ASSESSMENT OF DIGITAL FACILITIES AVAILABILITY AND PRINCIPALS' COMPETENCE FOR DIGITALIZATION OF SECONDARY SCHOOL ADMINISTRATION IN RIVERS STATE, NIGERIA

Dr. Victoria Osaruchi Sam-Kalagbor
Department of Educational Management
Faculty of Education, Rivers State University,
Nkpolu-Oroworukwo, Port Harcourt

&

Dr. Ndimele Stanley Chimezie
Department of Educational Psychology, Guidance and Counselling,
Ignatius Ajuru University of Education, Port Harcourt, Nigeria
stanley.ndimele@iaue.edu.ng

Abstract

This study assessed digital facilities availability and principals' competence for digitalization of secondary school administration in Rivers State, Nigeria. Descriptive survey research design was adopted for the study. Two research questions and two null hypotheses guided the study. Population of the study was all the 291 principals in public senior secondary schools in Rivers State of Nigeria (Rivers State Senior Secondary Schools Board, Port Harcourt, 2024). Sample size of the study was all the 291 principals which were selected using census sampling technique. Digital Facilities Availability and Principals' Competence for Digitalization of School Administration Questionnaire was used for data collection. The face and content validities of the instrument were determined by two experts in Educational Management, and Measurement and Evaluation in Rivers State University, Port Harcourt. The instrument yielded reliability coefficients of 0.70 for Availability of Digital Facilities Scale and 0.72 for Principals' Competence for Digitalization of School Administration Scale through Cronbach Alpha method. Mean and Standard Deviation were used to answer the research questions, while Z-test statistic was used to test the null hypotheses at 0.05 level of significance. Results showed that digital facilities are available for digitalization of secondary school administration to a high extent, and that the extent of principals' competence for digitalization of secondary school administration in Rivers State, Nigeria is low. It was recommended that: Principals should be trained on various digital facilities and skills to enhance their competence and capacity for digitalization of secondary school administration.

Keywords: Assessment, digital facilities, competence, digitalization, school administration

Introduction

Over the years, the school system has remained a focal point for the transformation of all sectors of the society both in the developed and developing world. The school is an institution for training, molding and equipping the attendees with skills and knowledge that can make them to be reasonable, productive, and competitively participate to the socio-economic development of the economy. In order for the school to meet the demands of this digital or computer age, the school operators and administrators have to embrace all the provisions, innovations and advancements of technology for the digitalization of the school, particularly in its administrations. Digitalization has simply been defined as the transformation of all types of information texts, sounds, visual, video and other data from various sources into the digital language (Oiga, 2017). Oguche, Adejoh and Akoji (2023) in their own definition viewed digitalization as the process of using advanced technique to introduce online courses, online examination, digital textbooks, animation, accumulation of students on the same

platform and connecting students with their educators. Digitalization in education therefore refers to the adoption of technological facilities and platforms in the education system for the purpose of bringing in innovations in policy making, school administration/ management, teaching-learning processes, as well as enhances distance learning among the citizens.

Digitalization of school administration or management is a welcome innovation at this digital era which the government at, school operators and administrators and other stakeholders in education ought to support. At the secondary school level, digitalization of administration is very important because it does not only give the principals and any other administrator the opportunity to keep and secure school records, but creates the avenue through which they can seek and drive admission of students, connects with parents and other stakeholders, share innovative ideas for professional practice among others. Oguche, Adejoh and Akoji (2023) emphasized that the digitization of secondary schools is a task that must be carried out in secondary school in this information age. Also, digitalization of secondary school administration is necessary due to the fact that digital world is increasingly penetrating the education space, with digital technology gradually being used as a vehicle to deliver educational knowledge and skills (Thokozani et al., 2019). In fact, with the development and spread of portable mobile technologies, digital process has started for all objects, people and institutions in which innovations in education has developed rapidly (Karakuş & Kılıç, 2022).

However, the digitalization of school administration cannot be achieved if the digital facilities are not available for use. Digital facilities are tools such as computer, smart boards, CD ROMs, flash drives, android phone, internet, cloud storage and Google forms that are relevant for smooth daily operation and administration of schools in line with the demands of today's modern school. Cloud storage for instance, is very useful for archiving data that does not need to be accessed frequently like financial records (Tagbo, 2024). Bello (2013) who conducted a study on the automation and digitalization of primary and secondary education libraries observed that print and non-print media were not digitized. Bello went further to reveal lack of qualified manpower and inadequate facilities as some of the challenges facing digitization of primary and post-secondary schools.

Digital competence is necessary for the school principals to fully participate in the digitalization of school administration in particular and education management in general. Digital competence according to Karakuş and Kılıç (2022) is regarded as the skills and literacy that an average citizen needs to learn in the digital information society. Digital competence can also be defined as the knowledge, skills and abilities that are required of an individual to navigate the ICT tools and platforms for optimum job performance and betterment of his/her life. Digital competencies include innovation capacity and the incorporation of emerging trends in education, including the use of information technology (Idika et al., 2021) by the critical stakeholders in education which the principals are not exempted. No doubt, that some individuals in the society are using their digital skills and competence for unethical and criminal practices such as cyber crime, cyber bullying, etc. Nevertheless, the positive impact of digital competencies for the members of the school community including the principals who are occupying administrative positions in secondary schools cannot be overemphasized. Digital competence is needed by the school principals and classroom teachers as to be relevant in the system because of the fact that previous studies indicated that modern digitalization created an increasingly complex school environment (Hatlevik & Christophersen, 2013).

In addition, digital competence seems to have become one of the key competencies that citizens in general must acquire for future (Cabero et al., 2020). School principals who are possess digital competence can think innovatively, creatively and critically and utilize the gains of technology in executing his/her administrative functions, and thus perform optimally. Kelentrić et al. (2017) in their study designed six theoretical digital competence frameworks for teachers which are: Subjects and basic skills, Interaction and communication, Pedagogy and content production, Leadership of learning processes, Change and development and Social school and ethics. Thus, the principals who are part of the teaching staff of the school, but saddled with management/leadership role also need to have the digital competencies as to deliver effectively in their administrative duties. With the digitalization of schools, admission processing, examinations, results checking,

meetings, teaching and learning among others could be heavily facilitated. Hence, it is important for the operators and administrators of secondary schools in Rivers State of Nigeria to make available digital facilities for the digitalization of schools administration.

The theoretical basis of the study was the Technology Acceptance Model (TAM 2) in education by Venkatesh and Davis (2000). The Technology Acceptance Model (TAM 2) in education was originally propounded by Davis in 1989 to enhance the understanding of the determinants of individuals' acceptance of technology and adoption of it in education and other settings. In the model, the following variables: Perceived Usefulness (i.e the degree to which a person believes that the use of technology would enhance their job performance, Perceived Ease of Use (i.e the use of technology is effortless and easy, Attitude Towards Technology (i.e the overall evaluation of technology characterized by positive or negative feelings toward using it) were used to explain the acceptance of technology in different systems, which education is inclusive. Later, the model was revised by Venkatesh and Davis in 1996 in which the attitude factor was removed on the ground that it does not actually mediate the effect of Perceived Usefulness and Perceived Ease of Use. However, the model was further modified by Venkatesh and Davis in 2000 to its second model (called TAM 2) on the assumption that job goals and consequences of using technology serve as a basis for the Perceived Usefulness (Nwafor et al, 2023). The Technology Acceptance Model (TAM 2) is highly relevant to this study because it provided an insight on the perception and attitude of individuals such secondary school principals towards the use of technology in enhancing their job performance.

The problem of this study is clearly revealed by the issue of Corona virus in 2019 (popularly called Covid-19) pandemic which disrupted the calendar and operations of several organizations including the secondary schools in Rivers State. Unfortunately, literature reviewed here showed that scanty studies investigated availability of digital facilities for digitalization of secondary schools in Rivers State of Nigeria, hence the need for this study. This study therefore, aimed at assessing the digital facilities availability and principals' competence for digitalization of secondary school administration in Rivers State, Nigeria.

Research Questions

The following research questions guided the study:

1. What is the extent of availability of digital facilities for digitalization of secondary school administration in Rivers State, Nigeria?

2. What is the extent of principals' competence for digitalization of secondary school administration in Rivers State, Nigeria?

Hypotheses

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

1. There is no significant difference in the mean scores of male and female principals on availability of digital facilities for digitalization of secondary school administration in Rivers State, Nigeria.

2. There is no significant difference in the mean scores of male and female principals on their competencies for digitalization of secondary school administration in Rivers State, Nigeria.

Methods and Material

The descriptive survey research design was adopted. Dike (2017) described descriptive survey research design as an attempt to gather and interpret data about a social institution, an event, a group or an area. Descriptive survey research design was found appropriate for the study because it enabled the researcher to assess and describe the extent of availability of digital facilities as well as principals' competence for

digitalization of school administration using small sample size with which the findings can be generalized. The population of the study was 291 principals in all the 291 public senior secondary schools in Rivers State of Nigeria (Rivers State Senior Secondary Schools Board, Port Harcourt, 2024). The sample size of the study was all the 291 public senior secondary school principals. The census sampling technique was used in selecting all the 291 principals for the study. The instrument used for data collection was developed by the researcher titled: **"Digital Facilities Availability and Principals' Competence for Digitalization of School Administration Questionnaire" (DFAPCDSAQ).** The instrument contained sections A and B. The section A focused on Availability of Digital Facilities for Digitalization, while section B centered on Principals' Competence for Digitalization of School Administration. Both sections A and B contained 7 items each which are structured on a four-likert response ranging scale of Very High Extent (VHE) =4, High Extent (HE) =3, Low Extent (LE) =2 and Very Low Extent (VLE) =1. The face and content validities of the instrument were ascertained by two experts in Measurement and Evaluation and Educational Management in Rivers State University, Port Harcourt.

The Cronbach Alpha statistical tool was used to establish the reliability coefficients of 'r' = 0.70 and 0.72 for availability of digital facilities for digitalization and principals' competence for digitalization of school administration respectively. The Mean and Standard Deviation were used to answer the research questions, while Z-test statistic was used to test the null hypotheses at 0.05 level of significance. The criterion mean point for accepting or not accepting a mean score response was set at 2.5, hence mean scores of 2.5 and above were accepted as high and those below 2.5 were taken as low extent.

Results and Findings

Research Question 1: What is the extent of availability of digital facilities for digitalization of secondary school administration in Rivers State, Nigeria?

Table 1: Mean Ratings of Principals on Availability of Digital Facilities for Digitalization of Secondary School Administration in Rivers State

S/N	Items	Male Principals (n=172)			Female Principals (n=119)		
		X_1	SD_1	Remarks	X_2	SD_2	Remarks
1.	Functional office computer set	2.41	0.66	Low Extent	2.37	0.62	Low Extent
2.	Personal computer system	2.66	0.80	High Extent	2.70	0.85	High Extent
3.	Office internet connectivity	2.38	0.62	Low Extent	2.34	0.57	Low Extent
4.	Android phone	2.76	0.87	High Extent	2.70	0.83	High Extent
5.	Google form/classroom	2.34	0.60	Low Extent	2.40	0.65	Low Extent
6.	Zoom app in phone	2.60	0.74	High Extent	2.56	0.70	High Extent
7.	Cloud storage app in phone	2.62	0.71	High Extent	2.59	0.69	High Extent
	Grand Mean	**2.54**		High Extent	**2.52**		High Extent

Source: Field Data, 2024 **Criterion Mean** = 2.50

Table 1 reveals the extent of availability of digital facilities for digitalization of secondary school administration in Rivers State, Nigeria. As clearly shown in Table 1, out of the seven items listed, the mean ratings of respondents (principals) on items 2, 4, 6, 7 (personal computer system, android phone, zoom app in phone, cloud storage app in phone) are higher than the criterion mean of 2.50. Table 1 also showed that the respondents' mean ratings on items 1, 3 and 5 which are functional office computer set, office internet connectivity and Google form/classroom are lower than the criterion mean (2.50) indicating that many digital facilities are available for the principals to engage in digitalization of secondary school administration in Rivers State. Furthermore, with the grand mean ratings of 2.54 and 2.52 for male and female principals greater than the

criterion mean of 2.50, it was therefore concluded that, the extent of principals' competence for digitalization of secondary school administration in Rivers State, Nigeria is low.

Research Question 2: What is the extent of principals' competence for digitalization of secondary school administration in Rivers State, Nigeria?

Table 3: Mean Ratings of Principals on their Competence for Digitalization of Secondary School Administration in Rivers State

S/N	Items	Male Principals (n=172) X_1 SD_1	Remarks	Female Principals (n=119) X_2 SD_2	Remarks
8.	Most times I communicate to parents about the activities/ programmes of my school using WhatsApp platform.	2.68 0.68	High Extent 0.71	2.72	High Extent
9.	I use cloud storage to save vital school records.	2.36 0.60	Low Extent	2.40 0.63	Low Extent
10.	I ensure that my students can assess their results online.	2.26 0.55	Low Extent	2.22 0.52	Low Extent
11.	Most times I hold brief virtual meeting with my teachers using zoom platform.	2.28 0.59	Low Extent	2.25 0.56	Low Extent
12.	I have created students and teachers profiles using computer.	2.71 0.72	High Extent	2.67 0.69	High Extent
13.	Occasionally, I use Google form/ classroom to get feedback from critical stakeholders for improvement in administration.	2.25 0.56	Low Extent 0.60	2.28	Low Extent
14.	I do support the teachers and students to use digital tools for effective teaching-learning.	2.72 0.74	High Extent	2.70 0.71	High Extent
	Grand Mean	**2.47**	**High Extent**	**2.46**	**High Extent**

Source: Field Data, 2024.   **Criterion Mean** = 2.50

Data in Table 2 shows the extent of principals' competence for digitalization of secondary school administration in Rivers State, Nigeria. From the data in Table 2, it can be observed that the mean ratings of male and female principals on only item 8 (most times I communicate to parents about the activities/ programmes of my school using WhatsApp platform), item 12 (I have created students and teachers profiles using computer) and item 14 (I do support the teachers and students to use digital tools for effective teachinglearning) are above the criterion mean of 2.50, whereas there mean ratings on item 9 (I use cloud storage to save vital school records), item 10 (I ensure that my students can assess their results online), item 11 (most times I hold brief virtual meeting with my teachers using zoom platform) and item 13 (occasionally, I use Google form/ classroom to get feedback from critical stakeholders for improvement in administration) are lower than the criterion mean (2.50). With the grand mean for male (2.47) and female (2.46) principals lower than the criterion mean (2.50), it implies that principals' competence for digitalization of secondary school administration in Rivers State, Nigeria is to a low extent. Thus, it was concluded that to a low extent, principals possess the competence for digitalization of secondary

school administration in Rivers State, Nigeria. In other words, the principals do not possess the competence for digitalization of secondary school administration in Rivers State, Nigeria.

Test of Hypotheses
The following null hypotheses were tested at 0.05 level of significance:

Hypothesis 1: There is no significant difference in the mean ratings of male and female principals on availability of digital facilities for digitalization of secondary school administration in Rivers State, Nigeria.

Table 3: Z-test Analysis of Mean Ratings of Male and Female Principals on Availability of Digital Facilities for Digitalization of Secondary School Administration

Respondents	N	Mean	SD	Df	z-value	p-value	α	Decision
Male Principals	172	2.54	0.71					
				289	0.250	0.803	0.05	H0 Accepted
Female Principals	119	2.52	0.70					

Table 3 demonstrated the z-test analysis for significant difference in the mean ratings of male and female principals on availability of digital facilities for digitalization of secondary school administration in Rivers State, Nigeria. The results showed that, at a significance level of 0.05 and a degree of freedom (df) of 289, the z-value was 0.250 and the p-value was 0.803. Thus, the null hypothesis was accepted since the p-value (0.803) was greater than 0.05. This suggests that there is no significant difference in the mean ratings of male and female principals on availability of digital facilities for digitalization of secondary school administration in Rivers State, Nigeria.

Hypothesis 2: There is no significant difference in the mean scores of male and female principals on their competencies for digitalization of secondary school administration in Rivers State, Nigeria.

Table 4: Z-test Analysis of Mean Ratings of Male and Female Principals on their Competence for Digitalization of Secondary School Administration

Respondents	N	Mean	SD	Df	z-value	p-value	α	Decision
Male Principals	172	2.47	0.63					
				289	0.143	0.886	0.05	H0 Accepted
Female Principals	119	2.46	0.63					

Results in Table 4 reveals that, at 0.05 level of significance and degree of freedom (df) of 289, the z-value = 0.143 and p-value = 0.886 indicating that p-value (0.886)>0.05. With the p-value (0.886)> 0.05 level of significance, the null hypothesis was accepted. Hence, it was deduced that there is no significant difference in the mean scores of male and female principals on their competencies for digitalization of secondary school administration in Rivers State, Nigeria.

Discussion of Findings

The first result of the study showed that, to a high extent, digital facilities are available for digitalization of secondary school administration in Rivers State, Nigeria. Results of null hypothesis one further revealed that there is no significant difference in the mean ratings of male and female principals on availability of digital facilities for digitalization of secondary school administration in Rivers State, Nigeria. This implies that digital facilities such as personal computer system, android phone, zoom app in phone, cloud storage app in phone among others are available for principals to utilize in digitalization of secondary school administration in Rivers

State, Nigeria. The reason for this finding is not far fletched, because digitalization of secondary school administration has become a matter of necessity since digital world is increasingly penetrating the education space, with digital technology gradually being used as a vehicle to deliver educational knowledge and skills (Thokozani et al., 2019). To corroborate the finding of this study is the fact that, with the development and spread of portable mobile technologies, digital process is now for all objects, people and institutions, making it possible for innovations in education (Karakuş & Kılıç, 2022). In addition, digital facilities such as cloud storage are very useful for archiving data that does not need to be accessed frequently like financial records (Tagbo, 2024), hence the need for them to be available and accessible to enable principals to engage in digitalization of secondary school administration in Rivers State of Nigeria. However, in contrary to the finding, Bello (2013) who conducted a study on the automation and digitalization of primary and secondary education libraries in Ekiti State observed that print and non-print media were not digitized which according to him was due to lack of qualified manpower and inadequate facilities.

The second finding of the study revealed that the extent of principals' competence for digitalization of secondary school administration in Rivers State, Nigeria is low, which implies that the principals do not possess the competence for digitalization of secondary school administration in Rivers State, Nigeria. The test of null hypothesis two revealed further that there is no significant difference in the mean scores of male and female principals on their competencies for digitalization of secondary school administration in Rivers State, Nigeria. The finding of this study seems to undermine the positive impact of digital competencies on school administration in particular, and members of the school community in general which the principals are not in exemption. In disagreement with the finding, it should be noted that digital competence is needed by the school principals and classroom teachers for them to be relevant in the system; because previous studies shows that modern digitalization has created an increasingly complex school environment (Hatlevik & Christophersen, 2013). Also, digital competence is a key which all citizens must acquire to remain relevant in future (Cabero et al., 2020). Thus, school principals who does not possess digital competence would certainly not think innovatively, creatively and critically, and will miss the gains of technology in executing his/her administrative functions optimally.

Conclusion

The study focused on assessment of digital facilities availability and principals' competence for digitalization of secondary school administration in Rivers State, Nigeria. From the analysis of the study, it was observed that digital facilities are available for digitalization of secondary school administration in Rivers State, Nigeria to a high extent, and that the extent of principals' competence for digitalization of secondary school administration in Rivers State, Nigeria is low. The study further revealed that there is no significant difference in the mean ratings of male and female principals on availability of digital facilities and principals' competencies for digitalization of secondary school administration in Rivers State, Nigeria. In consideration of the findings of the study, it was therefore, concluded that the vital digital facilities for digitalization of school are available, but the school principals lack the competence for utilizing them for digitalization of secondary school administration in Rivers State, Nigeria.

Recommendations

Based on the findings of the study and conclusion drawn, the following recommendations are made:

1. The government should provide functional computer system with internet connection and other digital facilities in public secondary schools for principals to use in carrying out their administrative functions.

2. Principals should be trained on various digital facilities and skills to enhance their competence and capacity for digitalization of secondary school administration

References

Bello, S. (2013). School libraries as impetus for effective teaching and learning. *Journal of Education and Social Research, 10*(3), 12-15. Cabero et al., 2020)

Dike, H. I. (2017). *The abc of research methods in education (revised edition).* Capiic Publishers.

Hatlevik, O. E., & Christophersen, K.-A. (2013). Digital competence at the beginning of upper secondary school: Identifying factors explaining digital inclusion. *Computers & Education, 63,* 240–247.

Idika, D. O., Orji, E. I., Bechene, C. E., & Oke, T. O. (2021). Assesment of availability, utilization of ICT as alternative for implementation of research methodology curriculum in University of Calabar amist covid-19 pandemic: Psychosocial implications for teaching and learning. Journal of Curriculum and Instruction, 13(1), 145-156.

Karakuş, I., & Kılıç, F. (2022). Digital overview at the profiles of pre-service teachers: Digital awareness, competence and fluency. *Problems of Education in the 21^{ist} Century, 80*(2), 324-338. https://doi.org/10.1016/j.compedu.2012.11.015.

Kelentrić, M., Helland, K., & Arstorp, A. T. (2017). Professional digital competence framework

for teachers. *Accessed on The Norwegian Centre for ICT in Education, 15*, 1-74. https://C:/Users/HP/ Downloads/pfdk_framework.pdf.

Nwafor, P. I., Ejoh, A. O., Chukwurah, M. U., & Okeke, S. U. (2023). Assessment of teachers' competence in utilization of digital instructional tools in upper basic schools in Cross River State, Nigeria. *Global Journal of Educational Research, 22*, 165-175.

Oguche, M. D., Adejoh, E., & Akoji, A. (2023). Assessment of digitization of secondary schools in kogi state: success and challenges. Journal of Science, Technology and Mathematics Pedagogy, 1(1), 89 -96.

Oiga, I. (2017). Automation and digitization of primary and post primary institutionsin. *Nigeria Journal of Education and Social Research*, *3*(10), p.79 Tagbo, 2024)

Tagbo, S. (2024). Digitalization of school record for enhanced effective administration in public senior secondary school in Rivers State. *International Journal of Innovative Education Research, 12*(1), 8394.

Thokozani, E., Sylvia, T., & Moses, O. (2019). Digital teaching competence of university teachers: A systematic review of the literature. *IEEE RevistaIberoamericana De Tecnologías Del Aprendizaje, 15*(4), 399–406.

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: F our longitudinal field studies. *Management Science, 46*(2), 186 – 204.