African Senior School Certificate Examination (WASSCE) in Rivers State.

Aims and Objectives of the Study

The main aim of this study was to investigate technological strategies for managing examination malpractice in public senior secondary schools in Rivers state. Specifically, the study sought to:

Identify the various digital facilities for managing West African Senior School Certificate Examination (WASSCE) in Rivers State.

Examine the extent to which CCTV as facility is used for managing West African Senior School Certificate Examination (WASSCE) in Rivers State.

Examine the extent to which biometric identification as a facility is used for managing West African Senior School Certificate Examination (WASSCE) in Rivers State.

Examine the extent to which metal detector as a facility is used for managing West African Senior School Certificate Examination (WASSCE) in Rivers State.

Research Questions

The following research questions were posed to guide the study.

What are the various digital facilities for managing West African Senior School Certificate Examination (WASSCE) in Rivers State?

To what extent does CCTV as a digital facility is used for managing West African Senior School Certificate Examination (WASSCE) in Rivers State?

To what extent does biometric identification as a facility is used for managing West African Senior School Certificate Examination (WASSCE) in Rivers State?

To what extent does metal detector as a facility is used for managing West African Senior School Certificate Examination (WASSCE) in Rivers State?

Hypotheses

The following hypotheses were formulated and tested at 0.05 level of significance to guide the study.

There is no significant difference in the mean ratings of principals and vice principals on the

various digital facilities for managing West African Senior School Certificate Examination (WASSCE) in Rivers State.

There is no significant difference in the mean ratings of principals and vice principals on the extent CCTV as a digital facility is used for managing West African Senior School Certificate Examination (WASSCE) in Rivers State.

There is no significant difference in the mean ratings of principals and vice principals on the extent biometric identification as a digital facility is used for managing West African Senior School Certificate Examination (WASSCE) in Rivers State.

There is no significant difference in the mean ratings of principals and vice principals on the extent metal detector as a digital facility is used for managing West African Senior School Certificate Examination (WASSCE) in Rivers State.

III. Theoretical Review

This study anchored on two theories of technology usage in the educational system. They are the theory of diffusion of innovations by Rogers (2015), and the gratification theory by Katz, Blumler and Gurevitch (1974).

Theory of Diffusion of Innovations

Rogers's theory stated the process by which an innovation is communicated through certain channels and over time among the members of a social system. The process will start with "knowledge" of the first channel that represents characteristics of the decision making unit by the ICT users in order to integrate the technology. And it ends with "confirmation" by the users to accept the technology and integrate it accordingly.

Rogers went to posit that, adoption of a new idea, behavior, or product (i.e., "innovation") does not happen simultaneously in a social system; rather it is a process whereby some people are more apt to adopt the innovation than others. Researchers have found that people who adopt an innovation early have different characteristics than people who adopt an innovation later. When promoting an innovation to a target population, it is important to understand the characteristics of the target population that will help or hinder adoption of the innovation. According to the Rogers' 'technological innovation' is communicated through certain channels overtime among the members of a social system; Rogers (1977). Technological innovation refers to a scientific change or shift from the norms and every day practice. According to Rogers (1977), technological innovation refers to any technical idea, practice or project perceived as being new in any social system irrespective of whether that concept has been in use a long time ago or not.

From this perspective, new ICTs such as the internet are seen to have a high degree of relative advantage, as Rogers (2001) continues: "compared to postal mail, email via the internet is faster, cheaper and quicker. Compared to books or other sources of information, the World Wide Web is a more convenient means of searching for information (that is, if an individual has access to a computer and modern)". The Rogers diffusion of innovation theory as relates with this study shows that the recent craze for information all over the world has given rise to the opening of info-net ways thus the advocate for the adoption of ICTs into the educational system globally. In the context of this study, information and communication technology (ICT) is an innovation which though not entirely new, but due to the dynamics in the educational system; and the need to adopt it (ICT) into the educational system, administrators may perceive it as new, then it may still be an innovation for them. The theory in agreement with this study advocates that information and communication technology is an innovation which brings about change in behaviour so that man is enabled to adapt to the demand of any new technological concept. In addition, the theory further advocates the need

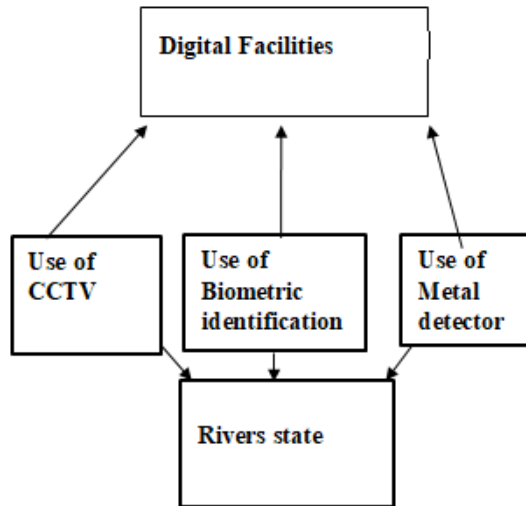
to gradually assimilate ICT into our teaching-learning environment.

The Gratification Theory by Katz, Blumler and Gurevitch (1974)

Basically, the theory places more emphasis on “what people do with media” rather than “what media do to people”. Uses and Gratifications theory is the study of the gratifications or benefits that attract and hold audiences to various types of media and the types of content that satisfy their social and psychological needs. Social networking sites as new media of communication also lends itself to uses and gratifications approach, in part due to its interactive nature (Grant, 2005). Uses and gratifications research has typically focused on how media are used to satisfy cognitive and affective needs involving personal needs and entertainment needs (Rubin, 2002). This hypothesis specifically puts power in the hands of the crowd. Instead of expecting that media messages have immediate, uniform impacts on the individuals who devour them, the Uses and Gratifications point of view suggests that beneficiaries make planned, purposeful choices about the media messages they open themselves to and at what recurrence taking into account individual needs and cravings independent of its impact on them-positive or negative. Relating this theory to this current study, it shows that university management use Social networking sites like Facebook, WhatsApp, 2go, twitter etc just to satisfy their needs- which may either be physical or psychological- irrespective of the direction of its influence on the management of university. Besides, it offers explanations to suggest that school management use this site for varying reasons. In other words, users select media based on how well each one helps them meet specific needs or goals.

IV. Conceptual Framework

Conceptual Framework



Schematic representation of the variables.

Source: Researcher concept, 2025.

Concept of Digital Facilities

The term “digital facilities have been defined by different scholars. For instance, Boyd and Elision (2007) defined if as “web-based facilities that allow individual to construct a possible or semi possible profile within a bounded system, to articulate a list of other users with whom they share a connection, and to view and traverse their list of connections and those made by others within the system”. By this definition digital facilities is the combination of various internet tools that enable users to generate, exchange and modify content continuously (Noone, Mcguire, & Rohlf, 2011). The World Wide Web has radically altered the way we

share information by lowering the barrier to publishing and accessing documents on the internet (Bizer, Heath, & Berners-Lee, 2009). From its early origin as a simple portal to publish and share data it has grown into the interactive architecture commonly referred to as Web 2.0, a term which was originally coined by Tim O'Reilly in (2005) refers to a loose gathering of a wide variety of family-resembling technologies, services and products (Floridi, 2009). They are the combination of the internet resources use education. They are wholesome integration of modern telecommunication equipment and ICT resources, particularly the internet into the education system. Some of the e-learning facilities use in the teaching include; Whatsapp, zoom, face book, computer, projectors, smart board, pod cast, cell phone, CD writer, modem, laptop, computers, video tape, audio tape, flash drive, virtual library etc.

Nowadays, in this twenty-first century classroom, learning where teachers interact face-to-face with students is becoming obsolete in nature (Pei & Wu, 2019). In most civilized societies today, learning has been brought to the individual learners at home or in offices using computers and even mobile devices such as smart phones through the use of the internet (Pei & Wu, 2019; Sangedhi, 2019). This system of education is called electronic learning (e-learning). However, there is no agreed-upon description of what electronic learning is due to its complexity. Because of this, several academics have defined digital facilities according to different standards. Digital facilities according to Florin et al. (2019), is a type of technologies that largely uses electronic media. It involves the use and application of information and communication technology (ICT) tools, such as computers and internet-enabled devices, to conduct learning between participants in different physical locations. When discussing digital facilities the term “refers to the educational materials over the technologies use by students who are not present in the same physical location at the time of teaching (Pei & Wu, 2019; Sangedhi, 2019; Keskin&Yurdugül, 2020). Participants can connect with one another via text or live videos while learning takes place in real-time. The Google Classroom suite and the Zoom Meeting app are two prominent examples of the support systems that make learning in this subclass easier (Nwankwo&Ukhurebor, 2020; Nneji, et al., 2022). On the other side, computer-aided instruction is the process of disseminating multimedia learning materials for interested parties to view (Keskin&Yurdugül, 2020). This includes a lot of YouTube lessons and massive open online courses. Regardless of the criteria employed by any researcher, digital devices and the Internet form the foundation of any e-learning platform since they give participants the necessary framework for knowledge sharing (Pei & Wu, 2019; Sangedhi, 2019).

Use of Digital Facilities for Managing West African Senior School Certificate Examination (WASSCE)

In the area of education, Danciu and Grosseck (2011) found out that more and more colleges and universities from all over the world are widening their curriculum landscape beyond technology by integrating different forms of digital facilities , such: zoom, Google classroom, WhatsApp, audio-visual, radio, cell phones etc as discussed below.

Zoom

Zoom is a video and audio technology that is mainly used for video conferences. Zoom's widespread use during the COVID-19 pandemic has ensured that face-to-face interaction can take place between teachers and learners to some extent (Major, 2020).

Google Classroom

Google classroom is an e-learning system designed and maintained by google. It is a cloud-based learning system that was developed with the aim of helping teachers upload class work, projects, and assignments to the platform in order for the students to gain access to

them at a convenient time. Any user of the system must have a google account. It is designed to be used only by teachers in schools that have registered for the Google education suite.

WhatsApp

WhatsApp is a mobile application that is used to share text messages and multimedia files. It was created in 2009 and has grown to become the most popular and one of the most widely used social media applications (Fawzi, 2015). WhatsApp can be installed on a smart phone, tablet, or computer. WhatsApp has many features that make it a very good e-learning platform. Etim et al. (Etim, Udosen, & Ema, 2016), suggested a significant positive influence of WhatsApp on the AP of students as it enabled students to have easy access to the taught subject matter, thus improving their performance.

Challenges in Applications of Digital Facilities in Administration of Examination in Tertiary Institutions in Nigeria

Esharenana et al (2013) in their works 'highlighted the low rate of digital facilities adoption and applications in Nigerian tertiary institutions is attributed to several factors and one of such is limited school budget. Other factors include:

Ineffective participation for both teachers and students allocated to the teaching of the subjects. This is due to inadequate time and inadequate ICT facilities to accommodate all the students.

Erratic power supply during the teaching and learning process which disrupt the use of the ICT facilities is another problem affecting the process. Generators should be kept standby to compliment electric failures.

Lack of technical skill in terms of accessible internet will also affect the effective use of ICT since availability does not necessarily translate into use in the classroom.

Another major barrier to teachers is lack of incentive and support hindering them from the usage. Teachers should ensure flexible curricula as to have time for innovative classroom practice which would enable them to be more conversant with the software and hardware of computers.

The worst barriers teachers have in the use of computers and other ICT is known as technophobia, which means not participating in acquiring the skills for teaching and learning process in the classroom. However, inadequate time in the class also affects teachers planning schedules.

Closed-Circuit Television (CCTV) as a Digital Facility for Managing West African Senior School Certificate Examination (WASSCE)

Close Circuit Television (CCTV): These are cameras used to monitor the premises of the examination and the school at large. They are placed at strategic locations around school premises and offices, examination hallways, entrance, and classrooms to monitor activities of people within the area. Daily coverage is saved and recorded for reference purpose in case of any eventuality. These cameras now either cover more area with a single camera or provide more detail within the traditional field of view. The increasing resolution, even with improved encoding efficiencies, requires more and more bandwidth and storage. New technology, called Region of Interest (ROI) Encoding has been developed to resolve this issue by providing the highest image quality on the areas or a scene or objects of most interest while reducing the quality level in uninteresting areas to provide the highest quality/lowest bandwidth results. There are many surveillance situations where there is ROI and background information in the same scene. In this white paper, two types are presented, the manually enabled ROI and ROI triggered by intelligent analysis on the image. Most schools have some kind of CCTV system in place but it's typical that these systems are dated

and rely on things like physical hard drives to keep all of that footage around in case it is ever needed. Cloud surveillance, on the other hand, allows operators to accurately review a specific incident or monitor security in real-time in the event that there's an emergency scenario. For example, if law enforcement wanted real-time views of the inside of a school building, a cloud system would allow this whereas older legacy systems would require them to actually physically access the computer that the system would be hooked up to.

The use of CCTV in schools is much less common. It's not hard to see why. The thought of a school having CCTV cameras installed around its premises can be unsettling for students and parents alike. However, recent research has shown that these cameras are actually one of the best ways schools can protect their pupils from harm and improve security.

The first CCTV system was installed in Germany in 1942 by German engineer Walter Bruch to observe the launch of the V2 Rocket at Test Stand VII. ...Today, there are approximately 25 million CCTV cameras in use worldwide, and the average person is captured on camera around 300 times a day.

Results of a study by Lyric (2015) showed that the crime prevention effect of the CCTV was significant. The number of robberies and thefts in the areas with CCTV installed reduced by 47.4%, while the areas without CCTV showed practically no change in the number of crimes. Similarly, results revealed that the installation of CCTV cameras are very effective in crime prevention as it monitors and records the scenes 24/7 that can help in solving any reported crimes such as theft or robbery incident. Outside of being able to monitor your premises, CCTV cameras are an excellent deterrent for burglars. Just like seeing a mounted alarm system, an intruder seeing cameras may decide that it's easier and safer to move elsewhere. It's much better to prevent intrusion than dealing with it after it's occurred. CCTVs are essential surveillance equipment that helps police agencies in strengthening the safety of all citizens. These services monitor the movement of all people within crime prone areas and protected regions such as government offices.

CCTV in schools is not only used for monitoring teachers. However, it has become more prevalent in recent years. Schools are increasingly using CCTV cameras to monitor their examination and teachers. Similarly, to many businesses, this is to ensure that they adhere to the correct procedures and policies.

Monitoring Teachers' Activities

The main focus benefit of CCTV in schools should undoubtedly be creating a secure space for all. The installation of CCTV in schools or the education sector ensures a safer examination hall and school environment. Safety is ensured for both children and teachers and also puts many parents at ease. Surveillance will also discourage inappropriate and disorderly behavior in the examination halls.

Deterring Vandalism of Examination Materials

CCTV cameras are installed in schools to help prevent vandalism of examination materials. vandalism of examination materials is a problem in many schools and will cost schools thousands in settling the examination bodies. The more cameras your premise has, the less likely it will be that someone will commit vandalism against your property. Knowing you are being watched is often enough to deter crime.

If you are caught committing vandalism, then there's a good chance you will face criminal prosecution and be arrested by police officers. Many would rather not do anything wrong than risk being arrested by law enforcement officials for their crimes.

A recent story from 'The Press' reports of police in North Yorkshire appealing for information about the persons involved in the acts of vandalism at Harrogate Primary School. A simple CCTV security system could have helped to prevent the unsuccessful outcome of this police investigation. Anti-social behaviour such as this is bound to cause alarm within the community, creating worrying feelings of school being an unsafe environment for children to be in.

Friday (2016) carried out a study on use of CCTV and economic teachers' effectiveness in secondary schools in Uyo Senatorial District of Akwa Ibom State. Two research questions guided the study. The findings revealed that there was significant influence in the use of CCTV on economic teachers' effectiveness in teaching the subject matter and there is significant influence of use of CCTV on economic teachers' effectiveness in class room discipline. One of the recommendations was that CCTVs should be installed in most of the schools to increase teacher's commitment and preparedness in teaching their subject.

CCTV in schools is a valuable asset to any school, providing the safety and security of students and staff. They also help to improve the day-to-day running of schools, making them run more efficiently, and allowing staff to be aware of issues before they become problems. By having CCTV installed in your school, you will be able to monitor what's happening at all times and react quickly if an incident occurs.

Biometric Identification Scanners as a Digital Facility for Managing West African Senior School Certificate Examination (WASSCE)

Biometric identification scanners are devices, such as fingerprint or facial recognition scanners can be used to control access to certain areas of the school such as examination halls, the main entrance of school gate, computer laboratories or administrative offices. Friday (2016) opined that this technology can help to prevent unauthorized access to examination hall and other sensitive areas. For effective use of biometric scanner, teachers, invigilators, supervisors, students and regular visitors' biometric information are collected for proper recognition by the scanner. Unidentified persons cannot gain access to the examination hall or school premises as anyone entering the school examination hall must be identified. Access control facilities should be created in different zones, where only those with the appropriate credentials are granted access in examination hall. In the event of an emergency, this could allow educators to get students to a safe area using their credentials. This system could also be used to lock down portions of a building, aiding emergency responders in quarantining a specific part of the facility so that a problem doesn't spread.

Metal Detector as a Digital Facility for Managing West African Senior School Certificate Examination (WASSCE)

Metal detectors is an electronic tool in curbing examination malpractice by detecting electronic devices used for cheating, such as smartphones or smartwatches, that students might try to smuggle into the exam hall. (Aduwa-Ogrebaen, S. E. and Iyamu, O.S. 2005) While not a complete solution, they can significantly reduce the likelihood of students using technology to cheat. Aduwa-Ogrebaen, S. E. and Iyamu, O.S. (2005) stated that metal detector can be used to: Detection of electronic devices, Deterrent effects, Enhanced invigilation, and reduced impersonation:

Detection of electronic devices: Metal detectors can identify hidden devices like phones, smartwatches, or other gadgets that students might attempt to conceal.

Deterrent effect: The mere presence of metal detectors can deter students from bringing prohibited items into the exam hall, reducing the temptation to cheat.

Enhanced invigilation: Metal detectors can be used in conjunction with other measures, like

CCTV surveillance and biometric verification, to create a more secure examination environment.

Reduced impersonation: Biometric verification, often used alongside metal detectors, can help prevent impersonation by ensuring that the person taking the exam is the registered students.

V. Methodology

The study adopted a descriptive research design. The population of the study was 636. The sample population used for the study was 300 comprises of 140 Principals and 160 vice principals in the 318 public senior secondary schools in Rivers State. Stratified random sampling technique was used to select the sample. The instrument used for data collection in this study was questionnaire titled: “Digital Facilities for Managing West African Senior School Certificate Examination (WASSCE) Questionnaire (DFMWSSCEQ). The instrument consists of two sections, section A dealt with items on Demographic data of the respondents such as names, age, sex, marital status, years, qualification etc. while, section B dealt with the question’s items in cluster of the independent variables. The response patterns were 4point Likert scale patterns as Very High Extent (VHE) = 4 points, High Extent (HE) = 3 points, Low Extent (LE) =2 points, and Very Low Extent (VLE) = 1 point. To ensure the validity of the instrument, the instrument, was validated by the four experts two from the Department of Educational Management and others two from the Department of Educational Psychology, Guidance and Counselling, after which their comments and corrections were used to draft the final copy of the instrument. To ensure the reliability of the instrument, test- retest method was carried out on 20 principals and vice principals outside the sample population to measure the internal consistency of the instrument. The instrument was administered directly by the researcher to the respondents with the help of two research assistants which aided the administration and retrieval of copies of the instrument. Mean and standard deviation scores was used to answered the research questions, while independent t-test was used to test the null hypotheses at 0.05 level of significance. This was done using Statistical Package for Social Science (SPSS) version 25. The mean scores were classified using real limits of number. 0.05-1.49 represents Very Low Extent (VLE), 1.50-2.49 represents Low Extent (LE), 2.50-3.49 represents High Extent (HE), and 3.50-4.49 represents Very High Extent (VHE) Respectively.

VI. Results and Discussion

Results of Research Questions

Research Question One: What are the various digital facilities for managing West African Senior School Certificate Examination (WASSCE) in Rivers State?

Table 1: Mean responses of respondents on the various on the various digital facilities for managing West African Senior School Certificate Examination (WASSCE) in Rivers State.

SN	(Digital facilities)	Principals	Mean Set	Vice principals	DECISION
		Mean (X)	$\frac{\bar{X}_1 + \bar{X}_2}{2}$ (SD) (X1+X2)	mean (X)	(SD)
1	CCTV	2.44	1.08	2.23	.91 LE
			2.04		
2	Biometric identification	2.45	.57	2.27	.45 LE

3	Metal detector	2.43	2.35 .67	2.06	.72	LE
Cluster Mean		2.44	2.23 .77	2.18	.69	LE
			2.17			

Table 1 showed the mean ratings of respondents on the various digital facilities used for managing West African Senior School Certificate Examination (WASSCE) in Rivers State. All the items from 1-3 had low mean scores below the criterion mean of 2.50. Item 1 had a mean score and standard deviation of 2.44 and 1.08 respectively. This implies that respondents agree that CCTV is not used for managing West African Senior School Certificate Examination (WASSCE). Item 2 had a mean score and standard deviation of 2.45 and .57 respectively. This implies that Biometric identification is not used for managing West African Senior School Certificate Examination (WASSCE). Item 3 had a mean score and standard deviation of 2.43 and .67 respectively. This implies that metal detector is not used for managing West African Senior School Certificate Examination (WASSCE). The cluster mean and standard deviations of 2.44 and .77, for principals and 2.18 and .69 for vice principals showed that the respondents to a low extent agree that CCTV, biometric identification and metal detector are not used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state.

Research Question Two: To what extent does CCTV as a digital facility is used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state?

Table 2: Mean responses of respondents on the extent CCTV as a digital facility used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state.

SN	(Use of CCTV)	Principals Mean (X)	Mean Set (SD) (X1+X2)	Vice mean (X)	principals (SD)	DECISION
4	Principals and vice principals use CCTV to monitor the premises of the examination	2.41	.70 2.03	2.25	.90	LE
5	Principals and vice principals use CCTV to monitor the activities of students in the premises of examination	2.44	.57 2.33	2.44	.45	LE
6	Principals and vice principals use CCTV as a security surveillance in the premises of examination	2.42	.63 2.24	2.05	.71	LE
7	Principals and vice principals use CCTV to monitor the activities of students in the whole	2.22	.61 2.47	2.46	.56	LE

	school environment during examination					
8	Principals and vice principals use CCTV to monitor the activities of students in the whole school environment during examination	2.34	.71 2.42	2.32	.63	LE
Cluster Mean		2.36	.68 2.29	2.30	.65	LE

Table 2 showed the mean ratings of respondents on the extent CCTV as a digital facility used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state. All the items from 4-8 had low mean scores below the criterion mean of 2.50. Item 4 had a mean score and standard deviation of 2.41 and .70 respectively. This implies that respondents agree to a low extent that Principals and vice principals are not using CCTV to monitor the premises of the examination. Item 5 had a mean score and standard deviation of 2.44 and .57 respectively. This implies that Principals and vice principals are not using CCTV to monitor the activities of students in the premises of examination. Item 6 had a mean score and standard deviation of 2.42 and .63 respectively. This implies that the respondents to a low extent agree that Principals and vice principals are not using CCTV as a security surveillance in the premises of examination. Item 7 had a mean score and standard deviation of 2.22 and .61 respectively. This implies that the respondents to a low extent agree that Principals and vice principals are not using CCTV to monitor the activities of students in the whole school environment during examination. Item 8 had a mean score and standard deviation of 2.34 and .71 respectively. This implies that the respondents to a low extent agree that Principals and vice principals are not using CCTV to monitor the activities of students in the whole school environment during examination. The cluster mean and standard deviations of 2.36 and .68, for principals and 2.30 and .65 for vice principals showed that the respondents to a low extent agreed that CCTV as a digital facility is not used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state.

Research Question Three: To what extent does biometric identification as a digital facility is used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state?

Table 3: Mean responses of respondents on the extent biometric identification as a digital facility is used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state.

SN	(Use of biometric identification)	Principals	Mean Set	Vice principals	DECI SION
		Mean (X)	(SD) (X1+X2)	mean (X)	(SD)
9	Principals and vice principals use biometric identification for capturing	2.46	.70 2.44	2.35	.90 LE

10	students Principals and vice principals use biometric identification to control access to exam halls	2.47	.58 2.32	2.46	.45	LE
11	Principals and vice principals use biometric identification to prevent unauthorized access to exam hall	2.41	.63 2.24	2.05	.71	LE
12	Principals and vice principals use biometric identification to prevent unidentified candidates to gain access to exam halls	2.25	.66 2.44	2.45	.56	LE
13	Principals and vice principals use biometric identification to get alarm in case of emergency	2.39	.74 2.45	2.32	.63	LE
Cluster Mean		2.39	.66 2.37	2.32	.65	LE

Table 3 showed the mean ratings of respondents on the extent that biometric identification as a digital facility is used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state.. All items from 9-13 had low mean scores below the criterion mean of 2.50. Item 9 had a mean score and standard deviation of 2.46 and .70 respectively. This implies that respondents agree to a low extent that Principals and vice principals are not using use biometric identification for capturing students. Item 10 had a mean score and standard deviation of 2.47 and .58 respectively. This implies that Principals and vice principals are not using biometric identification to control access to exam halls. Item 11 had a mean score and standard deviation of 2.41 and .63 respectively. This implies that the respondents to a low extent agree that Principals and vice principals are not using biometric identification to prevent unauthorized access to exam halls. Item 12 had a mean score and standard deviation of 2.25 and .66 respectively. This implies that the respondents to a low extent agree that Principals and vice principals are not using biometric identification to prevent unidentified candidates to gain access to exam halls. Item 13 had a mean score and standard deviation of 2.39 and .74 respectively. This implies that the respondents to a low extent agree that Principals are not using biometric identification to get alarm in case of emergency. The cluster mean and standard deviations of 2.39 and .66, for principals and 2.32 and .65 for vice principals showed that the respondents to a low extent agreed that biometric identification as a digital facility is not used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state.

Research Question Four: To what extent does metal detector as a digital facility used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state.?

Table 4: Mean responses of respondents on the extent metal detector as a digital facility used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state.

SN	(Use of metal detector)	Principals	Vice	principals	DECISION
		Mean Set			
		Mean			
		(X)			

			(SD) (X1+X2)	mean (X)	(SD)	
14	Principals and vice principals use metal detector for detecting electronic devices used for cheating in examination halls	2.41	.72 2.44	2.49	.70	LE
15	Principals and vice principals use metal detector to reduce the likelihood of students using technology to cheat	2.47	.58 2.38	2.40	.45	LE
16	Principals and vice principals use metal detector to identify hidden devices like phones, smartwatches, or other gadgets that students might attempt to conceal	2.45	.61 2.34	2.33	.70	LE
17	Principals and vice principals use metal detectors to deter students from bringing prohibited items into the exam halls	2.36	.66 2.45	2.45	.55	LE
18	Principals and vice principals used Metal detector to help them prevent impersonation by ensuring the person taking the exam is the registered student.	2.40	.72 2.41	2.32	.63	LE
Cluster Mean		2.41	.65 2.40	2.39	.60	LE

Table 4 showed the mean ratings of respondents on the extent metal detector as a digital facility used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state. All the items from 14-18 had low mean scores below the criterion mean of 2.50. Item 14 had a mean score and standard deviation of 2.41 and .72 respectively. This implies that respondents agree to a low extent that Principals and vice principals use are not using metal detector for detecting electronic devices used for cheating in examination halls. Item 15 had a mean score and standard deviation of 2.47 and .58 respectively. This implies that Principals and vice principals are not using metal detector to reduce the likelihood of students using technology to cheat. Item 16 had a mean score and standard deviation of 2.45 and .61 respectively. This implies that the respondents to a low extent agree Principals vice principals are not using metal detector to identify hidden devices like phones, smartwatches, or other gadgets that students might attempt to conceal. Item 17 had a mean score and standard deviation of 2.36 and .66 respectively. This implies that the respondents to a low extent agree that Principals vice principals are not using metal detectors to deter students from bringing prohibited items into the exam halls. Item 18 had a mean score and standard deviation of 2.40 and .72 respectively. This implies that the respondents to a low extent agree that Principals vice principals are not using Metal detector to help them prevent impersonation by ensuring the person taking the exam is the registered student. The cluster mean and standard deviations of 2.41 and .65, for principals and 2.39 and .60 for vice

principals showed that the respondents to a low extent agreed that metal detector as a digital facility used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state.

Test of Hypotheses

Hypothesis One (Ho1)

There is no significant difference in the mean ratings of principals and vice principals on the various digital facilities are used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state.

Table 5: Summary t-test analysis result on the significance difference in the mean ratings of principals and vice principals on the various digital facilities are used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state.

Groups	N	X	Std.	Df	Sig. (tailed)	2- t-value	Decision
Principals	140	55.90	7.16				
Vice principals	160	56.61	7.03	207	.474	.517	Ho1 accepted

Data in table 5 show summary of t-test analysis result on the mean ratings of principals and vice principals on the various digital facilities are used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state which is greater than 0.05 ($.474 > p.0.05$), therefore the null hypothesis of no significant difference between of principals and vice principals on the digital facilities are used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state is accepted. This implies that there is no significant difference in the mean ratings of principals and vice principals on the various digital facilities that are used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state. Principals and vice principals have the same opinion on the various digital facilities are not used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state.

Hypothesis Two (Ho2)

There is no significant difference in the mean ratings of principals and vice principals on the extent CCTV as a digital facility is used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state.

Table 6: Summary t-test analysis result on the significance difference between principals and vice principals on the extent CCTV as a digital facility is used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state.

Groups	N	X	Std.	df	Sig. (tailed)	2- t-value	Decision
Principals	140	44.07	5.09				
Vice principals	160	44.53	5.01	207	.518	.448	Ho2 accepted

Data in table 6 show summary of t-test analysis result on the mean ratings of principals and vice principals on the extent CCTV as a digital facility is used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state. It showed that the calculated t-value .417 at $df=207$ and $P=.474$ is greater than 0.05 ($.474 > p.0.05$), therefore the null hypothesis of no significant difference between principals and vice principals on the extent CCTV as a digital facility is used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state is accepted. This implies that there is no significant

difference in the mean ratings of principals and vice principals on the extent CCTV as a digital facility is used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state. Principals and vice principals had the same opinion on the extent CCTV as a digital facility is not used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state.

Hypothesis Three (Ho3)

There is no significant difference in the mean ratings of principals and vice principals on the extent biometric identification as a digital facility is used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state.

Table 7: Summary t-test analysis result on the significance difference between principals and vice principals on the extent biometric identification as digital facility is used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state.

Groups	N	X	Std.	df	Sig. (tailed)	2- t-value	Decision
Principals	140	58.22	7.61				
Vice principals	160	59.61	7.67	207	1.31	.192	Ho3 accepted

Data in table 7 show summary of t-test analysis result on the mean ratings of principals and vice principals on the extent biometric identification as a digital facility is used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state. It showed that the calculated t-value .192 at df=207 and P=1.31 is greater than 0.05 (.192>p.0.05), therefore the null hypothesis of no significant difference between principals and vice principals on the extent biometric identification as a digital facility is used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state is accepted. This implies that there is no significant difference in the mean ratings of principals and vice principals on the extent biometric identification as a digital facility is used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state. Male Principals and vice principals had the same opinion on the biometric identification as a digital facility is not used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state.

Hypothesis Four (Ho4)

There is no significant difference in the mean ratings of principals and vice principals on the extent metal detector as a digital facility is used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state.

Table 8: Summary t-test analysis result on the significance difference between of principals and vice principals on the extent metal detector as digital facility is used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state.

Groups	N	X	Std.	Df	Sig. (tailed)	2- t-value	Decision
Principals	140	58.22	7.61				
Vice principals	160	59.61	7.67	207	1.31	.144	Ho3 accepted

Data in table 8 show summary of t-test analysis result on the mean ratings of principals and vice principals on the extent metal detector as a digital facility is used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state. It showed that the calculated t-value .144 at df=207 and P=1.31 is greater than 0.05 (.192>p.0.05), therefore the

null hypothesis of no significant difference between of principals and vice principals on the extent metal detector as a digital facility is used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state is accepted. This implies that there is no significant difference in the mean ratings of principals and vice principals on the extent metal detector as a digital facility is not used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state. Principals and vice principals had the same opinion on the extent metal detector as a digital facility is not used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state.

VII. Discussion of Finding

The result of the research question one showed that respondents agreed to a low extent that Principals and vice principals are not using digital facilities such as CCTV, biometric identification and metal detector managing West African Senior School Certificate Examination (WASSCE) in Rivers state. These findings agreed with the results of test of hypothesis in table 5.

The result of the research question two showed that respondents agreed to a low extent that Principals and vice principals are not using CCTV as a digital facility is not used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state. These findings agreed with the results of test of hypothesis in table 6.

The result of the research question three showed that respondents agreed to a low extent that Principals and vice principals are not using biometric identification as a digital facility is not used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state. This agreed with the results of test of hypothesis in table 7.

The result of the research question four showed that respondents agreed to a low extent that Principals and vice principals are not using metal detector as a digital facility is not used for managing West African Senior School Certificate Examination (WASSCE) in Rivers state. This agreed with the results of test of hypothesis in table 8.

VIII. Conclusion

Technology has become an important source of innovation and improvement for many sectors across the globe. In the education sector, particularly, the application of digital facilities has become a critical part of teaching and learning process for secondary students both outside and inside the classroom setting.

IX. Recommendations

The following recommendations were made as follows:

Government and examination bodies (WAEC) should procure more digital facilities in order to manage the examination in schools.

School administrators should provide adequate facilities for invigilators and teachers and examination officials to aid in monitoring the examination centres.

There should be training and retraining programmes on the use digital facilities by the invigilators and WAEC officials.

Government should as matter of urgency provide CCTV in all the secondary schools so as to monitor the entire school environment.

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