



## Assessment of Information Technologies for Teaching and Learning at Rivers State University, Nkpolu-Oroworukwo, Port Harcourt

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### Abstract

It is essential for lecturers and students to maintain above-average proficiency in information technology to ensure competence and effectiveness in teaching and learning, particularly in Rivers State University, Port Harcourt. This study aimed to assess students' use of information technology in the university. It was guided by three objectives, three research questions, and three hypotheses, employing a descriptive survey research design. The study's population comprised 31,048 individuals, including 1,109 academic staff and 29,939 students. A sample size of 689 participants, 294 students and 395 lecturers was determined using the Taro Yamane formula. The stratified random sampling technique was adopted for participant selection. Data were collected using the Assessment of Information Technologies for Teaching and Learning in Rivers State University, Port Harcourt Questionnaire, rated on a four-point scale and validated by experts. The instrument's reliability was established using Cronbach's Alpha, yielding coefficients of 0.75, 0.79, and 0.81 for its three clusters. Researchers, with the assistance of research aides, distributed 689 copies of the questionnaire. Data analysis was conducted using mean and standard deviation to address research questions, while hypotheses were tested using a z-test at a 0.05 significance level, with a critical value of  $\pm 1.96$ . Findings indicated that computers, application software, and the internet are integral to teaching and learning at Rivers State University. Furthermore, no significant difference was found between lecturers and students regarding their use of these technologies. Based on these findings, it was recommended that the university management implement regular training and workshops to enhance students' and faculty members' proficiency in using computers, application software, and internet resources for academic purposes. The university should allocate resources to procure and maintain advanced application software tailored to various disciplines, ensuring students and lecturers have access to cutting-edge tools that support learning and research.

**Keywords** Assessment, Students', Information Technology, Teaching, Learning.

### Introduction

Information Technology (IT) known also as the use of computer systems, software, networks, and other digital tools to process, store, and communicate information. According to Adekunle and Oyewole (2019), IT serves as the backbone of modern communication and organizational processes, facilitating efficiency and innovation in diverse sectors, including education, healthcare, and business. Similarly, Williams and Adebayo (2021) asserts that IT is a critical enabler of knowledge dissemination, providing the infrastructure for accessing and sharing data on a global scale. The introduction of information technology is changing the delivery of education, changing the roles of students, and producing a shift in society from industrialization towards and information based society especially in Rivers State University, Nkpolu-Oroworukwo Port Harcourt. Rivers State University was originally established as Rivers State College of Science and Technology in 1972, it became a full-fledged university in 1980. RSU focuses on science, technology, and applied disciplines. The university is 44 years old. The university has staff strength of 2,321 (both academic and non-academic) and students' population of 29,939. According to RSU Admission Guide (2024), the university has thirteen (13) faculties which includes faculty of agriculture, faculty of basic medical sciences, faculty of education, faculty of engineering, faculty of entrepreneurial studies, faculty of environmental sciences, faculty of humanities, faculty of law, faculty of management sciences, faculty of media and communication studies, faculty of sciences, faculty of social sciences, and college of medical sciences. Rivers State University was ranked as the 12<sup>th</sup> amongst other universities in Nigeria.

A computer is a programmable electronic device that processes, stores, and retrieves data, making it a fundamental tool in the realm of Information Technology (IT). As stated by Nwachukwu and Eze (2020), computers act as the cornerstone of IT by enabling the execution of tasks that involve data analysis, communication, and automation. These capabilities make computers indispensable in modern education systems, where they play a pivotal role in enhancing teaching and learning. In the educational context, computers serve as platforms for creating, delivering, and managing instructional content. They allow educators to prepare instructional materials using word processors, design multimedia presentations, and create dynamic lesson plans. Similarly, computers facilitate student-centered learning by providing access to e-learning platforms, simulations, and educational software (Olawale & Thomas, 2022). For instance, programs like Google Classroom and Microsoft Teams enable seamless interaction between teachers and students, fostering collaborative learning environments.

Computers are used for conducting online assessments, which provide immediate feedback to students and help educators analyze performance data to refine their teaching strategies. Eze and Uchenna (2018), explained that the use of computer-based testing (CBT) in tertiary institutions enhances the objectivity and efficiency of assessments. Moreover, virtual simulations powered by computers allow students to gain practical experience in fields such as engineering, medicine, and business without requiring physical resources. For example, medical students can use computer-based simulations to practice surgeries in a controlled virtual environment, which reduces risks and costs (Okonkwo & Adeyemi, 2019). Empirical studies have demonstrated the positive impact of computers on teaching and learning outcomes. Adebayo and Johnson (2020) conducted a study on the use of computers in secondary schools and found that students who were exposed to computer-assisted instruction performed significantly better in mathematics and science subjects compared to those who received traditional instruction. Similarly, research by Ibrahim and Omole (2021) revealed that integrating computers in university classrooms improved student engagement, participation, and academic performance. Computers offer several advantages as IT tools in education. First, they enhance access to global knowledge resources, allowing both teachers and students to explore diverse perspectives and materials. Second, computers support personalized learning through adaptive learning technologies, which tailor content to the individual needs of students (Ajayi & Kolade, 2022). Third, computers promote digital literacy, equipping students with the skills required to thrive in an increasingly digital world. Secondly, software programs, as sets of instructions designed to guide a computer in performing specific tasks, play a transformative role in education. In the words of Ayo et al. (2023) software can be broadly categorized into system software and application software. While system software manages hardware operations and core functionalities, application software is more user-oriented, enabling tasks such as word processing, data analysis, and the delivery of educational content. This duality allows software to act as a bridge between technological systems and educational goals, making it an indispensable tool for teaching and learning.

Application software is particularly significant in the educational context, as it directly supports learning activities. Programs such as Microsoft Word, Excel, and PowerPoint are widely used by educators to create lesson plans, design presentations, and manage data. Additionally, specialized educational software, such as simulation programs and interactive learning applications, caters to subject-specific needs. For instance, software like MATLAB is commonly used in engineering and science courses for computational modeling, while GeoGebra is favored for teaching mathematics concepts (Oluwaseun & Akintunde, 2022).

Learning management systems (LMS), such as Moodle and Blackboard, represent a pivotal class of educational software that enhances teaching and learning processes. According to Okoro and Njoku (2023), LMS platforms enable educators to manage courses, upload instructional materials, and assess students' performance efficiently. These systems also provide tools for real-time communication, such as discussion boards and video conferencing, fostering collaborative learning environments. For example, the use of Moodle in tertiary institutions has been shown to improve students' engagement and retention rates, as it offers interactive modules tailored to diverse learning styles (Adeyemi & Salako, 2020). Empirical studies highlight the significant contributions of software programs to educational outcomes. Adebayo and Johnson (2019) conducted research on the use of educational software in secondary schools and found that students using multimedia-based learning software demonstrated higher academic performance and engagement compared to those receiving traditional instruction. Similarly, research by Eze and Uchenna (2020) revealed that the adoption of LMS platforms in universities improved students' access to resources, their understanding of course content, and their overall academic success.

System software, such as operating systems (Windows, macOS, or Linux), forms the foundation for running application software and managing hardware resources. In the view of Ayo et al. (2023), without robust system

software, the functionality of educational software would be severely compromised. Operating systems support the deployment of servers, virtual machines, and cloud-based solutions, all of which are integral to modern e-learning ecosystems. Software programs provide several benefits in educational settings. First, they enable personalized learning by adapting content and pace to individual students' needs. For instance, AI-powered applications like Duolingo adjust language exercises based on a learner's progress. Second, software promotes resource efficiency by digitizing instructional materials and reducing the dependency on physical resources. Third, it enhances collaboration among students and teachers through features like shared documents, group discussions, and virtual classrooms (Ajayi & Kolade, 2022).

Finally, the internet is a vast global network that interconnects private, public, academic, and government systems, revolutionizing the way information is accessed and shared. As Ayo and Musa (2021) emphasize, the internet has transformed education by providing instant access to vast educational resources, enabling virtual collaboration, and fostering innovative learning platforms. It has become an indispensable tool for teaching and learning, enhancing communication, resource availability, and the overall educational experience. The internet plays a central role in facilitating e-learning, where students and teachers engage through virtual classrooms, webinars, and discussion forums (Bello & Uche, 2022). For instance, platforms such as Zoom and Google Meet have become critical in supporting online education, particularly during periods of global disruption like the COVID-19 pandemic. These tools enable real-time interaction, ensuring continuity of education even when physical classrooms are inaccessible. Furthermore, the internet allows educators to access diverse teaching materials, such as videos, articles, and online simulations, which enrich instructional content (Idris & Ogunde, 2023). Learning platforms powered by the internet, such as Coursera, Khan Academy, and EdX, provide students with access to courses from prestigious institutions worldwide. These platforms democratize education by offering resources that were previously confined to specific geographic locations or elite institutions. Empirical evidence supports this transformative impact; Adeyemi and Salako (2020) found that students who utilized internet-based resources demonstrated improved comprehension and academic performance in science and technology subjects. The internet also supports open educational resources (OERs), such as free e-books, journals, and interactive educational tools, which reduce the cost of learning materials. For example, the use of OERs in Nigerian universities has been linked to increased access to quality education for students from low-income backgrounds (Oluwaseun & Akintunde, 2022).

One of the internet's most significant contributions to education is enabling virtual collaboration among learners and educators across the globe. Online discussion forums, social media groups, and collaborative tools like Google Docs facilitate teamwork and idea-sharing, transcending geographical barriers. According to Adebayo and Johnson (2019), international virtual exchange programs foster cultural exchange and broaden students' perspectives, preparing them for global citizenship. Several studies highlight the internet's role in improving educational outcomes. For instance, a study by Eze and Uchenna (2020) revealed that internet-based learning increased students' engagement and self-directed learning capabilities in Nigerian universities. Similarly, Bello and Uche (2022) found that internet connectivity in rural schools significantly reduced disparities in access to quality education, enabling students to participate in the same virtual learning opportunities as their urban counterparts. The internet offers numerous benefits in education. First, it facilitates personalized learning by providing adaptive platforms that tailor content to individual learners' needs. Second, it enhances inclusivity by enabling remote learning for students in underserved areas. Third, it fosters lifelong learning by providing access to a vast array of resources for skill development, even beyond formal education (Ajayi & Kolade, 2022). Information technology, as a field, integrates computers, software programs, and the internet to form a synergistic system that transforms the way information is managed and shared. According to Jamaica (2024), IT enables seamless communication, efficient data processing, and innovative teaching methodologies, making it indispensable in contemporary education. Similarly, Oluwaseun and Akintunde (2023) emphasize that the interplay between these technologies has democratized access to information, fostering inclusivity and adaptability in learning environments. IT encompasses a broad spectrum of tools and technologies, including computers, software programs, and the internet, each playing a distinct but interconnected role. By understanding these components, educators and institutions can harness their potential to enhance teaching, learning, and overall academic experiences. Therefore, it is imperative that lecturers' and students' use of information technology should be above average for them to be competent and function effectively for teaching and learning in today's society.

### **Statement of the Problem**

Despite the development in information technology in the delivery of education, there are still some problems affecting its use in higher institutions. The Rivers State University has its peculiar challenges in power supply, maintenance of equipment by skilled professionals, lack of professional personnel etc. These problems if left untracked will make

students incompetent in today's society. It is against this backdrop that this study seeks to know how well students have used IT in their educational activities and also identify those problems that have impaired their use of IT. Can the use of IT revolutionized the teaching and learning ability of lecturers and students to enable them master the art of teaching and learning in Rivers State University, Nkpolu-Oroworukwo Port Harcourt?

### **Aim and Objectives of the Study**

The purpose of the study was to assess students' use of information technology in Rivers State University, Nkpolu-Oroworukwo Port Harcourt. Specially, the study sought to:

- i. Examine how computer serves as an information technology tool for teaching and learning in Rivers State University, Nkpolu-Oroworukwo Port Harcourt.
- ii. Determine how various application software programs serve as an information technology tool for teaching and learning in Rivers State University, Nkpolu-Oroworukwo Port Harcourt.
- iii. Explore how the internet serves as an information technology tool for teaching and learning in Rivers State University, Nkpolu-Oroworukwo Port Harcourt.

### **Research Questions**

The following research questions guided the conduct of the study.

- i. How does computer serves as an information technology tool for teaching and learning in Rivers State University, Nkpolu-Oroworukwo Port Harcourt?
- ii. How do various application software programs serve as an information technology tool for teaching and learning in Rivers State University, Nkpolu-Oroworukwo Port Harcourt?
- iii. How does internet serves as an information technology tool for teaching and learning in Rivers State University, Nkpolu-Oroworukwo Port Harcourt?

### **Hypotheses**

The following hypotheses were tested at 0.05 level of significance.

- H0<sub>1</sub>:** There is no significant difference between the mean opinion scores of lecturers and students on computer as an information technology tool for teaching and learning in Rivers State University, Nkpolu-Oroworukwo Port Harcourt.
- H0<sub>2</sub>:** There is no significant difference between the opinion scores of lecturers and students on various application software programs as an information technology tool for teaching and learning in Rivers State University, Nkpolu-Oroworukwo Port Harcourt.
- H0<sub>3</sub>:** There is no significant difference between the mean opinion scores of lecturers and students on internet as an information technology tool for teaching and learning in Rivers State University, Nkpolu-Oroworukwo Port Harcourt.

### **Methodology**

The study adopted a descriptive survey research design. The total population comprised 31,048 individuals, including 1,109 academic staff and 29,939 students at Rivers State University, Nkpolu-Oroworukwo Port Harcourt. The sample size of 689 respondents was selected, consisting of 294 students and 395 lecturers, determined using Taro Yamane's formula. The stratified random sampling technique was employed to ensure fair representation. The data collection instrument, titled "Assessment of Information Technologies for Teaching and Learning in Rivers State University, Questionnaire (AITTLRSUQ)," was structured on a four-point rating scale, ranging from Strongly Agree (SA=4), Agree (A=3), Disagree (D=2), and Strongly Disagree (SD=1). The instrument underwent expert validation, with necessary revisions incorporated into the final version. The reliability of the instrument was assessed using the test-retest method, and Cronbach's Alpha was applied to measure internal consistency, yielding reliability coefficients of 0.75, 0.79, and 0.81 for the three clusters. The researchers, with assistance from trained research aides, administered 689 copies of the questionnaire, of which 487 valid responses (238 from lecturers and 249 from students) were retrieved and analyzed. The collected data were analyzed using mean and standard deviation to answer the research questions, while the z-test was used to test the hypotheses at a 0.05 significance level, with a critical value of  $\pm 1.96$ .

**Results**

The presentation of data was done on tables. Mean and standard deviation were used in answering the research questions while z-test was used in testing the null hypotheses.

**Research Question 1:** How does the computer serves as an information technology tool for teaching and learning in Rivers State University, Nkpolu-Oroworukwo Port Harcourt?

**Table 1: Summary of Mean and Standard Deviation Lecturers and students on how the computer serves as an information technology tool for teaching and learning in Rivers State University, Port Harcourt**

S/No	Questionnaire Items	Lecturers N = 238		Students N = 249		Mean Set $\frac{\bar{X}_1 + \bar{X}_2}{2}$	Remark
		$\bar{X}_1$	SD <sub>1</sub>	$\bar{X}_2$	SD <sub>2</sub>		
1.	Computers allow educators to prepare instructional materials using word processors, design multimedia presentations, and create dynamic lesson plans.	2.86	0.99	2.86	0.97	2.86	Agreed
2.	Computers facilitate student-centered learning by providing access to e-learning platforms, simulations, and educational software	2.79	1.03	2.86	0.97	2.83	Agreed
3.	Computers are used for conducting online assessments, which provide immediate feedback to students and help educators analyze performance data to refine their teaching strategies.						Agreed
4.	Computers enhance access to global knowledge resources, allowing both teachers and students to explore diverse perspectives and materials.	2.85	1.00	2.93	0.92	2.89	Agreed
5.	Computers support personalized learning through adaptive learning technologies, which tailor content to the individual needs of students	2.82	0.99	2.80	1.00	2.81	Agreed
<b>Aggregate <math>\bar{X}/SD</math></b>		2.83	1.00	2.86	0.965	2.85	Agreed

Source: Field Survey Data, 2024

The data in Table 1 reveals that items 1, 2, 3, 4, and 5 had weighted mean scores of 2.86, 2.83, 2.89, and 2.81, all surpassing the criterion mean of 2.50. This indicates that respondents agreed that computers serve as an essential information technology tool for teaching and learning at Rivers State University, Nkpolu-Oroworukwo Port Harcourt. With a combined aggregate weighted mean of 2.85, the results confirm that respondents collectively recognized the crucial role of computers in enhancing teaching and learning at the university.

**Research Question 2:** How do various application software programs serve as an information technology tool for teaching and learning in Rivers State University, Nkpolu-Oroworukwo Port Harcourt?

**Table 2: Summary of Mean and Standard Deviation Lecturers and Students on how the Various Application Software Programs Serve as an Information Technology Tool for Teaching and Learning in Rivers State University, Port Harcourt**

S/No	Questionnaire Items	Lecturers N = 238		Students N = 249		Mean Set $\frac{\bar{X}_1 + \bar{X}_2}{2}$	Remarks
		$\bar{X}_1$	SD <sub>1</sub>	$\bar{X}_2$	SD <sub>2</sub>		
6.	Programs such as Microsoft Word, Excel, and PowerPoint are widely used by educators to create lesson plans, design presentations, and manage data.	2.85	1.00	2.93	0.92	2.89	Agreed
7.	Specialized educational software, such as simulation programs and interactive learning applications, caters to subject-specific needs.	2.85	0.98	2.87	0.97	2.86	Agreed
8.	Application software enable personalized learning by adapting content and pace to individual students' needs.	2.85	0.98	2.83	0.99	2.84	Agreed
9.	Application software promotes resource efficiency by digitizing instructional materials and reducing the dependency on physical resources.	2.07	0.99	2.81	1.01	2.84	Agreed
10.	Application software enhances collaboration among students and teachers through features like shared documents, group discussions, and virtual classrooms.	2.88	0.95	2.84	0.99	2.86	Agreed
<b>Aggregate <math>\bar{X}/SD</math></b>		2.7	0.98	2.856	0.976	2.86	Agreed

Source: Field Survey Data, 2024

The data on Table 2 reveals that items 6, 7, 8, 9, and 10 had weighted mean scores of 2.87, 2.86, 2.84, 2.84, 2.86, and 2.89, all surpassing the criterion mean of 2.50. This suggests that respondents agreed that various application software programs play a vital role as information technology tools for teaching and learning at Rivers State University, Nkpolu-Oroworukwo Port Harcourt. With an overall aggregate weighted mean of 2.86, the findings confirm that respondents recognized the significant contribution of application software programs in improving teaching and learning at the university.

**Research Question 3:** How does the internet serves as an information technology tool for teaching and learning in Rivers State University, Nkpolu-Oroworukwo Port Harcourt?

**Table 3: Summary of Mean and Standard Deviation Lecturers and Students on how the Internet Serves as an Information Technology Tool for Teaching and Learning in Rivers State University, Port Harcourt**

S/No	Questionnaire Items	Lecturers N = 238		Students N = 249		Mean Set $\frac{\bar{X}_1 + \bar{X}_2}{2}$	Remarks
		$\bar{X}_1$	SD <sub>1</sub>	$\bar{X}_2$	SD <sub>2</sub>		
11.	The internet also supports open educational resources (OERs), such as free e-books, journals, and interactive educational tools, which reduce the cost of learning materials.	2.91	0.94	2.77	1.04	2.84	Agreed
12.	Online discussion forums, social media groups, and collaborative tools like Google Docs facilitate teamwork and idea-sharing, transcending geographical barriers.	2.85	0.98	2.80	1.00	2.83	Agreed
13.	The internet facilitates personalized learning by providing adaptive platforms that tailor content to individual learners' needs.	2.81	1.02	2.92	0.94	2.87	Agreed
14.	The internet enhances inclusivity by enabling remote learning for students in underserved areas.	2.79	1.03	2.77	1.04	2.78	Agreed
15.	The internet fosters lifelong learning by providing access to a vast array of resources for skill development, even beyond formal education.	2.81	1.03	2.81	1.01	2.81	Agreed
<b>Aggregate <math>\bar{X}</math>/SD</b>		2.834	1	2.814	1.006	2.826	Agreed

Source: Field Survey Data, 2024

The data on Table 3 indicates that items 11, 12, 13, 14, and 15 recorded weighted mean scores of 2.84, 2.83, 2.87, 2.90, 2.81, 2.86, and 2.83, all exceeding the criterion mean of 2.50. This suggests that respondents agreed that the internet serves as a crucial information technology tool for teaching and learning in Rivers State University, Nkpolu-Oroworukwo Port Harcourt. With an overall aggregate weighted mean of 2.85, the findings confirmed that respondents recognized the internet’s significant role in enhancing teaching and learning at the university.

**Test of Hypotheses**

**Hypothesis 1:** There is no significant difference in the mean rating of lecturers and students on computer as an information technology tool for teaching and learning in Rivers State University, Nkopolu-Oroworukwo Port Harcourt.

**Table 4: z-test Analyses for the significant difference between the mean Response of Lecturers and Students on Computer as an Information Technology Tool for Teaching and Learning in Rivers State University, Port Harcourt**

Respondents	N	$\bar{X}$	SD	DF	Level of Sign.	z-Cal	z-Crit.	Decision
Lecturers	238	2.82	1.01	485	0.05	0.82	±1.96	Ho <sub>1</sub> retained
Students	249	2.84	0.99					

Source: Researcher’s Field work, 2024

Table 4 presents the z-test analysis comparing the mean ratings of lecturers and students on the use of computers as an information technology tool for teaching and learning at Rivers State University, Nkpolu-Oroworukwo Port Harcourt. The results indicate that the z-calculated value of 0.82 is less than the critical value of  $\pm 1.96$  at a 0.05 alpha significance level. Consequently, the null hypothesis is accepted, leading to the conclusion that Difference does not significantly exist in the mean ratings of lecturers and students regarding the use of computers for teaching and learning at the university.

**Hypothesis 2: There is no significant** difference in the mean rating of lecturers and students on various application software programs as an information technology tool for teaching and learning in Rivers State University, Nkpolu-Oroworukwo Port Harcourt.

**Table 5: z-test Analyses for the Significant Differences Between the Mean Responses of Lecturers and Students on the extent to which ICT tools are integrated in teaching and learning in Rivers State University, Port Harcourt**

Respondents	N	$\bar{X}$	SD	DF	Level of Sign.	z-Cal	z-Crit.	Decision
Lecturers	238	2.87	0.97	485	0.05	1.07	$\pm 1.96$	Ho <sub>2</sub>
Students	249	2.85	0.98					retained

Source: Researcher’s Field work, 2024

Table 5 presents the z-test analysis examining the difference in mean ratings between lecturers and students on the use of various application software programs as an information technology tool for teaching and learning at Rivers State University, Nkpolu-Oroworukwo Port Harcourt. The findings reveal that the z-calculated value of 1.07 is far way below the critical value of  $\pm 1.96$  at a 0.05 alpha significance level. As a result, null hypothesis two is accepted, leading to the conclusion that there is no significant difference in the mean ratings of lecturers and students regarding the use of application software programs for teaching and learning in Rivers State University.

**Hypothesis 3:** There is no significant difference in the mean rating of lecturers and students on internet as an information technology tool for teaching and learning in Rivers State University, Nkpolu-Oroworukwo Port Harcourt.

**Table 6: z-test Analyses for the significant difference between the mean Responses of Lecturers and Students on the extent of training given to help in the integration of ICT tools in the teaching and learning in Rivers State University, Port Harcourt**

Respondents	N	$\bar{X}$	SD	DF	Level of Sign.	z-Cal	z-Crit.	Decision
Lecturers	238	2.85	0.99	485	0.05	0.76	$\pm 1.96$	Ho <sub>3</sub>
Students	249	2.84	0.99					retained

Source: Researcher’s Field work, 2024

Table 6 presents the z-test analysis comparing the mean ratings of lecturers and students on the use of the internet as an information technology tool for teaching and learning at Rivers State University, Nkpolu-Oroworukwo Port Harcourt. The results indicate that the calculated z-value of 0.76 is far way below the critical value of  $\pm 1.96$  at a 0.05 significance level. Consequently, the null hypothesis is accepted, leading to the conclusion that there is no significant difference in the mean ratings of lecturers and students regarding the use of the internet for teaching and learning in Rivers State University.

**Discussion**

The findings of Research Question 1 indicated that respondents agreed on the use of computers for teaching and learning, with no significant difference in the mean ratings of lecturers and students at a 0.05 significance level for Hypothesis 1. This aligns with Ibrahim and Omole (2021), who found that integrating computers into university classrooms enhanced student engagement, participation, and academic performance. Similarly, Research Question 2

revealed that respondents agreed on the use of software programs for teaching and learning, with no significant difference in the mean ratings of lecturers and students at a 0.05 significance level for Hypothesis 2. This finding is supported by Adebayo and Johnson (2019), who reported that students using multimedia-based learning software achieved higher academic performance and engagement compared to those receiving traditional instruction. Furthermore, Research Question 3 showed that respondents acknowledged the use of the internet for teaching and learning, with no significant difference in the mean ratings of lecturers and students at a 0.05 significance level for Hypothesis 3. This is consistent with Eze and Uchenna (2020), who found that internet-based learning enhanced students' engagement and self-directed learning in Nigerian universities. Additionally, Bello and Uche (2022) highlighted that improved internet connectivity in rural schools significantly reduced educational disparities, enabling students to access the same virtual learning opportunities as their urban counterparts.

### Conclusion

Based on the findings, it was concluded that computers, various application software programs, and the internet are actively used for teaching and learning at Rivers State University, Nkpolu-Oroworukwo Port Harcourt. Additionally, no significant difference was observed in the mean ratings of lecturers and students regarding their use of these technologies in the university.

### Recommendations

Based on the findings of the study, it was recommended that:

1. The management of Rivers State University should establish regular training sessions and workshops to enhance students' and faculty members' proficiency in using computers, software applications, and internet resources for teaching and learning.
2. The management of the university should invest in acquiring and maintaining advanced application software tailored to various academic disciplines, ensuring students and lecturers have access to cutting-edge tools that support their learning and research needs.
3. The university should be able to maximize the benefits of the internet as an educational tool, and strengthen its network infrastructure, ensuring reliable and high-speed internet connectivity across campus. This will facilitate online learning, research, and access to global academic resources.

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