



DIGITIZATION IN THE EDUCATION SYSTEM FOR EFFECTIVE MANAGEMENT OF PUBLIC SENIOR SECONDARY SCHOOLS IN RIVERS STATE

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Abstract

The study investigated the digitization of education system for effective management of public senior secondary schools in Rivers State. Two research questions and two hypotheses were used for the study. The study adopted a descriptive survey research design. The population of the study was 933 principals comprising 1 principal, 1 vice-principal academic, and 1 vice-principal administration, from 311 public senior secondary schools in Rivers State. A sample size of 280 consisting of 110 males and 170 females was drawn using the Taro Yamane formula. The instrument for data collection was a self-designed questionnaire titled, Digitization in Education System for Effective Management of Senior Public Secondary Schools in Rivers State, Questionnaire, the validated instrument yielded reliability indices of 0.76 and 0.72 respectively using the Cronbach Alpha method. Mean and standard deviation were used to answer the research question, while the hypotheses were tested using the z-test statistical tool at a 0.05 level of significance. The finding revealed that Communication and School Records digitization enhanced the management of public senior secondary Schools in River State. Based on the findings of the study it was recommended among others that, the government should encourage in-service training and development for principals on the use of technology for Communication and Record storage for the effective management of public senior secondary schools in Rivers State.

Keywords: Digitization, Education System, Management and Public School.

Introduction

Digitization is the process of converting analog data to digital form. Analog data is a continuous variable in physical quantity such as spatial position, voltage and many more, while digital data uses sampling to encode what is being measured (Merriam, 2023). Digital, is the process of using digital technologies to create or improve business processes, production, and services. The use of optical character recognition (OCR) for scanning handwritten or a physical document and saving it as a digital file, such as a portable document format (PDF), is an example of digitization (Garner, 2023). In the same vein, Brene and Kreiss (2023) opined that digitization is the interaction of analog technologies (snail mail, telephone calls) with digital ones such as email, the arts, and social media. Similarly, Kinza (2023) described digital as an electronic technology that generates, stores, and processes data in terms of positive and non-positive. Positive is represented by the number 1, and non-positive by the number 0. She further stated that the word digital refers to anything that is processed or represented by means of digital technology, such as digital communication, digital arts, virtual reality, audiobooks, digital music, and digital education. Elya (2023) stated that digital education refers to the use of desktop, computer, mobile device, software application, the internet and other digital tools in teaching and learning process to improve efficiency and productivity. Digital education is the transformation of the traditional chalk and blackboard culture. The paper and pen and replacing them with tablets or computers, and face-to-face lecture replaced by a video lecture (Teacmint, 2023).



In the same vein Machelkhins (2017) defined digitalization in education as the conversion of text, pictures, video, and music in to digital format, utilizing technologies such as laptop, computer, internet, mobile device, a scanner, a digital camera, a projector and a printer, among others that may be used by a computer. In a school setting, digitization is the process of taking the traditional school materials that are in the form of hard books and converting them to electronic formats where they can be stored or manipulated by the computer (Witten & David, 2023). Further stated that these processes require digital techniques and tools, such as the conversion of hard copy materials to file formats by the use of Hypertext mark-up language (HTML), Standardized generalized mark-up language (SGML), and Scanning optical character recognition (OCR). This equipment can be used for record storage, teaching, learning and communication. Communication has completely changed through digitization, People's interactions and information sharing have changed dramatically with the introduction of the internet, social media, and instant messaging services. Through social networks, video conversations, and instant messaging apps, administrator may now easily store records and communicate with coworkers, teachers, students and parents regardless of where they are physically located.

Yuliandrari, Putri and Rosmansyah (2023) stated that digital transformation triggers substantial and intricate changes in the school sector, encompasses more than technical factors such as digital infrastructure and classroom equipment, they include digital school organization curriculum adjustments, competence standard teachers, school management and comprehensive adaptation of school culture. They further stated that school digital transformation is an improvement of elements related to the strength and weaknesses of school management in achievement of goals.

Maurus and Deuoth (2023) stated that, school management is among the greatest vital part of an effective school not only for the maximum usage of human, physical and financial resources but also, the appropriate harmonization and adoption of changes for modification between them. This situation has forced many countries over the world to modernize and adopt various systems of running schools not only to increase efficiency to meet country and global goals of delivering quality education but also to survive and compete in the world of technology. As a result of the technological advancement in the world, Nigeria government envision every individual possesses the confidence, skills and knowledge to function in the digital world by launching a digital literacy framework in 2023. Digital literacy is referred to as the skills, attributes and knowledge an individual needed to use digital technologies, for example information and technology (IT) skills.

Information technology is the use of computer systems -hardware and software - to create, process, retrieve, store, and exchange all kinds of data and information. The aim of digital literacy is to provide digital skills to students, teachers and administrators (Federal Republic of Nigeria, 2023).

Digitalization in Nigerian secondary schools which is the consumer of the products from primary school and the producer of products for higher education, entails the use of electronic devices in the conduct of school activities to enhance its effectiveness and efficiency while fulfilling this objectives and goals. The infusion of digitalization in the management of secondary schools require the management of physical, human, and material resources which involves the storage of school records, interactions and communications among stakeholders using digital devices and tools. For instance, an administrator with the knowledge of WhatsApp or email can introduce a means of communication channel between the school, teachers, parents, and even the students themselves (Sam & Odu, 2022). Communication links up information and coordination between and across the units and sections of administration. Digital process is fast and convenient for all the parties. It is also safe and secured using digital technologies for keeping of school records to avoid theft and other natural disasters.

School records are documents containing statements of facts about individuals, facilities, proposals, and activities in and about the school. They can be on paper or film, and it is the sole responsibility of the school principal to keep them (Robert-Okah, 2024). Going digital in school can reduce the amount of paper work and simplify other administrative tasks, such as managing admission, student attendance, grade books, timetables, accurate data, school records, and improving communication.

Statement of the Problem

Recently, it has been observed by the researcher that the revolution that has infiltrated the realm of education globally and necessitated the integration of digital technologies in the management of education in order to equip students with skills and knowledge that will necessitate the application of digital technologies in the world in which they are growing up has not eminently improved. Perchy (2023) stated that Nigeria was



among the lowest performers globally in the Wiley Digital Skills Gap Index, rating 3.6 out of 10. However, the traditional system of education is still invoked. The question now is: How would digitization in the education system enhance effectiveness in the management of senior secondary schools in Rivers State? Providing answers to this question led to this study.

Purpose of the Study

The aim of this study is to investigate digitization in education system and effective management of public senior secondary schools in Rivers State. Specifically, the study sought to:

- 1) examine how digitization of communication enhances the effective management of public senior secondary schools in Rivers State.
- 2) ascertain how digitization of school records enhance the effective management of public senior secondary schools in Rivers State?

Research Questions

The following research questions guided the study:

- 1) How does digitization of communication enhance the effective management of public senior secondary schools in Rivers State?
- 2) How does digitization of school records enhance the effective management of public senior secondary schools in Rivers State?

Hypothesis

The following hypotheses were tested at the 0.05 level of significance:

- 1) There is no significant difference between the mean scores of female and male principals on how digitization of communication enhances the effective management of public senior secondary schools in Rivers State.
- 2) There is no significant difference between the mean scores of female and male principals on how digitization of school records enhances the management of public senior secondary schools in Rivers State.

Methodology

The study adopted a descriptive survey design. The population of the study was 933 principals which comprised of 1 main principal, 1 vice principals academics, 1 vice principal administration from the 311 public senior secondary schools in Rivers State. Taro Yamene formula was used to draw the sample size of 280 principals comprised of 110 male and 170 female principals from 93 secondary schools in Rivers State out of 311. A self-developed questionnaire titled; Digitization in the education system for effectiveness management of public senior secondary school questionnaire (DESEMPSSSQ) was used to elicit information from the respondents. The instrument was validated by two experts in the Department of Educational Management and Measurement and Evaluation. The instrument had two section; section A and B. Section A consisted of demographic information while section B contained questionnaire items based on the research question. The response scale was structured on a 4-point likert rating scale of strongly Agreed (SA) Agree (A), Disagree (D) and Strongly Disagree (SD), with value of 4, 3, 2, and 1 respectively. Cronbach, Alpha was used to test the reliability of the instrument which gave reliability indexes of 0.99 and 0.91 mean and standard deviation were used to answer the research question with a criterion mean of 2.50 and questionnaire items with mean opinion scores below 2.50 denoted Disagreed while 2.50 and above signified Agreed. The hypotheses were tested using z-test statistics at 0.05 level of significance. Analyzed data with calculated z-value above the z-critical value of 1.96 were rejected and below 1.96 were accepted.

Results

Research Question 1: How does digitization of communication enhances effective management of public senior secondary school in Rivers State?



Table 1: Summary of Mean score Ratings of Respondents on how digitization of communication enhances effective management of public senior secondary school in Rivers State

S/No	Items	Male Principles (N = 110)			Female Principles (N = 170)		
		\bar{X}	STD	Remark	\bar{X}	STD	Remark
1	Telegram enhances communication for effective management of school.	2.66	.729	High Extent	2.62	.728	High Extent
2	Instagram enhances communication for effective management school.	2.81	.76	High Extent	2.54	1.01	High Extent
3	Zoom meeting enhances communication for effective management.	2.65	1.2	High Extent	2.53	.90	High Extent
4	Video conversation enhances communication for effective management of public senior secondary schools in Rivers State.	2.86	.50	High Extent	3.19	3.22	High Extent
5	Email enhances communication for effective management of public senior secondary schools in Rivers State.	2.40	.70	High Extent	2.81	1.08	High Extent
6	WhatsApp enhances communication for effective management of public secondary schools in Rivers State.	2.62	.82	High Extent	2.54	1.01	High Extent
Grand Mean		2.67	.79	High Extent	2.70	1.32	High Extent

Source: Field Survey (2024)

The result on Table 1 above on how digitization of communication enhances effective management of public senior secondary school in Rivers State showed a grand mean and standard deviation of 2.67/0.79 for male Principals and 2.72/1.71 for female Principals which were all above the criterion mean of 2.50, which means that the respondent agreed that, digitization of communication enhances effective management of public senior secondary school in Rivers State.

Research Question 2: How does digitalization of school record enhances effective management of public secondary schools in Rivers State?

Table 2: Summary of Mean score Ratings of respondents on how digitization of school record enhances effective management of public secondary schools in Rivers State

S/No	Items	Male Principles (N = 110)			Female Principles (N = 170)		
		\bar{X}	STD	Remark	\bar{X}	STD	Remark
1	Digital device enhances tracking of attendance ensures accurate records for both students and staff.	2.62	.736	High Extent	2.60	.724	High Extent
2	Digital device help management to provide reports, feedback to students and parents, whenever it is needed.	2.67	.701	High Extent	2.62	.728	High Extent
3	Use of digital device enhance the management of student information and update.	2.73	.79	High Extent	2.56	.95	High Extent
4	Digital device assist in managing school resources, including textbooks, equipment, and facilities.	2.54	.21	High Extent	2.68	.79	High Extent
5	Digital tools are used for budget planning making it easier to allocate resources effectively and transparently.	2.77	1.09	High Extent	2.66	.90	High Extent
6	Digital records are encrypted to prevent unauthorized access and data breaches.	3.90	0.57	High Extent	2.52	.97	High Extent
Grand Mean		2.87	0.68	High Extent	2.60	0.84	High Extent

Source: Field Survey (2024)



The result on Table 2 shows that digitization of school record enhances effectiveness in management of public secondary schools in Rivers State. The grand mean and standard deviation of 2.57/0.78 for male Principals and 2.68/0.77 for female Principals which were all above the criterion mean of 2.50, and implies that the respondent agreed that there are the ways digitization of school record and enhances effectiveness of management of public senior secondary schools in Rivers State.

Hypotheses Testing

Ho₁: There is no significant difference between the mean opinion score of male and female respondents on how digitized communication enhances effective management of public senior secondary school in Rivers State.

Table 3: Z-test Analysis on the significant difference between the mean responses of male and female principals on how digitized communication enhances effective management of public senior secondary school in Rivers State

Principals	N	Mean	SD	Df	z-cal	z-crit.	LS	Decision
Male	110	2.67	0.79	835	0.90	1.96	0.05	Rejected
Female	170	2.70	1.32					

Source: Field Survey (2024)

The result on Table 3 above on the significant difference between the mean responses of male and female principals on how digitized communication enhances effective management of public senior secondary school in Rivers State shows that z-calculated value of 0.90 was less than the z-critical value of 1.96 at 0.05 level significance. Hence, the null hypothesis was upheld that, there is no significant difference that exist.

Ho₂: There is no significant difference between the mean opinion score of male and female respondents on how digitization of school record enhances effective management of public senior secondary schools in Rivers State.

Table 4: Z-test Analysis on significant difference between the mean opinion score of male and female principals on how digitization of school record enhances effective management of public senior secondary schools in Rivers State

Principals	N	Mean	SD	Df	z-cal	z-crit.	LS	Decision
Male	110	2.87	0.68	835	1.21	1.96	0.05	Rejected
Female	170	2.60	0.84					

Source: Field Survey (2024)

The result on Table 4 above on the significant difference between the mean opinion score of male and female principals on how digitized school record enhances effective management of public senior secondary schools in Rivers State shows that z calculated value of 1.21 was less than the z-critical value of 1.96 at 0.05 level significance. Hence, the null hypothesis was upheld that, there is no significant difference that exist.

Discussion of Findings

How does digitization of communication enhance effective public secondary schools in Rivers State?

The result for research question 1 on The result on Table 1 above how does digitization communication enhances effective management of public secondary schools in Rivers State shows a grand mean and standard deviation of 2.65/0.77 for male Principals and 2.58/0.876 for female Principals which were all above the criterion mean of 2.50, and implies that the respondent agreed that, the digitization of school record enhances effective management of public secondary schools in Rivers State. The result for hypotheses 1 on Table 3 above on the significant difference between the mean opinion score of male and female principals on how digitization of school record enhances effective management of public senior secondary schools in Rivers State shows that z calculated value of 1.21 was less than the z-critical value of 1.96 at 0.05 level of significance. Hence, the null hypothesis was upheld that there is no significant difference that exist. This result is in line with the findings of Onweh, Etim and Emang (2021) in their study on the relationship between digitalization of school record and administrative effectiveness in secondary schools in Akwa Ibom State Nigeria, found a relationship between academic school record and administrative effectiveness. This study



unrevealed the fact that there is the need to judiciously use computers in school record in the public senior secondary schools in Nigeria.

How does digitization of school records enhance the effective management of public senior secondary schools in Rivers State?

The result for research question 2 on Table 2 above on the how digitization of communication for effective management of public senior secondary school in Rivers State shows a grand mean and standard deviation of 2.67/0.79 for male Principals and 2.72/1.71 for female Principals which were all above the criterion mean of 2.50, and implies that the respondent agreed that, the digitization of communication enhances effective management of public senior secondary school in Rivers State. The results for the corresponding hypothesis 2 on Table 4 above on the significant difference between the mean responses of male and female Principals on how digitized system of communication enhances effective management of public senior secondary school in Rivers State shows that z-calculated value of 0.90 was less than the z-critical value of 1.96 at 0.05 level significance. Hence, the null hypothesis was upheld that there is no significant difference that exist. Communication channels such as WhatsApp, Email, video conversation, Telegram, zoom link, are used for effective management of school. This is in line with the study carried out by Andrescu (2021), titled digitalization of organization communication, she investigated the impact of new technologies on organizational communication, employees' digital skills, abilities and social media preferences in order to reach to an answer in regards to the aspects of interest. She stated that, the use of new technologies, in organizational communication changes in the way of carrying out professional activities but also in the relationships between employees that generate income. She further stated that, Internal communication is a top priority for management of organizations in order to achieve organizational (school) goals.

Conclusion

Based on the results obtained from the findings of the study, it was concluded that digitization of school record and communication enhances effective management of public secondary schools in Rivers State. It was also concluded that there is no significant difference between the mean opinion score of male and female respondents on how digitization of communication for effective management of school enhances effective management of public senior secondary school in Rivers State.

Recommendations

Based on the findings of the study it was recommended that, government should encourage in-service training and development for principals on the use of technology for Communication and Record storage to enhance effective management of public secondary schools in Rivers State.

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