



## **Digital Literacy and Teachers Job Performance in Universities in Rivers State, Nigeria**

<sup>1</sup>Hillary Wordu, <sup>2</sup>Francis Bogbula Okwu & <sup>3</sup>Cordelia Dike.

**Faculty of Education, Rivers State University,  
Port Harcourt, Nigeria**

**Email: <sup>1</sup>drworduhillary@gmail.com; <sup>2</sup>francis.okwu@ust.edu.ng ;  
<sup>3</sup>cordeliagaius2@gmail.com**

### **ABSTRACT**

The study examined digital literacy and teachers' job performance in universities in Rivers State. Four research questions and four hypotheses guided the study. Design used for the study was correlation while the population of the study comprised all the 2,644 teaching staff in the three public universities in Rivers State and 347 teaching staff were sampled for the study using stratified random sampling technique. Instrument adopted for data collection was questionnaire which had two sections. The first section titled Digital Literacy Scale (DLS) contained 15 questionnaire items and was used to collect data on the independent variable of the study while the second section tagged Teachers Job Performance Scale (TJPS) contained 10 questionnaire items and was used to gather data on the dependent variable of the study. The instruments were face and content validated by two Educational Management experts from Rivers State University. The average reliability of DLS was 0.84 while that of TJPS was 0.88 using Cronbach alpha statistics. Out of the 347 copies of questionnaire administered 326 copies were retrieved which implied a 93.9% retrieval rate. Research questions one to three were answered using simple regression, research question four was answered using multiple regression, while the hypotheses were tested at 0.05 level of significance with t-test associated with simple and multiple regression for hypotheses one to three and hypothesis four respectively. Results of the study revealed that digital communication, digital safety and digital creativity were severely related with teachers' job performance in universities in Rivers State at low, high and moderately positive levels respectively with values of  $r=0.305$ ,  $r=0.614$  and  $r=0.479$  respectively. Similarly, digital literacy jointly predicted 56.6% of teachers' job performance in universities in Rivers State. It was recommended that teaching staff of these universities should be trained and also provided modern digital tools for the discharge of their duties for improved job performance and university goals attainment in Rivers State.

**Keywords:** Digital illiteracy, university teachers, job performance, digital creativity, digital communication, digital safety

### **INTRODUCTION**

University education occupies a strategic position in the educational structure of any nation. It contributes significantly to the inculcation of skills and values needed for national growth and to manpower development. These goals and objectives can only be meaningfully achieved if the teaching staff who are at the center of educational activities are proactive in their service delivery. Supporting this perception, Osagie and Akinlosotu (2017:46) stated that "the importance of teachers in any educational institution cannot be overemphasized. This is because of the central role they play as implementers of the curriculum at the classroom level". Similarly, these teachers are also saddled with other administrative responsibilities needed for the smooth administration of the school. The teacher is therefore expected to use every resource at his or her disposal to ensure the attainment of assigned tasks at the highest possible level.

Teachers' job performance is measured by the extent to which the duties assigned to the teacher are being executed. Teacher's job performance is high when the duties assigned to the teacher are carried out to the required standard or surpassed while the job performance of the teacher is low when

assigned duties are barely achieved. Since the teacher is assigned several duties that will contribute to the attainment of educational goals and objectives, in the course of their job performance, every available tool must be engaged so as to ensure that the required standard of education is delivered. This explains why teachers must familiarize with contemporary digital tools which are needed for improvement in their job performance.

Teaching staff of universities need to be digitally literate in order to meet the required quality of service delivery in their areas of assignment. In the midst of growing digital innovations, any teaching staff who cannot comply with the use of emerging devices will be less productive and will be considered digitally illiterate. A digitally literate teacher must be able to use provided digital devices when needed and in the most optimal manner. Explaining further, Jose (2016) noted that digital literacy has to do with the ability to use information and communications technology (ICT) or digital tools in the most beneficial manner. Furthermore, Nawaz and Kundi (2010) noted that digital literacy is also known as computer literacy. However, digital literacy means more than computer literacy because while computer literacy focuses on the ability to use computers and other accompanying accessories, digital literacy has to do with the ability to use all digital tools whether computers, mobile devices, internet among others. It is an understanding of the characteristics, capabilities, and applications, as well as the ability to implement acquired knowledge in the skilful, productive use of digital devices in the most productive manner (Nawaz & Kundi, 2010). This ability to use any kind of digital tool makes it easy for the teacher to carry out any assigned duty optimally.

One of the qualities of a digitally literate teacher is the ability to communicate with available digital devices. It involves the ability to teach, research, send messages, evaluate and gather feedback from other school personnel using available devices. Digital communication makes it easy for the teacher to share ideas with other educational stakeholders within or outside the school environment. Digital communication also makes it easy for the teacher to be able to use any form of devices and understand how these devices are used in the most efficient manner for the goals and objectives of teaching and learning to be achieved.

If teachers must be digitally literate and proficient, the need for digital safety cannot be overemphasized. Just as digital devices are proliferated on regular basis, so also is the cases of digital fraud on the rise. Lorenz *et al.* (2011:1) stated that “our society allows having online connections with nearly anyone or any device. This has developed new types of crimes - cybercrime, cyber-bullying, online social manipulation etc”. The educational sector is not left out of this digital threat and this has affected the willingness of teachers to engage digital abilities in the execution of assigned duties and this limits the quality of their service delivery. Additionally, Macaulay *et al.*, (2018) noted that cyber problems affect responses which have negative effect on educational outcomes. Teachers must therefore learn to manage digital threats so as to be able to perform excellently in the course of their service delivery.

Furthermore, Yalcinalp and Avcı (2019) asserted that digital creativity is essential in advancing technology in education. An efficient teacher who will perform beyond the limits must also be digitally creative. This is the ability of the teacher to use provided digital tools in the most result-oriented manner. The need for teaching staff of universities to be digitally literate cannot be overemphasized. This is because every teacher who desires to surpass the limit set in the course of service delivery and meet the goals and objectives of the university must be able to improve on his or her level of digital literacy.

### **Statement of the Problem**

Despite the advancement of technology in all spheres of the society, including the educational sector, universities especially the public ones in Rivers State are still curb in the web of adopting traditional methods of communication between staff and students. This has accounted for delays in the process of information dissemination which affects the job performance of these teachers. Similarly, several data which could contribute to job effectiveness and efficiency among the teaching staff of these universities are often missing or bridged in the course of information transmission thereby reducing educational value creation. These teachers have also failed to display ingenuity in the use of available digital devices at their disposal in the course of service delivery and as such the need to investigate digital literacy and teachers' job performance in universities in Rivers State.

### **Purpose and Objectives of the Study**

The purpose of the study was to investigate the relationship between digital literacy and teachers' job performance in universities in Rivers State. In specifics, the objectives of the study were to:

1. determine the relationship between digital communication and teachers job performance in universities in Rivers State
2. determine the relationship between digital safety (e-safety) and teachers job performance in universities in Rivers State
3. find out the relationship between digital creativity and teachers job performance in universities in Rivers State
4. describe the joint relationship between digital literacy and teachers job performance in universities in Rivers State

### **Research Questions**

The following research questions guided the study:

1. What is the relationship between digital communication and teachers' job performance in universities in Rivers State?
2. What is the relationship between digital safety and teachers' job performance in universities in Rivers State?
3. What is the relationship between digital creativity and teachers' job performance in universities in Rivers State?
4. What is the joint relationship between digital literacy and teachers' job performance in universities in Rivers State?

### **Hypotheses**

The following hypotheses were tested at 0.05 level of significance:

- There is no significant relationship between digital communication and teachers job performance in universities in Rivers State
- There is no significant relationship between digital safety and teachers job performance in universities in Rivers State
- There is no significant relationship between digital creativity and teachers job performance in universities in Rivers State
- There is no significant joint relationship between digital literacy and teachers job performance in universities in Rivers State

### **METHODOLOGY**

The design adopted for the study was correlation. Population of the study was all the 2,644 teaching staff in the three public universities in Rivers State, Nigeria. The Universities are University of Port Harcourt, Rivers State University and Ignatius Ajuru University of Education out of which 347 teaching staff were drawn using stratified randomly sampling technique. The instrument used for data collection was structured questionnaire which had two sections namely 1). Digital Literacy scale (DLS) with fifteen items to determine the independent variable (IV) and 2), Teachers Job Performance Scale (TJPS) with ten items to determine the dependent variable (DV). The questionnaire was face and content validated by two experts in Educational Management and the other from Computer Science, all from Rivers State University, Reliability of the questionnaire was determined using Cronbach alpha statistics with the average index of DLS as 0.84 while that of TJPS was 0.88 which implied that the instruments were reliable. Out of the 347 copies of questionnaire administered by the researchers with the help of two trained research assistants, 326 copies, which represents 93.9% of the sample was retrieved which was considered adequate for the study. Research questions One to three were answered using simple regression while research question four was answered using multiple regression while the hypotheses were tested at 0.05 level of significance with t-test associated with simple and multiple regression for hypotheses one to three and hypothesis four respectively.

**RESULTS**

**Research Question 1:** *What is the relationship between digital communication and teachers' job performance in universities in Rivers State?*

**Table 1: Simple Regression Analysis on the Relationship between Digital Communication and Teachers' Job Performance in Universities in Rivers State**

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Decision
1	.305 <sup>a</sup>	.093	.090	11.88707	Low Positive Relationship
6. Predictors: (Constant), Digital Communication					

In table 1, it was revealed that the value of r was 0.305 and this implied that a low and positive relationship existed between digital communication and teachers' job performance in universities in Rivers State. Additionally, the value of r<sup>2</sup> of 0.093 meant that 9.3% of digital communication predicted teachers' job performance in universities in Rivers State while the remaining percentage was determined by other external factors.

**Research Question 2.** *What is the relationship between digital safety and teachers' job performance in universities in Rivers State?*

**Table 2: Simple Regression Analysis on the Relationship between Digital Safety and Teachers' Job Performance in Universities in Rivers State**

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Decision
1	.614 <sup>a</sup>	.377	.375	9.85590	High Positive Relationship
• Predictors: (Constant), Digital Safety					

Table 2 showed that the value of r of 0.614 implied that a high and positive relationship existed between digital safety and teachers' job performance in Rivers State. Similarly, the value of r<sup>2</sup> of 0.377 indicated that digital safety accounts for 37.7% of teachers' job performance in universities in Rivers State while the other percentage was determined by the remaining percentage as a result of other external factors.

**Research Question 3.** *What is the relationship between digital creativity and teachers' job performance in universities in Rivers State?*

**Table 3: Simple Regression Analysis on the Relationship between Digital Creativity and Teachers' Job Performance in Universities in Rivers State**

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Decision
1	.479 <sup>a</sup>	.230	.227	10.95765	Moderate Positive Relationship
3. Predictors: (Constant), Digital Creativity					

Table 3 revealed that the value of r of 0.470 implied that a moderate and positive relationship existed between digital creativity and teachers' job performance in universities in Rivers State while the value of r<sup>2</sup> of 0.230 meant that digital creativity accounted for 23.0% of teachers job performance in universities in Rivers State while the remaining percentage was as a result of other external factors.

**Research Question 4.** *What is the joint relationship between digital literacy and teachers' job performance in universities in Rivers State?*

**Table 4: Multiple Regression Analysis on the Joint Relationship between Digital Literacy and Teachers' Job Performance in Universities in Rivers State**

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Decision	
1	.752 <sup>a</sup>	.566	.562	8.25233	High Positive Relationship	

a. Predictors: (Constant), Digital Creativity, Digital Communication, Digital Safety

It was indicated in table 4 that the value of r was 0.725 and this meant that the joint variables of digital communication, digital safety and digital creativity collectively had a high relationship with teachers' job performance in Rivers State and the value of r<sup>2</sup> of 0.566 also showed that these variables jointly predicted 56.6% of teachers job performance while other variables accounts for the remaining percentages.

**Test of Hypotheses**

**Hypothesis 1.** There is no significant relationship between digital communication and teachers' job performance in universities in Rivers State

**Table 5: t-test Associated with Simple Regression on the Significant Relationship between Digital Communication and Teachers' Job Performance in Universities in Rivers State**

ANOVA <sup>a</sup>							
Model		Sum of Squares	df	Mean Square	F	Sig.	Decision
1	Regression	4709.298	1	4709.298	33.328	.000 <sup>b</sup>	Rejected
	Residual	45782.027	324	141.303			
	Total	50491.325	325				

a. Dependent Variable: Teachers Job Performance

b. Predictors: (Constant), Digital Communication

Table 5 showed that the significant value of t-test associated with the simple regression analysis was 0.000 and since this value was less than the alpha level of 0.05, the null hypothesis was rejected and the alternative hypothesis upheld that there was a significant relationship between digital communication and teachers' job performance in universities in Rivers State.

**Hypothesis 2.** There is no significant relationship between digital safety and teachers' job performance in universities in Rivers State

**Table 6: t-test Associated with Simple Regression on the Significant Relationship between Digital Safety and Teachers' Job Performance in Universities in Rivers State**

ANOVA <sup>a</sup>							
Model		Sum of Squares	df	Mean Square	F	Sig.	Decision
1	Regression	19018.346	1	19018.346	195.785	.000 <sup>b</sup>	Rejected
	Residual	31472.979	324	97.139			
	Total	50491.325	325				

a. Dependent Variable: Teachers Job Performance

c. Predictors: (Constant), Digital Safety

Table 6 revealed that the significant value of t-test associated with the simple regression analysis was 0.000 and since this value was less than the alpha level of 0.05, the null hypothesis was rejected and the alternative hypothesis upheld that there was a significant relationship between digital safety and teachers' job performance in universities in Rivers State.

**Hypothesis 3.** There is no significant relationship between digital creativity and teachers’ job performance in universities in Rivers State

**Table 7: t-test Associated with Simple Regression on the Significant Relationship between Digital Creativity and Teachers’ Job Performance in Universities in Rivers State**  
ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.	Decision
1	Regression	11588.650	1	11588.650	96.516	.000 <sup>b</sup>	Rejected
	Residual	38902.675	324	120.070			
	Total	50491.325	325				

a. Dependent Variable: Teachers Job Performance

4. Predictors: (Constant), Digital Creativity

Table 7 indicated that the significant value of t-test associated with the simple regression analysis was 0.000 and since this value was less than the alpha level of 0.05, the null hypothesis was rejected and the alternative hypothesis upheld that there was a significant relationship between digital creativity and teachers’ job performance in universities in Rivers State.

**Hypothesis 4.** There is no significant joint relationship between digital literacy and teachers’ job performance in universities in Rivers State

**Table 8: t-test Associated with Multiple Regression on the Significant Joint Relationship between Digital Literacy and Teachers’ Job Performance in Universities in Rivers State**  
ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.	Decision
1	Regression	28562.829	3	9520.943	139.806	.000 <sup>b</sup>	Rejected
	Residual	21928.496	322	68.101			
	Total	50491.325	325				

a. Dependent Variable: Teachers Job Performance

5. Predictors: (Constant), Digital Creativity, Digital Communication, Digital Safety

Table 8 showed that the significant value of t-test associated with the multiple regression analysis was 0.000 and since this value was less than the alpha level of 0.05, the null hypothesis was rejected and the alternative hypothesis upheld that there was a significant joint relationship between digital literacy and teachers’ job performance in universities in Rivers State.

## DISCUSSION OF FINDINGS

It was revealed in the study that the value of  $r$  of 0.305 meant that a low and positive relationship existed between digital communication and teachers’ job performance in universities in Rivers State. In the same manner, the value of  $r^2$  of 0.093 implied that 9.3% of digital communication predicted teachers’ job performance in universities in Rivers State. This finding suggested that the levels at which teachers adopt digital communication in these universities is still very low and this may account for its low influence on teacher’s job performance. There are several uses to which teachers can engage digital tools for digital communication which will enhance their job performance. However, the extent of work that can be covered is limited to the extent to which these teachers can utilize these devices for communication.

Similarly, the null hypothesis was rejected and implying that there was a significant relationship between digital communication and teachers’ job performance in universities in Rivers State. This is not surprising as a related study by Al-Rahmi, *et al.*, (2020) found out that the use of digital devices was tied to its enjoyment and efficacy. This means that if these teachers are unable to use these devices, they are less likely to utilize it in the course of service delivery and the effect will be low job performance. On this note, it is not sufficient for these teachers to possess these devices but to ensure that these devices are put to communicative usage which will improve on their job performance.

On the other hand, the value of  $r$  of 0.614 showed that a high and positive relationship existed between digital safety and teachers’ job performance in Rivers State while the the value of  $r^2$  of 0.377

implied that digital safety accounts for 37.7% of teachers' job performance in universities in Rivers State. This finding reveals that digital safety practices of teachers contribute the highest to teachers' job performance. This finding suggests that when teachers learn to secure digital information at their disposal, it contributes to work outcome which may be derivable in the long term. However, personal digital safety of the teacher may contribute to personal job performance but may have a negative effect on overall organizational performance if not properly handled. Supporting this assertion, Boulton, *et al.*, (2016) found in their study that tutors who ensured control for online safety experienced moderate and larger effects on learning. This may however be at the individual level and not on the organizational level.

The responses from the teacher on digital safety also showed that there was a significant relationship between digital safety and teachers' job performance in universities in Rivers State. This implies that the contribution of teachers' digital safety on their job performance cannot be overemphasized. It is therefore important for the university to develop organizational digital safety protocols that will protect information shared in the university community for service efficiency and effectiveness.

Furthermore, the value of  $r$  of 0.470 implied that a moderate and positive relationship existed between digital creativity and teachers' job performance in universities in Rivers State while the value of  $r^2$  of 0.230 meant that digital creativity accounted for 23.0% of teachers' job performance in universities in Rivers State. This low effect suggests that there is still a low level of digital creativity among these teachers. According to the outcome of a related study conducted by Valverde-Berrocoso *et al.*, (2020) it was that identified digital interaction was among the factors that promoted digital creativity. This means that the more teachers interact using digital devices, the more digitally creative they become and the more services that can be carried out. Further findings from the study also showed that a significant relationship between digital creativity and teachers' job performance in universities in Rivers State indicating that the contributions of digital creativity to teachers' job performance cannot be ignored.

The combination of digital communication, digital safety and digital creativity showed a higher influence on teachers' job performance in universities in Rivers State. It was indicated that the value of  $r$  of 0.725 showed that the jointly, digital literacy had a high relationship with teachers' job performance in Rivers State and the value of  $r^2$  of 0.566 also indicated that these variables jointly predicted 56.6% of teachers' job performance in these universities. This finding however is at variance with the outcome of a related study conducted by Pagani, *et al.*, (2016) which showed no evidence that digital skills had a positive effect on performance. The positive relationship found was driven by unobserved confounding factors influencing simultaneously digital skills and performance and it was indicated that this casts strong doubts that digital skills do a lot to develop students' performance in the school system. However, this does not limit the fact that in developing the digital literacy of teachers in these universities, a robust approach must be taken into consideration which will cover all aspects of their digital competence. This is essential in the process of improving teachers' job performance since the teacher is not limited to the extent of responsibilities that can be handled per time.

It was also shown in the study that there was a significant joint relationship between digital literacy and teachers' job performance in universities in Rivers State. Supporting this dimension, Abas, *et al.*, (2019) also carried out a related study that showed that there was a positive and significant relationship between digital literacy in technological context, organizational context, environmental context and employee performance. The contributions of digital literacy to teachers' job performance as well as overall university goal attainment can therefore not be limited but must be given the required level of attention for improvement in the job performance of all academic staff and the attainment of the goals of the university in general.

## CONCLUSIONS

The following conclusions were made based on the findings of the study:

- It was revealed that the relationship between the components of digital literacy which included digital communication, digital safety and digital creativity were significant with teachers' job performance in universities in Rivers State at 0.05 level of significance.
- The relationship between digital communication, digital safety and digital creativity with teachers' job performance in universities in Rivers State were low, high and moderately positive respectively.

- Digital literacy indicators which comprised digital communication, digital safety and digital creativity jointly predicted 56.6% of teachers' job performance in universities in Rivers State while the remaining percentage was determined by other factors.

## RECOMMENDATIONS

In line with the recommendations of the study, the following recommendations were proffered:

1. University administrators as a matter of importance need to train her teaching staff and also implement policies that will ensure that digital communication devices are used regularly for communication among all staff as this will help to improve on efficiency and effectiveness in service delivery.
2. Teaching staff of these universities should develop personal digital safety techniques that will be used to protect personal and official information which are used in the course of discharging their duties. This will help in ensuring the credibility of information emanating from any individual or unit of the school for the attainment of university goals and objectives.
3. The government in collaboration with university administrators should learn to reward teachers who demonstrate digital creativity in their work. Teaching staff who exhibit digital excellence and ingenuity should be rewarded as this will serve as an encouragement to others for improvement in service output.
4. There is need for the government and ICT companies to support teaching staff of universities with relevant and contemporary devices either at subsidized rate or at no cost as this will enable these beneficiaries to put these devices into use in areas where quality of service delivery can be improved upon for university goals attainment.

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