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## Principals' digital competence for public secondary school administration in Port-Harcourt metropolis, Nigeria

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### Abstract

The study investigated principals' digital competence for secondary school administration in Port-Harcourt Metropolis. The study adoptions descriptive survey design. The population of the study was 87 school principals in junior and senior public secondary schools in Port-Harcourt Metropolis. The census sampling technique was used. The instrument used for data collection was researchers constructed questionnaire which has a four-point rating scale format. The instrument was validated by two experts in Educational Technolog and statistics. The reliability of the instrument was established using Cronbach Alpha method to measure the internal consistency of the items which yielded indexes of 0.78, 0.79 and 0.81 for each of the three clusters of the questionnaire. Mean and standard deviation was used for data analysis and z-test was used to test hypotheses at 0.05 level of significance. The study found that the ability to use information and communication technologies in taking class attendance of teachers, keeping teachers' profile, maintaining staff relationship and communication, communication with teachers using e-media, E-circulars to teachers, organize school calender, students' registration and admission process, record students' school fees, managing students' attendance in school, keeping records of school revenues, keeping records of school expenditure, record of debts amongst others. The study recommended that Principals should be trained on how to use digital tools for financial administration in secondary schools. This will enable them keep records of financial revenues and expenditure effectively.

**Keywords:** school principal, digital competence, school administration

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### Introduction

In the 21<sup>st</sup> century, school administration has moved beyond the traditional methods of pen and paper to utilizing digital tools for effective administration. The invention of Information and communication tools has really changed the narrative in all spheres of human endeavour in which education system is one. According to Nkemjika and Raji (2020) <sup>[5]</sup> the rapid growth in ICT had brought notable changes in the 21st century and has affected the demands of the modern societies. ICT is becoming increasingly important in our day to day lives even the education system is not excluded. School administration includes all those techniques and procedures employed in operating the educational organization in accordance with established policies. School administration involves the function coordinates the efforts of people to accomplish goals and objectives by using available resources efficiently and effectively (Sahoo & Dhannajai, 2020) <sup>[8]</sup>. School administration could therefore be referred to process of controlling, supervising and organizing the activities of all resources available to carry out educational goals and objectives. Effective school administration processes in modern time require adequate proficiency in the utilization of digital tools.

Digital competence could be regarded as the ability to use digital tools or information and communication tools to perform day to day activities in educational organization. According to Rizza (2014) <sup>[7]</sup> digital competence involves the competent and critical use of information technologies for work, leisure and communication. It is underpinned by basic information and technology skills, that is the use of computer to store, retrieve, assess, present and exchange information and to communicate and participate in collaborative network via the internet. Digital competence could also be used to describe or explain the ability of a school administrator to use Information technology (IT) in to perform his/her daily job responsibilities.

The responsibilities of school administrator within the school organization involves the overseeing of all school resources such as human, students and financial resources. School principals have the responsibility of ensuring the effective management of human resources, students personnel and financial resources among others in the school. Due to the current trend of using ICT in the school system, it is expedient that principals should possess competence in using ICT to carry out their day-to-day management responsibilities on the school resources.

Human Resources Management is the management of an organization's workforce or human resources. It involves all processes and activities aimed at managing the human resources of an organization: manpower planning, recruitment, training and development, career management and human performance (McHugh, O'Brien & Ramondt, 1999) <sup>[4]</sup>. It is responsible for the attraction, selection, training, and assessment and

rewarding of employees, while also overseeing organizational leadership and culture, and ensuring compliance with employment and labour laws. Griffin in Omebe (2014)<sup>[6]</sup>, defined human resource management as the set of organizational activities directed at attracting, developing and maintaining an effective workforce. Human resource management concerns the procurement or recruitment, staffing, welfare, maintenance, training and retraining, placement, promotion, motivation relationship, compensation or rewards, transfer and discipline of staff. It lies at the care of the efficiency of the organization. Human resource management is a basic function of management that determines the performance of staff in any organization. Human Resource Management is the function, within an organization, that focuses on the recruitment of, management of, and providing direction for, the people who work in the organization. It deals with issues relating to people, such as compensation, hiring, performance management, organization development, safety, wellness, benefits, employee motivation, communication, administration and training (Ayangbekun, Olowookere & Abdulrazak, 2014)<sup>[11]</sup>.

United Nation Educational Scientific Cultural Organization (2009) observes that using ICTs in human resource administration is fundamentally about harnessing technology for better planning, setting standards, effecting change and monitoring results of the employees in an educational organization. UNESCO further notes that more and more universities are looking into developing ICT applications that will do the following things: Improve on the quality and capacity of management information systems to support strategic decision-making and policy implementation; stimulate and facilitate free flow of information throughout the higher education system; and respond to the needs and demands of the academic community (especially the digital natives) for better and increased access to university services and information through the web. Many educational institutions as observed by UNESCO have started implementing the use of Oracle's PeopleSoft software and other digital tools to support staff selection, recruitment and appointment, contractual agreements, performance management and staff development among other HRM functions. School principals should be able to use basic ICT skills to taking class attendance of teachers, keeping teachers' profile, staff relationship and communication and teachers' recruitment process. Again, Saiti and Prokopiadou (2009)<sup>[9]</sup> noted that within school administration, ICT is implemented for the development of electronic applications for the management of administrative transactions and records, as well as for the rendering of well-organized and prompt information services (i.e. electronic register, electronic curriculum, digital lesson material, electronic monitoring of school progress)

Student personnel administration refers to programmes or services that are 'student centered' and are provided by educational institutions through specialized systems designed to develop and align student's personality positively (Emenike, 2018)<sup>[3]</sup>. These services are also targeted at ensuring that students are assisted to be well informed about the learning processes they have to undergo in school. According to Ejionueme (2010)<sup>[2]</sup>, student personnel administration refers to those school services that supplement and support the instructional programme of a school. Student personal services such as students' registration and admission process, orientation exercise, guidance and counselling services, students' record, communicate to students in and off campus, communication of academic details of students to parents/guardians and recording of students' school fees (Emenike, 2018)<sup>[3]</sup> could be carried out using information and communication technologies.

Ugomma, Godwin and Obasi (2014)<sup>[10]</sup> asserted that with developments in information technology in the past decades, it is expected that ICT will be used for student personnel services to meet the challenges of modern day university management. Application of ICT in student personnel services will enhance administrative work, reduce occupational stress and improve student academic performance. It emphasized that the prominent role of ICT could be seen in advancing knowledge and skills necessary for effective functioning in the modern world.

Management of school finances is another major aspect of school administration that requires the implementation of ICT tools to enhance administrative efficiency (Nkemjika & Raji, 2020)<sup>[5]</sup>. They further noted that the implementation of digital tools in financial administration creates a conducive atmosphere for financial transactions and recording in the school. School principals need to possess digital skill in school finance administration because ICT is considered means of providing a strong platform for effective system of internal control over financial reporting (Nkemjika & Raji, 2020)<sup>[5]</sup>. According to them, school administrators should be able to use ICT for keeping accurate financial record, preparation of school budget, preparing school finance reports, documentation and computation of operational funding.

Many school principals especially in the developing world have been found to pay less attention to e-administration, that is the use of information and communication technologies in administration of school resources. This neglect has made educational activities and many schools in developing countries to suffer a lot of setbacks. Researches have also found that many school principals do not consider it necessary to possess skills in information and communication technologies for school administration. It is against this background that the study tends to investigate principals' digital competence for secondary school administration in Port-Harcourt Metropolis.

### **Purpose of the study**

The purpose of the study was to investigate principals' digital competence for public Secondary School Administration in Port Harcourt Metropolis in Rivers State. In specific terms the study sought to

1. Determine the level of principals' digital competence for human resource administration in public secondary school in Port-Harcourt Metropolis.
2. Determine the level of principals' digital competence for students' personnel administration in public secondary school in Port-Harcourt Metropolis.
3. Determine the level of principals' digital competence for financial administration in public secondary school in Port-Harcourt Metropolis.

## Research Questions

### The following questions guided the study

1. What is the level of principals' digital competence for human resource administration in public secondary school in Port-Harcourt Metropolis?
2. What is the level of principals' digital competence for students' personnel administration in public secondary school in Port-Harcourt Metropolis?
3. What is the level of principals' digital competence for administrative tasks in public secondary school in Port-Harcourt Metropolis?

## Hypotheses

**H<sub>01</sub>:** There is no significant difference in the mean responses of junior and secondary school principals on the level of their digital competence for human resource administration in public secondary school in Port-Harcourt Metropolis

**H<sub>02</sub>:** There is no significant difference in the mean responses of junior and secondary school principals on the level of their digital competence for students' personnel administration in public secondary school in Port-Harcourt Metropolis

**H<sub>03</sub>:** There is no significant difference in the mean responses of junior and secondary school principals on the level of their digital competence for administrative task in public secondary school in Port-Harcourt Metropolis

## Methodology

The study adopted a descriptive survey design. According to Nwankwo (2013), a descriptive survey is that study in which the researcher collects data usually from a large sample drawn from a given population and describes certain attributes or features of the sample as they are and as required by the study at that particular time without manipulating any independent variables of the study. The study was carried out in Port-Harcourt Metropolis, Rivers State. The population of the study consisted of 87 school principals which include 41 in Junior schools and 46 in senior secondary schools in Port-Harcourt Metropolis (Post Primary Schools Board, 2022). Due to the fact that the population was small, the researcher engaged all the 87 school principals in the study through census. The instrument used for the study was a researchers constructed questionnaire, titled "Principals' Digital Competence for Secondary School Administration". The questionnaire was structured in a four point rating scale of Very High Level (VHL), High Level (HL), Low Level (LL), and Very Low Level (VLL). The instrument was designed in three sections, which elicited information on each of the research questions. The instrument was validated by experts in Educational Technolog and statistics, Rivers State University. The instrument was subjected to reliability test using Cronbach Alpha method. The questionnaire was distributed to ten (10) principals in Eleme Local government Area, Rivers State. The reliability indices obtained using Cronbach Alpha method was 0.78, 0.79 and 0.81 for each of the three clusters of the instrument.

The instrument was distributed to the participating school principals using face to face method and electronic means where possible. Out of 87 questionnaires distributed, only 72 were retrieved. Mean and standard deviation was used to analyzed the data gathered on each of the research questions. To take decision, items with mean greater than or equal to 2.50, were rated "High Level" whereas items with mean less than 2.50 were rated "Low Level".

## Results

**Research Questions 1:** What is the level of principals' digital competence for human resource administration in secondary school in Port-Harcourt Metropolis?

**Table 1:** Mean Responses on the level of principals' digital competence for human resource administration in secondary school in Port-Harcourt Metropolis.

S/N	Items	Junior Secondary Principals=41			Senior Secondary principals=46		
		Mean	S.D.	Remark	Mean	S.D.	Remark
1	Taking Class attendance of teachers	3.50	0.42	HL	3.63	0.58	HL
2	Keeping teachers' profile	3.10	0.51	HL	3.52	0.39	HL
3	Staff relationship and communication	3.72	0.29	HL	3.44	0.32	HL
4	Teachers' recruitment process	2.05	1.03	LL	2.13	0.92	LL
5	Teachers training and development	2.31	1.01	LL	2.10	1.06	LL
6	Payroll and record management	2.42	0.92	HL	2.39	1.01	HL
7	Communication with teachers using e-media	3.63	0.47	HL	3.47	0.52	HL
8	E-circulars to teachers, students and parents	2.76	1.02	HL	3.06	0.82	HL
9	Planning and decision making	2.46	0.98	LL	2.36	1.12	LL
10	Use of electronic media for staff appraisal	2.31	1.08	LL	2.32	1.04	LL
11	Organize school calender and programme activities	2.56	1.02	HL	2.84	0.98	HL
12	Schedule co-curricular activities	2.43	1.12	LL	2.55	1.11	HL
13	Supervision and monitoring of teachers'	2.41	1.03	LL	2.24	1.05	LL

	performance						
14	Organize time-table	3.01	0.71	HL	3.31	0.32	HL
15	Allotment of responsibilities to teachers	2.21	1.13	LL	2.11	1.09	LL
	Grand Mean/ S.D	2.73	0.85	HL	2.76	0.82	HL

Field Survey, 2022

Table 1 presents the mean responses of respondents on the level of principals' digital competence for human resource administration in secondary school in Port-Harcourt Metropolis. Based on the criterion mean value, the study found that principals' digital competence in taking class attendance of teachers (3.50 & 3.63), keeping teachers' profile (3.10 & 3.52), staff relationship and communication (3.72 & 3.44), communication with teachers using e-media (3.63 & 3.47), E-circulars to teachers, students and parents (2.76 & 3.06), organize school calender and programme activities (2.56 & 2.84) and organize time-table (3.01 & 3.31) was at high level. However, principals indicated that their digital competence in teachers' recruitment process (2.05 & 2.13), teachers training and development (2.31 & 2.10), payroll and record management (2.42 & 2.39), planning and decision making (2.46 & 2.36), use of electronic media for staff appraisal (2.31 & 2.32), schedule co-curricular activities (2.43 & 2.55), supervision and monitoring of teachers' performance (2.41 & 2.24) and allotment of responsibilities to teachers (2.21 & 2.11) was at low level.

**Research Questions 2:** What is the level of principals' digital competence for students' personnel administration in secondary school in Port-Harcourt Metropolis?

**Table 2:** Mean Responses on the level of principals' digital competence for students' personnel administration in secondary school in Port-Harcourt Metropolis.

S/N	Items	Junior Secondary Principals=41			Senior Secondary principals=46		
		Mean	S.D	Rmrk	Mean	S.D	Rmrk
1	Use of computer for students' registration and admission process	2.75	1.03	HL	2.63	0.92	HL
2	Recording of students' school fees	2.81	1.01	HL	2.63	1.06	HL
3	Managing students' attendance in school	2.92	0.92	HL	2.59	1.01	HL
4	Monitor the daily activities of students	2.13	0.47	LL	2.47	0.52	LL
5	Storage and retrieval of students' records and data	2.76	1.02	HL	3.16	0.82	HL
6	Schedule students' educational activities	2.79	0.98	HL	2.66	1.12	HL
7	Communication of academic details of students to parents/guardians using e-media	3.22	1.08	HL	3.12	1.04	HL
8	Use information technologies to communicate to students in and off campus	2.89	1.02	HL	2.93	0.98	HL
	Grand Mean and S.D	2.78	0.94	HL	2.77	0.93	HL

Field Survey, 2022

Table 2 presents the mean responses on the level of school principals' digital competence for students' personnel administration in secondary school in Port-Harcourt Metropolis. Based on the criterion mean value of 2.50, the study showed that at high level principals have the ability to use computer for students' registration and admission process (2.75 & 2.63), record students' school fees (2.81 & 2.63), managing students' attendance in school (2.92 & 2.59), monitor the daily activities of students (2.13 & 2.47), storage and retrieval of students' records and data (2.76 & 3.16), schedule students' educational activities (2.79 & 2.66), communication of academic details of students to parents/guardians using e-media (3.22 & 3.12) and use information technologies to communicate to students in and off campus (2.89 & 2.93).

**Research Questions 3:** What is the level of principals' digital competence for financial administration in secondary school in Port-Harcourt Metropolis?

**Table 2:** Mean Responses on the level of principals' digital competence for students' financial administration in secondary school in Port-Harcourt Metropolis

S/N	Ability to use ICT to;	Junior Secondary Principals=41			Senior Secondary principals=46		
		Mean	S.D	Remark	Mean	S.D	Remark
1	facilitate budget analysis	1.56	0.46	LL	1.69	0.53	LL
2	Keep records of school revenues	3.02	0.71	HL	3.36	0.62	HL
3	Keep records of school expenditure	3.12	0.69	HL	3.48	0.60	HL
4	Payroll management	2.19	1.01	LL	2.21	1.05	LL
5	Record of debts	3.12	0.91	HL	3.21	0.71	HL
6	Management of cash flow	2.11	1.01	LL	2.04	1.11	LL
7	Payment of staff members	2.91	0.89	HL	2.87	0.69	HL

8	Make orders for school supply	2.00	1.01	LL	1.94	1.14	LL
9	Cash register	2.22	1.04	LL	2.28	1.14	LL
10	Stock register	2.10	1.12	LL	2.09	1.02	LL
	Grand Mean & S. D	2.44	0.89	LL	2.52	0.86	HL

Field Survey, 2022

Table 3 presents the mean responses on the level of principals' digital competence for students' financial administration in secondary school in Port-Harcourt Metropolis. The mean responses showed that principals possess the ability to use ICT to; keep records of school revenues (3.02 & 3.36), keep records of school expenditure (3.12 & 3.48), record of debts (3.12 & 3.21), and Payment of staff members (2.91 & 2.87) at high level. However, the respondents indicated that they possess ability to use ICT to; facilitate budget analysis (1.56 & 1.69), payroll management (2.19 & 2.21), manage cash flow (2.11 & 2.04), make orders for school supply (2.00 & 1.94), cash register (2.22 & 2.28), and stock register (2.10 & 2.09) at a low level.

### Hypotheses

**H<sub>01</sub>:** There is no significant difference in the mean responses of junior and secondary school principals on the level of their digital competence for human resource administration in secondary school in Port-Harcourt Metropolis

**Table 4:** z-test analysis on the level of their digital competence for human resource administration in secondary school in Port-Harcourt Metropolis

Groups	N	Mean	S. D	D.f	Lev. of sig	z-cal	z-crit	remark
Principals (Junior)	41	2.73	0.85					
				85	0.05	0.24	1.98	Accepted
Principals (Senior)	46	2.76	0.82					

Research Data, 2022

Table 4 presents the z-test analysis on the mean responses of principals on the level of their digital competence for human resource administration in secondary school in Port-Harcourt Metropolis. The analysis showed that at 0.05 level of significance and degree of freedom 85, the z-crit was 1.98. The calculated value of z was 0.24. This shows that the z-crit (1.98) is greater than the calculated value of z (0.24). Thus, the null hypothesis was accepted.

**H<sub>02</sub>:** There is no significant difference in the mean responses of junior and secondary school principals on the level of their digital competence for students' personnel administration in secondary school in Port-Harcourt Metropolis

**Table 5:** z-test analysis on the level of their digital competence for student personnel administration in secondary school in Port-Harcourt Metropolis

Groups	N	Mean	S. D	D. f	Lev. of sig	z-cal	z-crit	remark
Principals (Junior)	41	2.78	0.94					
				85	0.05	0.071	1.98	Accepted
Principals (Senior)	46	2.77	0.93					

Research Data, 2022

Table 4: z-test analysis on the mean responses of principals on the level of their digital competence for students personnel administration in secondary school in Port-Harcourt Metropolis. The analysis showed that at 0.05 level of significance and degree of freedom 85, the z-crit was 1.98. The calculated value of z was 0.071. This shows that the z-crit (1.98) is greater than the calculated value of z (0.071). Thus, the null hypothesis was accepted.

**H<sub>03</sub>:** There is no significant difference in the mean responses of junior and secondary school principals on the level of their digital competence for administrative task in secondary school in Port-Harcourt Metropolis

**Table 6:** z-test analysis on the level of their digital competence for financial resource administration in secondary school in Port-Harcourt Metropolis

Groups	N	Mean	S.D	D.f	Lev. of sig	z-cal	z-crit	Remark
Principals (Junior)	41	2.44	0.89					
				85	0.05	0.567	1.98	Accepted
Principals (Senior)	46	2.52	0.86					

Research Data, 2022

Table 4 presents the z-test analysis on the mean responses of principals on the level of their digital competence for financial administration in secondary school in Port-Harcourt Metropolis. The analysis showed that at 0.05

level of significance and degree of freedom 85, the z-crit was 1.98. The calculated value of z was 0.567. This shows that the z-crit (1.98) is greater than the calculated value of z (0.567). Thus, the null hypothesis was accepted.

### Discussion of Findings

Research question one found the level of principals' digital competence for human resource administration in secondary school in Port-Harcourt Metropolis. Findings showed that principals' digital competence in taking class attendance of teachers, keeping teachers' profile, staff relationship and communication, communication with teachers using e-media, E-circulars to teachers, students and parents, organize school calendar and programme activities and organize time-table is at high level. However, findings showed that principals' level of digital competence in teachers' recruitment process, teachers training and development, payroll and record management, planning and decision making, use of electronic media for staff appraisal, schedule co-curricular activities, supervision and monitoring of teachers' performance and allotment of responsibilities to teachers is low. This finding is in line with United Nation Educational Scientific and Cultural Organization (2009) who observes that there is rising need for school administrators using ICTs in human resource administration. They further noted that digital competence is fundamentally needed for harnessing technology for better planning, setting standards, effecting change and monitoring results of the employees in an educational organization.

Research question 2 shows the level of principals' digital competence for students' personnel administration in secondary school in Port-Harcourt Metropolis. The findings revealed that principals have the ability to use computer for students' registration and admission process, record students' school fees, managing students' attendance in school, monitor the daily activities of students, storage and retrieval of students' records and data, schedule students' educational activities, communication of academic details of students to parents/guardians using e-media and use information technologies to communicate to students in and off campus at high level. The study is in consistent with Ugomma, Godwin and Obasi (2014) <sup>[10]</sup> who stated that with developments in information technology in the past decades, it is expected that ICT is utilized for student personnel services such as registration of students, admission processes, recording students' progress and communication, to meet the challenges of modern day. Emenike (2018) <sup>[3]</sup> also supported that student personal services such as students' registration and admission process, orientation exercise, guidance and counselling services, students' record, communicate to students in and off campus, communication of academic details of students to parents/guardians and recording of students' school fees could be carried out using information and communication technologies. Hence, principals needs to possess basic ICT skills in order to utilize computers for their administrative responsibilities.

Research question 3 found that e level of principals' digital competence for keeping records of school revenues, keeping records of school expenditure, record of debts, and Payment of staff members at high level. However, principals possess the ability to use ICT to; facilitate budget analysis, payroll management, manage cash flow, make orders for school supply, cash register and stock register at a low level. The study is in line with Nkemjika and Raji (2020) <sup>[5]</sup>, who in their study found that school administrators should be able to use ICT for keeping accurate financial record, preparation of school budget, preparing school finance reports, documentation and calculation of operational funding.

### Conclusion

The study concluded that principals in secondary schools have the ability to use information and communication technologies in taking class attendance of teachers, keeping teachers' profile, maintaining staff relationship and communication, communication with teachers using e-media, E-circulars to teachers, organize school calendar, students' registration and admission process, record students' school fees, managing students' attendance in school, keeping records of school revenues, keeping records of school expenditure, record of debts amongst others.

### Recommendations

The following recommendations were made based on the findings of the study

1. Government should organize digital training programme for school principals. This will enable principals to possess skills in utilizing information and communication and technologies in school administration.
2. Government should provide school principals with personal computers so as to enable them have access to digital tools for effective school administration especially for students' personnel management.
3. Principals should be trained on how to use digital tools for financial administration in secondary schools. This will enable them keep records of financial revenues and expenditure effectively.

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