Lecturers Digital Competencies for Quality Service Delivery in Public Universities in Rivers State

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Abstract

The paper investigated lecturers' digital competencies for quality service delivery in public universities in Rivers State. Three research questions and three null hypotheses were answered and tested in the study. Descriptive survey design was adopted in the study while the population of the study was 3, 806 lecturers out of which 362 lecturers were sampled using the stratified random sampling technique. Questionnaire titled "Lecturers' Digital Competencies for Quality Service Delivery Questionnaire" (LDCQSDQ) was used for data collection and it was validated by three experts in Educational Management at the Rivers State University. Cronbach Alpha was used to determine the reliability of the questionnaire with an average coefficient of 0.94. Out of the 362 copies of questionnaire administered, 347 copies representing 95.9% were retrieved. Research questions raised were answered using mean and standard deviation while the hypotheses were tested using z-test at 0.05 level of significance. Result of the study indicated that the lecturers were only competent in the area of digital communication and information sharing but were not competent in content creation and problem solving. It was indicated that challenges encountered in building digital competence included lack of internet broadband while suggested strategies included digital training and provision of subsidized digital tools. It was recommended that the universities should formulate and implement a digital policy that will guide all activities carried out by teaching and non-teaching staff in the Universities.

Keywords: Lecturers, digital, competencies, gender.

Introduction

The teacher plays a significant role in the achievement of educational goals and objectives across all levels of education. In the process of teaching, the teacher is expected to deploy his/her skill and knowledge to solving educational issues and deploying the same competence to equip the learner to be reasonable and responsible members of the society. However, with the advancement in technology, the teacher is expected to also re-strategize in the delivery of his or her teaching service using available and appropriate digital tools as the digital competence of the teacher is relevant in the delivery of quality educational services in today's 21st century educational system.

The advancement in technology has not doubt proved useful across different aspects of life endeavors and despite the fact that teachers are aware of these benefits, the extent at which they are digitally compliant has remained unclear due to the overdependence on traditional methods of educational service delivery and it was on this note that Yakovleva (2022) pointed out that only few teachers in today's classroom have so far mastered the use of digital technologies for carrying out the demands of their profession.

Researchers have pointed out that digital competence is one of the major competencies that any individual who has passed through a formal educational system is expected to develop in order to be able to make valuable contributions to society. Dias-Trindade and Moreira (2021) noted that with digital competence, it becomes easy for the teacher to exhibit autonomy in the line of duty, connect with colleagues, empower learners and carry out other essential services. Teachers service delivery is at the core of the administration of any school system and the quality of services provided by the teacher is significant to the success of any school system. Kim as cited in Adamu and Balarabe (2022:4) stated that the quality of service delivery is a product of "adhering to set of principles, standards, policies and constraints which guides the design, development, deployment, operation and retirement of services delivered by a service provider to its clients in a defined context" and the need for teachers' digital competence for quality service delivery in this context cannot be overstated.

Sarkam et al., (2023:889) asserted that "digital competence means using digital tools confidently and critically when dealing with information, communicating and solving fundamental problems in every aspect of life". On his part, Ferrari (2013) identified the dimensions of digital competence that every user must develop and this cuts across the areas of information, communication, content creation, security and problem solving. The concept of digital competence is often used interchangeably with digital literacy which according to Bell and Shank as cited in George et al., (2022:3) "is the capacity to locate, analyze, use, and generate information using digital technology, communication tools, or networks". However, digital competence exceeds merely developing digital literacy to the ability to apply the digital skills acquired in solving real time problems. Blyznyuk (2018) pointed out that digital competence like other competencies that every individual needs to develop is expected to be useful for life.

Despite the numerous benefits accruing from developing digital competencies for effective service delivery across different spheres of life, its development and adoption has been very slow. The inability to exhibit high level digital competence across all walks of life also affects the teaching profession as some teachers even in this technology driven age have not been able to imbibe the use of technology in the process of service delivery. Educational scholars such as Jarad and Shaalan (2020) have pointed out that the lack of appropriate technological devices and absence of policy support as obtained in other countries. In addition to this, cultural factors, absence of technological infrastructure, lack of technological skills have also been identified as hindrances to the development of digital competence while Moses et al., (2022) noted that attitudinal factors such as resistance to change are also major inhibitors to the development of digital competence and this also affects teachers in the course of their service delivery. In order to address these challenges, Dias-Trindade and Albuquerque (2022:2) pointed out the need for "training to enable teachers to include digital

technology in their teaching practices and as a strategy for promoting the digital training of students". It is also important for relevant stakeholders to engage in the provision of important technological tools, address social and ethical issues limiting technological adoption, employ qualified IT personnel and provide other legal and social support for digital competence development (Muharlisiani, et al., 2022). These measures will enable teachers also to be able to build the needed competencies to deliver quality services in and outside the classroom.

Researchers have carried out studies at different levels of education to determine how digital technology affect educational services. Wordu et al., (2021) investigated digital literacy and teachers job performance in universities in Rivers State, Nigeria. Four research questions and hypotheses guided the study with a correlation design and population of 2,644 teaching staff in three public universities in Rivers State out of which 347 teaching staff were sampled through stratified random sampling technique. Findings of the study indicated that digital communication, digital safety and digital creativity were severely related to 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 these universities.

Ile and Mekuri-Ndimele (2021) conducted another study on instructional delivery digitalization and job performance of business education lecturers in Ignatius Ajuru University of Education Port Harcourt, Rivers State. Descriptive survey design was deployed in the study while 22 lecturers of the Department of Business Education in the study area formed the population and sample of the study. Result of the study indicated that the dimensions of instructional delivery digitalization such as networks, and e-library facilitate measures of lecturers' performance such as supervision of students' seminars, projects, and industrial training. Moses et al., (2022) carried out a study on investigating the challenges faced by teachers in the implementation of digital technology in secondary schools in Rundu Circuit, Kavango East Region Namibia. Respondents were sampled from three secondary schools in the Rundu Circuit in the Kavango East region while semi-structured questionnaire was used for data collection. Findings of the study revealed barriers to implementing the digital technology strategy in the teaching and learning process included lack of pedagogical training, limited or no access to the digital technology resources available. Lack of electricity, malfunctioning devices, lack of technical expertise were also identified as constraints. Islami et al., (2021) conducted a related study on the strategy to strengthen teachers' digital competence. Data for the study were collected using in-depth interviews, observation and documentation. Findings of the study indicated increasing teacher digital competence included internal IT training, and digital skill acquisition. These studies revealed the contributions that digital technologies can make to educational service delivery with the right interventions put in place across all levels of education.

Purpose of the Study

The aim of the study was to investigate lecturers' digital competencies for quality service delivery in public universities in Rivers State. The specific objectives of the study were to:

1. identify the aspects of digital competencies demonstrated by lecturers for quality service delivery in public universities in Rivers State.
2. describe the digital competence challenges encountered by lecturers for quality service delivery in public universities in Rivers State
3. determine the strategies for enhancing lecturers' digital competencies for quality service delivery in public universities in Rivers State

Research Questions

The following research questions were raised to guide the study:

1. What are the aspects of digital competencies demonstrated by lecturers for quality service delivery in public universities in Rivers State?
2. What are the digital competence challenges encountered by lecturers for quality service delivery in public universities in Rivers State?
3. What are the strategies for enhancing lecturers' digital competencies for quality service delivery in public universities in Rivers State?

Hypotheses

The following hypotheses were tested at 0.05 level of significance:

1. There is no significant difference between the mean ratings of male and female lecturers on the aspects of digital competencies demonstrated by them for quality service delivery in public universities in Rivers State.
2. There is no significant difference between the mean ratings of male and female lecturers on the digital competence challenges encountered by them for quality service delivery in public universities in Rivers State.
3. There is no significant difference between the mean ratings of male and female lecturers on the strategies for enhancing their digital competencies for quality service delivery in public universities in Rivers State.

Methodology

The study adopted descriptive survey design while the population consisted of all the 3, 806 lecturers in the three public universities in Rivers State out of which 362 lecturers were sampled using the stratified random sampling technique after applying the Taro Yamane minimum sample size determination formula and this comprised 241 males and 121 females. The instrument used for data gathering was a 15-ite questionnaire tagged "Lecturers' Digital Competencies for Quality Service Delivery Questionnaire" (LDCQSDQ) which was responded to on a four point modified Likert scale of Strongly Agree (SA=4), Agree (A-3), Disagree (D=2) and Strongly Disagree (SD=1) with the weights summed up and divided by 4 to arrive at 2.50 which is the criterion mean used for agreeing or disagreeing with each questionnaire item. The instrument was validated by three experts in Educational Management at the Rivers State University while Cronbach Alpha was used to estimate the reliability of the instrument with an average coefficient of 0.87. There were 362 copies of questionnaire administered to 362 lecturers by the researcher and three research assistants out of which 347 copies which was 95.9% were retrieved and consisted of 232 males and 115

females. The research questions were answered using mean and standard deviation while the hypotheses were tested using z-test at 0.05 level of significance.

Results

Research Question One: What are the aspects of digital competencies demonstrated by lecturers for quality service delivery in public universities in Rivers State?

Table 1: Mean and standard deviation scores on the aspects of digital competencies demonstrated by lecturers for quality service delivery in public universities in Rivers State

S/No	Items	**Male Lecturers n=232**		**Female Lecturers n=115**			
		Mean $\bar{X}_1$	**SD**	**Mean $\bar{X}_2$**	**SD**	**Average Mean**	**Decision**
1	Lecturers possess the ability to use available digital resources to solve problems in their subject areas	2.42	0.99	2.49	1.03	2.46	Disagreed
2	Lecturers are able to use digital technology to create course contents before delivery	2.48	0.94	2.47	1.04	2.48	Disagreed
3	Communication between lecturers and students is seamless due to the regular use of digital technologies	2.94	0.80	2.90	0.76	2.92	Agreed
4	Information sharing is simplified because lecturers often deploy technology in their various teaching activities	2.96	0.79	2.78	0.90	2.87	Agreed
5	Lecturers have developed the competence to protect their digital information which are used for teaching and learning	2.43	0.99	2.42	1.05	2.43	Disagreed
	Grand Mean and Standard Deviation	**2.65**	**0.90**	**2.61**	**0.96**	**2.63**	**Agreed**

Table 1 indicated that the male lecturers responded to items 1, 2, 3, 4 and 5 with mean scores of 2.42, 2.48, 2.94, 2.96 and 2.43 while the female lecturers responded to the same set of items with mean values of 2.49, 2.47, 2.90, 2.78 and 2.42. Items 1, 2 and 3 were disagreed by the male and female lecturers implying that the lecturers believed that they do not possess the ability to digital resources for problem solving, creation of course content and protection of their digital information. Items 3 and 4 with mean scores above the criterion mean of 2.50

were however agreed. The grand mean score of 2.65 and 2.61 from the male and female lecturers indicated that they averagely agreed on the aspects of digital competence demonstrated by the lecturers and this was substantiated by the average mean score of 2.63 which supported the fact that the lecturers agreed with the items as the aspects of digital competencies demonstrated by lecturers for quality service delivery in public universities in Rivers State.

Research Question Two: What are the digital competence challenges encountered by lecturers for quality service delivery in public universities in Rivers State?

Table 2: Mean and standard deviation scores on the digital competence challenges encountered by lecturers for quality service delivery in public universities in Rivers State.

S/No	Items	**Male Lecturers n=232**		**Female Lecturers n=115**			
		Mean $\bar{X}_1$	**SD**	**Mean $\bar{X}_2$**	**SD**	**Average Mean**	**Decision**
6	There are no relevant digital infrastructure to support the use of modern technologies	2.40	1.03	2.39	1.05	2.40	Disagreed
7	Lecturers do not have the requisite digital skills for deploying modern technology for service delivery	2.42	1.02	2.77	0.86	2.60	Agreed
8	Lack of internet broadband limit lecturers adoption of digital technology for service delivery	2.80	0.82	2.84	0.79	2.82	Agreed
9	Lecturers are resistant to the transition from traditional to technological system of service delivery	2.47	0.99	2.42	1.02	2.45	Disagreed
10	Cultural factor is a bane to lecturers development of digital competence	2.41	1.03	2.46	1.04	2.44	Disagreed
	Grand Mean and Standard Deviation	**2.50**	**0.98**	**2.58**	**0.95**	**2.54**	**Agreed**

Items 6, 7, 8, 9 and 10 in table 2 were responded to by the male lecturers with mean values of 2.40, 2.42, 2.80, 2.47 and 2.41 while the female lecturers responded to the same set of items with mean scores of 2.39, 2.77, 2.84, 2.42 and 2.46. The respondents both agreed on items 8 that lack of internet broadband was a challenge to lecturers' development of digital competencies. The male and female lecturers however differed in their opinion on item 7 as the male lecturers disagreed that they do not possess digital skills while the female lecturers agreed otherwise that this was a challenge to lecturers' digital competence. The grand mean

score of 2.50 and 2.58 from the male and female lecturers agreed with the average mean of 2.54 to imply that they agreed on the items as the digital competence challenges encountered by lecturers for quality service delivery in public universities in Rivers State.

Research Question Three: What are the strategies for enhancing lecturers' digital competencies for quality service delivery in public universities in Rivers State?

Table 3: Mean and standard deviation scores on the strategies for enhancing lecturers' digital competencies for quality service delivery in public universities in Rivers State.

S/No	Items	Male Lecturers n=232		Female Lecturers n=115			
		Mean $\bar{X}_1$	SD	Mean $\bar{X}_2$	SD	Average Mean	Decision
11	Adequate training of lecturers will assists in the development of digital competencies	2.81	0.81	2.96	0.75	2.89	Agreed
12	Provision of subsidized digital tools will enable lecturers build digital competencies for service delivery	2.88	0.80	2.91	0.79	2.90	Agreed
13	Universities need to develop and enforce a digital policy to guide lecturers service delivery	2.80	0.82	2.84	0.77	2.82	Agreed
14	Availability of internet service will enhance lecturers development of digital skills for service delivery	2.96	0.78	2.81	0.88	2.89	Agreed
15	Digitalizing university curriculum will improve on lecturers digital competence development	2.45	1.01	2.43	1.02	2.44	Disagreed
	Grand Mean and Standard Deviation	**2.78**	**0.84**	**2.79**	**0.84**	**2.79**	**Agreed**

In table 3, items 11, 12, 13, 14 and 15 were responded to by the male lecturers with mean values of 2.81, 2.88, 2.80, 2.96 and 2.45 while the female lecturers sampled responded to the same set of questionnaire items with mean scores of 2.96, 2.91, 2.84, 2.81 and 2.43. All of items 11, 12, 13 and 14 had mean scores above the criterion mean score of 2.50 used for decision making by both the male and female lecturers and as such were agreed while item 15 with mean score of 2.45 and 2.43 from the male and female lecturers were disagreed implying that digitalizing the university curriculum was not agreed by the lecturers as a strategy for enabling them build digital competence. The grand mean score of 2.78 and 2.79 from the male and female lecturers agreed with the average mean of 2.79 which implied that

the lecturers averagely agreed with the items as the strategies for enhancing lecturers' digital competencies for quality service delivery in public universities in Rivers State.

Test of Hypotheses

Hypothesis One: There is no significant difference between the mean ratings of male and female lecturers on the aspects of digital competencies demonstrated by them for quality service delivery in public universities in Rivers State

Table 4: Summary of z-test analysis on the difference between the mean ratings of male and female lecturers on the aspects of digital competencies demonstrated by them for quality service delivery in public universities in Rivers State

Variable	n	Mean	SD	df	z-cal.	z-crit.	Level of Significance	Decision
Male Lecturers	232	2.66	0.91	345	0.37	1.96	0.05	Retained
Female Lecturers	115	2.78	0.86					

Table 4 indicated that at 345 degrees of freedom and 0.05 level of significance, the value of z-crit. of 1.96 was more than the value of z-cal. of 0.37. Since the value of z-cal. of 0.37 was less than the value of z-crit. of 1.96, the null hypothesis was retained indicating that there was no significant difference between the mean ratings of male and female lecturers on the aspects of digital competencies demonstrated by them for quality service delivery in public universities in Rivers State.

Hypothesis Two: There is no significant difference between the mean ratings of male and female lecturers on the digital competence challenges encountered by them for quality service delivery in public universities in Rivers State

Table 5: Summary of z-test analysis on the difference between the mean ratings of male and female lecturers on the digital competence challenges encountered by them for quality service delivery in public universities in Rivers State

Variable	n	Mean	SD	df	z-cal.	z-crit.	Level of Significance	Decision
Male Lecturers	232	2.66	0.91	345	0.73	1.96	0.05	Not Rejected
Female Lecturers	115	2.78	0.86					

Table 5 revealed that at 345 degrees of freedom and 0.05 level of significance, the value of z-crit. of 1.96 was more than the value of z-cal. of 0.73. Based on the fact that the value of z-cal. of 0.73 was less than the value of z-crit. of 1.96, the null hypothesis was retained

implying that there was no significant difference between the mean ratings of male and female lecturers on the digital competence challenges encountered by them for quality service delivery in public universities in Rivers State.

Hypothesis Three: There is no significant difference between the mean ratings of male and female lecturers on the strategies for enhancing their digital competencies for quality service delivery in public universities in Rivers State

Table 6: Summary of z-test analysis on the difference between the mean ratings of male and female lecturers on the strategies for enhancing their digital competencies for quality service delivery in public universities in Rivers State

Variable	n	Mean	SD	df	z-cal.	z-crit.	Level of Significance	Decision
Male Lecturers	232	2.66	0.91	345	0.11	1.96	0.05	Not Rejected
Female Lecturers	115	2.78	0.86					

Table 6 revealed that at 345 degrees of freedom and 0.05 level of significance, the value of z-crit. of 1.96 was more than the value of z-cal. of 0.11. Since the value of z-cal. of 0.11 was less than the value of z-crit. of 1.96, the null hypothesis was retained meaning that there was no significant difference between the mean ratings of male and female lecturers on the strategies for enhancing their digital competencies for quality service delivery in public universities in Rivers State.

Discussion of Findings

In line with the responses gathered from the lecturers, they agreed on some of the items as aspects of digital competencies demonstrated by them for quality service delivery in public universities in Rivers State. Similarly, there was no significant difference between the mean ratings of male and female lecturers on the aspects of digital competencies demonstrated by them for quality service delivery in public universities in Rivers State. This means that the lecturers shared the same perception on the aspects of digital competencies demonstrated by them in the course of service delivery and this agrees with the outcome of the study by Wordu et al., (2021) which revealed that digital communication, digital safety and digital creativity were related to teachers' job performance in universities in Rivers State.

The male and female lecturers agreed that they adopt digital technologies for communication and information sharing in the course of discharging their responsibilities but were unable to deploy the same mechanism in problem solving, content creation and protection of their information. The result of the study implied that the lecturers seem to only be conversant in the use of digital technology for carrying out basic activities but still lack the competence for other sophisticated activities that can be carried out using available technological devices. This result agrees with the outcome of the study by Ile and Mekuri-Ndimele (2021) which indicated that the dimensions of instructional delivery digitalization employed by the

respondents was mainly in the area of networks and e-library facilitation. It therefore becomes important for these lecturers to be trained on how to use digital tools at their disposal for higher level educational activities which will promote efficiency and effectiveness in the area of service delivery.

Furthermore, the lecturers disagreed on most of the items listed as digital competence challenges encountered by the lecturers for quality service delivery in public universities in Rivers State and in addition to this, there was no significant difference between the mean ratings of male and female lecturers on the digital competence challenges encountered by them for quality service delivery in public universities in Rivers State. This finding suggests that there are limited challenges that makes it difficult for the lecturers to develop digital competencies but the process of coordinating these resources to achieve the needed result may be the greatest hindrance encountered by the lecturers and this differ slightly from the outcome of the study by Moses et al., (2022) which identified barriers to implementing the digital technology strategy in the study area to include lack of pedagogical training, limited or no access to the digital technology resources available.

In the study, the lecturers agreed that the lack of internet broadband was the major challenge encountered by them in the development of digital competence suggesting that the inability to connect to the internet makes it difficult for the lecturers to develop required digital competences. However, while the male lecturers disagreed that lack of digital skills was a challenge, the female lecturers agreed otherwise and this tend to suggest that the male lecturers are more digitally skillful than their female counterpart and this calls for institutional intervention to strike a balance and improve on lecturers' service delivery. The male and female lecturers however disagreed that lack of digital infrastructure, attitude of lecturers and cultural factors were challenges and this seem to suggest that both the lecturers and the universities have the right attitude towards building lecturers digital competences but need to harmonize these strengths for better results in terms of service delivery.

On the other hand, the lecturers basically agreed with the items raised as strategies for enhancing lecturers' digital competencies for quality service delivery in public universities in Rivers State. It was also indicated that there was no significant difference between the mean ratings of male and female lecturers on the strategies for enhancing their digital competencies for quality service delivery in public universities in Rivers State. This result is in tandem with the outcome of the study by Islami et al., (2021) which suggested increasing teacher digital competence through training, and digital skill acquisition for educational service delivery. In the study, the lecturers agreed that training of lecturers, providing subsidized digital tools, developing and enforcing a digital policy as well as availability of internet service will enhance lecturers' development of digital skills for better service delivery. However, they disagreed that digitalizing university curriculum will improve on lecturers' digital competence development. This suggests the need for careful planning and implementation of strategies that will improve on lecturers' service delivery in a digitally driven community like the university environment.

Conclusion

The study concluded based on the data analyzed that the digital competence of lecturers in the public universities was still very low as the lecturers exhibited digital competence in very few aspects and this was as a result of several challenges which were identified by the lecturers. Similarly, there was no significant difference between the opinion of the male and female lecturers on their level of digital competence for quality service delivery in public universities in Rivers State.

Recommendations

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

1. Lecturers in the University need to be trained on how to digitalize all of their educational activities both in and outside the classroom as this will enable them develop the required digital competence for meeting the demands of their job.
2. The government in collaboration with university administrators need to put in place the required digital infrastructure needed to support the digital competences of the lecturers and this includes the provision of internet infrastructure and other support technological devices.
3. The universities need to formulate and implement a digital policy that will guide the activities of teaching and non-teaching staff within the institution and contribute to the actualization of university goals and objectives in a digitally driven society.

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