



## PHYSICAL RESOURCES AND EFFECTIVE INSTRUCTIONAL DELIVERY IN PUBLIC UNIVERSITIES IN RIVERS STATE

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### Abstract

The study investigated physical resources and effective instructional delivery in public universities in Rivers State. The study was guided by three research questions and three hypotheses. The design adopted for the study was a correlational research design. The population of the study was 3525 academic staff of the Universities in Rivers State. Sample size of 843 participants took part in the study. To determine the sample size Taro Yamene model was applied on each of the category. The stratified random sampling techniques was used to select the sample for the study. The instruments for data collection in this study was a researcher-designed questionnaire titled 'Physical Resources Questionnaire (PRQ) and Effective Instructional delivery (EIDQ). Cronbach Alpha Method was used to determine the reliability coefficients of 0.78, 0.81 and 0.77 obtained for the various clusters of the instrument which showed the instrument was reliable. The data collected for the study were analyzed using Pearson's Product Moment Correlation Coefficient (PPMCC) formula to answer the Research questions and test the corresponding hypotheses. The study concluded that there is a positive relationship between the various physical resources and effective instructional delivery by academic staff of universities which is evident in universities in Rivers State. Physical resources such as classroom building, laboratories and libraries enhances effective instructional service delivery. It recommended among others that university management should allocate adequate funds for the construction, renovation, and maintenance of classroom buildings to ensure they meet modern standards and provide conducive learning environments.

**Keywords:** Physical Resources, Effective Instructional Delivery, Classroom Buildings, Laboratories and Libraries



## Introduction

Education is the most important asset any individual can have and a vital instrument for the economic development of any nation. Education is functionally and practically relevant which is geared towards the acquisition of appropriate skills and the development of competence. It helps the individual to achieve life goals and contribute to the development of society. It noted the importance of the national educational goal, which is the acquisition of appropriate skills and mental development. Nwuke & Nwanguma, (2024) posited that the basis for establishing a setting in which physical resources are not only made available but also effectively employed to improve the quality of education as a whole is education. The fundamental purpose of education is to create an environment that is favourable to the development of the mind. This goes beyond the conventional classroom environment and includes offering well-appointed places like libraries, labs, and leisure areas. Physical resources encompass a diverse range of tangible assets essential for educational activities in public universities in Rivers State.

Physical resources ensures that educators have access to suitable spaces and necessary equipment for delivering comprehensive instruction. It is a well-known fact that effective instructional delivery cannot be achieved without physical resources which encompass a wide array of tangible assets essential for the smooth operation of universities, including infrastructure, classrooms, laboratories, libraries, ICT facilities, and recreational facilities Okebukola (2022). These resources constitute the foundation upon which effective instructional delivery is built. Therefore, their adequacy, accessibility, and functionality significantly influence the quality of education imparted and received within these institutions.

Classrooms and buildings form the backbone of the educational environment, providing the spaces where most Instructional delivery occur. Well-designed and adequately equipped classrooms contribute to a conducive learning atmosphere, facilitating better engagement and understanding among students (Ng'ambi, 2013). Classrooms serve as the primary venue for instructional delivery and academic discourse. Modern classrooms are designed to accommodate various teaching methodologies, including lectures, discussions, group work, and multimedia presentations (Oladokun et al., 2021). Flexible seating arrangements, interactive whiteboards, and audio-visual equipment facilitate dynamic interactions between teachers and students, promoting active learning and knowledge retention.



Again, Laboratories are another vital component of physical resources, especially for science and technology disciplines. These spaces must be equipped with modern equipment and tools to allow students to conduct experiments and engage in practical learning. The presence of well-maintained laboratories enhances hands-on experience and supports the development of critical thinking and problem-solving skills (Khan & Law, 2015). Laboratories are specialized facilities equipped with scientific apparatus and instruments for conducting experiments and research activities. In STEM disciplines, laboratories provide hands-on learning experiences that reinforce theoretical concepts and promote scientific inquiry (Aladejana et al., 2019). Students engage in hypothesis testing, data collection, and analysis, developing problem-solving skills and critical thinking abilities essential for scientific exploration and innovation.

Libraries serve as central hubs for academic resources and research materials. A well-stocked library with a wide range of books, journals, and digital resources is indispensable for student learning and faculty research. The integration of digital libraries and access to online databases further enriches the academic experience by providing up-to-date information and broadening the scope of available resources (Bukhari & Asdaque, 2013). Modern libraries offer a diverse collection of print and electronic resources, including books, journals, databases, and multimedia materials (Afolabi, 2020). Librarians provide research assistance, information literacy instruction, and access to interlibrary loan services, empowering students to navigate complex information landscapes and pursue scholarly inquiry.

Okai (2018) posited that physical resources such as chairs, classrooms, administrative blocks, students hostels, office accommodation, library, laboratory, ICT, football fields, desks, chalkboard, instructional materials among others are pre-requisite for universities in Nigeria. The provision of these resources to teach the students will likely lead to poor learning outcomes and also affects the lecturers output thereby frustrating the learning process of such institutions in all it will lead to inability to achieve stated goals. However, in most universities, especially in Rivers State, where these resources are provided, there is also the question of level of utilization. Physical resources are expected to be adequately provided to enhance effective instructional delivery in universities in Rivers State. It is however not uncommon that physical resources in most institutions across Nigeria are dilapidated and inadequate to provide quality education service delivery. It has been reported by Wali (2018) that the classrooms in most of the



universities in Rivers State were inadequate in terms of decency, space, ventilation and insulation from heat; the incinerators and urinal were not conveniently placed, and the school plant was poorly maintained; these combined deficiencies constituted a major gap in the quality of management of these institutions of learning, thus the attendant result of non- attainment of the set standards and goals of these institutions.

Paterson (2009) viewed physical resources as the extent of usage of school buildings, laboratories, library, assembly-ground, flower garden, school garden, volleyball field, chairs, desks, chalkboard, and so on contribute meaningfully to the development of the universities and as well students and lecturers live a fulfilled life. This can only be possible through effective utilization of physical resources. In some institutions, the few physical resources that are provided are old and not properly installed due to lack of fund. There are instances where some of these resources are provided but the lecturers are not able to utilize them in Instructional delivery process as a result of lack of skills. Also in some of these universities, some modern equipment such as sophisticated sewing machines, computer machines, wood cutters and others are not used by lectures because of their inability to use them. All these have great consequences on the outcome of the programme. Also, too much pressure on their use could result in over utilization, a situation that could lead to rapid deterioration and breakdown. For instance, when a classroom built to accommodate 40 students is constantly being used for 60 students then the returns from these facilities may not be maximized in terms of Instructional delivery. Comfortable learning facilities will not only boost the morale of lecturers and students but will also ensure the realization of the set goals of these universities. Physical resources in education are very important because of its role in the achievement of academic objectives. Suffice it to state that the physical resources has to do with planning, controlling and directing a number of other activities in order to achieve efficient utilization of resources that are available for Instructional delivery in the university system. It is against this background that this study investigated the physical resources and effective instructional service delivery in public universities in Rivers State.

### **Statement of the Problem**

The effective delivery of instruction in public universities is heavily dependent on the availability and quality of physical resources, including classrooms, buildings, laboratories and



libraries. Despite the recognition of their importance, there remain significant gaps in both the provision and utilization of these resources, which ultimately affect educational outcomes. Public universities in Rivers State need adequate physical resources to ensure effective instructional service delivery. However, these universities are struggling with insufficient and outdated physical resources. Various measures have been put in place, such as government funding and partnerships, to address these deficiencies, but these efforts have not yielded significant improvements.

As a result, the problem persists and is even worsening, affecting both students and faculty. Students are unable to concentrate, engage in practical learning, or access necessary materials, while faculty members are constrained in delivering quality education. This situation could severely impact the overall educational outcomes and the future of these students. Although other universities have addressed similar issues through different approaches, it is crucial to explore new methods to tackle this persistent problem. Therefore, this research seeks to find relationship between physical resources and effective instructional service delivery in public universities in Rivers State.

### **Purpose of the Study**

The purpose of the study is to investigate physical resources and effective instructional delivery in public universities in Rivers State. Specifically, the objectives of the study sought to:

1. determine the relationship between classrooms building and effective instructional delivery in public universities in Rivers State.
2. examine the relationship between laboratories and effective instructional delivery in public universities in Rivers State.
3. investigate the relationship between libraries and effective instructional delivery in public universities in Rivers State.

### **Research Questions**

The following research questions were posed to guide the study:

1. What is the relationship between classrooms building and effective instructional delivery in public universities in Rivers State?
2. What is the relationship between laboratories and effective instructional delivery in public universities in Rivers State?



3. What is the relationship between libraries and effective instructional delivery in public universities in Rivers State?

### **Hypotheses**

The following null hypotheses were formulated and tested at 0.05 level of significance.

1. There is no significant relationship between classrooms building and effective instructional delivery in public universities in Rivers State.
2. There is no significant relationship between laboratories and effective instructional delivery in public universities in Rivers State
3. There is no significant relationship between libraries and effective instructional delivery in public universities in Rivers State

## **Literature Review**

### **Theoretical Review**

#### **Resource-Based Theory (RBT).**

The Resource-Based Theory (RBT) was propounded by Wernerfelt (1984) as cited in Nwuke, & Nwanguma,(2024). The theory posits that organizations, including educational institutions, can achieve a sustainable competitive advantage through the strategic utilization of physical resources. physical resources which has to do with a wide range of tangible assets such as classrooms, laboratories, libraries, and other infrastructural facilities. According to RBT, the availability and efficient use of these physical resources contribute significantly to the overall competitiveness and effectiveness of the school. By drawing on the Resource-Based Theory, the study aims to unravel the complex relationships between tangible assets, institutional frameworks, and educational outcomes, ultimately contributing to the enhancement of the overall educational system. in public schools in Rivers State.

The relevance of the Resource-Based Theory to the study at hand is evident in its emphasis on how tangible assets, when properly harnessed, can be a source of sustainable advantage. In the educational system, the provision of state-of-the-art facilities and their effective utilization can enhance the quality of teaching and learning experiences. For instance, well-equipped laboratories facilitate hands-on practical sessions,



fostering a more comprehensive understanding of theoretical concepts. Similarly, modern classrooms and libraries create a conducive environment that promotes active engagement and knowledge acquisition. It also helps to optimize the use of available physical resources as well as other resources that belong to the organization. This theory encourages the lecturers to use all available resources (within and outside) the school to teach students, this is to ensure the effective realization of university goals.

### **Methodology**

The design adopted for the study was a correlational research design. The population of the study was 3525 academic staff of the Universities in Rivers State which consisted of 1385 academic staff of University of Port Harcourt, 1705 academic staff of Rivers state university and 435 academic staff of Ignatius Ajuru University of Education (Source: Establishment Desk of Public Universities in Rivers State 2024) Sample size of 843 participants took part in the study. The sample consisted of three hundred and eleven (311) academic staff of University of Port Harcourt (UNIPORT), three hundred and twenty-four (324), academic staff of Rivers State University (RSU), and two hundred and eight (208) academic staff of Ignatius Ajuru University of Education (IAUE). To determine the sample size Taro Yamene model was applied on each of the category of the population 1385, 1705 and 435 academic staff from the different Universities respectively. The stratified random sampling techniques was used to select the sample for the study. The instruments for data collection in this study were a researcher-designed questionnaire titled 'Physical Resources Questionnaire (PRQ) and Effective Instructional delivery (EIDQ). The instruments were divided into two sections: Section A was used to collect demographic data from the respondents, section B contain questionnaire items that assessed the raised research questions and the instrument was structured using the modified 4-point Likert rating scale of Strongly Agreed (SA), Agreed (A), Disagreed (D) and Strongly Disagreed (SD) weighted 4-1 respectively. To determine the reliability of the instrument, the instrument was administered to 25 lecturers who are outside the sample of the study but were part of the population of the study. The completed copies of the questionnaire were analyzed for reliability using Cronbach Alpha Method. The reason was to establish the internal consistency of the instrument. The reliability coefficients of 0.78, 0.81 and 0.77 were obtained for the various clusters of the instrument which



showed the instrument was reliable. A total of 843 copies of the questionnaire were administered to the academic staff from the three Universities used in the study by the researcher and two (2) trained research assistants who are post graduate students of Rivers State University. Completed questionnaires were retrieved by the researcher and the accredited trained assistants on the spot, while others were collected at later days within this period of three weeks. However, due to poor accessibility and availability on several visits to the respondents for collection, only 733 (87% rate) were retrieved and this proportion was used for the analysis.

The data collected for the study were analyzed using Pearson’s Product Moment Correlation Coefficient (PPMCC) formula. Research questions were answered based on the value and direction of the correlation coefficient, (positive and high, positive but low, or negative and high or negative but low or moderate). Hypotheses were tested for significance of relationship at 0.05 level of significance. This was further tested by transforming the coefficient of correlation (r) to t in order to establish the significance or otherwise of the r – value.

**Results and Discussions**

**Research Question 1:** What is the relationship between classrooms building and effective instructional delivery in public universities in Rivers State?

**Table 4.1: Relationship between Classrooms Building and Effective Instructional Delivery in public Universities in Rivers State**

Variable	N	$\sum X$	$\sum Y$	$\sum X^2$	$\sum Y^2$	$\sum XY$	r <sub>cal</sub>	r <sub>crit</sub>	Remarks
Classrooms Building (X)	733	767.13		2307.33					
						2753.07	0.83	0.195	High positive
Effective Instructional Delivery (Y)	733	1108.04		3228.06					

\*\* . Correlation is significant at the 0.05 level (2-tailed)

The analyses from Table 4.1 reveals a correlation value of r = 0.83. This value is high and positive, thus indicating that there is high and positive relationship between classrooms building and effective instructional delivery in public universities in Rivers State. The relationship here





being positive indicates a proportional increase of both physical resources (classrooms building) and effective instructional delivery.

**Research Question 2:** What is the relationship between laboratories and effective instructional delivery in public universities in Rivers State?

**Table 4.2: Relationship between Laboratories and Effective Instructional Delivery in public Universities in Rivers State**

Variable	N	$\sum X$	$\sum Y$	$\sum X^2$	$\sum Y^2$	$\sum XY$	r <sub>cal</sub>	R <sub>crit</sub>	Remarks
Laboratories (X)	733	836.04	2741.08						
				2907.07			0.80	0.195	High positive
Effective Instructional Delivery (Y)	733	1108.04	3228.06						

\*\* . Correlation is significant at the 0.05 level (2-tailed)

The analyses from Table 4.2 reveals a correlation value of  $r = 0.80$ . This value is high and positive, thus indicating that there is high and positive relationship between laboratories and effective instructional delivery in public universities in Rivers State. The relationship here being positive indicates a proportional increase of both physical resources (laboratories) and effective instructional delivery.

**Research Question 3:** What is the relationship between libraries and effective instructional delivery in public universities in Rivers State?

**Table 4.3: Relationship between Libraries and Effective Instructional Delivery in public Universities in Rivers State**

Variable	N	$\sum X$	$\sum Y$	$\sum X^2$	$\sum Y^2$	$\sum XY$	r <sub>cal</sub>	R <sub>crit</sub>	Remarks
Libraries (X)	733	760.11	2618.12						
				2573.12			0.86	0.195	High positive
Effective Instructional Delivery (Y)	733	1108.04	3228.06						

\*\* . Correlation is significant at the 0.05 level (2-tailed)



The analyses from Table 4.3 reveals a correlation value of  $r = 0.86$ . This value is high and positive, thus indicating that there is high and positive relationship between libraries and effective instructional delivery in public universities in Rivers State. The relationship here being positive indicates a proportional increase of both physical resources (Libraries) and Effective instructional service delivery.

**Test of Hypotheses**

The following null hypotheses were formulated and tested at 0.05 level of significance.

**Hypothesis 1:** There is no significant relationship between classrooms building and effective instructional delivery in public universities in Rivers State.

**Table 4.4: Pearson Correlation Summary Analysis between classrooms building and effective instructional delivery in public universities in Rivers State.**

Variable	N	$\sum X$ $\sum Y$	$\sum X^2 \sum Y^2$	$\sum X \sum Y$	Df	A	$r_{cal}$	$r_{crit}$	$t_{cal}$	$t_{crit}$	RMKS
Classrooms Building (X)	733	767.13	2307.33								
Effective Instructional Delivery (Y)	733	1108.04	3228.06	2753.07	731	0.05	0.83	0.195	30.13	1.96	Sig. Reject $H_{01}$

Source: *Researcher’s Field Result, 2024*

Table 4.4 shows Pearson correlation summary between classrooms building and effective instructional delivery in public universities in Rivers State. Result from Table 4.4 revealed that the sum and sum of squares for classrooms building and effective instructional delivery in public universities in Rivers State are 767.13 and 2307.33 while that of effective instructional delivery are 1108.04 and 3228.06 respectively. The sum of product of scores on the two variables (Classroom building and Effective Instructional Delivery) is 2753.07. The correlation coefficient is 0.83 which is greater than the critical value of  $r$  (0.195) at 731 degrees of freedom under 0.05 level of significance. Therefore, the null hypothesis of no significant relationship between classroom building and Effective Instructional Delivery in universities in Rivers State is rejected.



This implies that there is a positive relationship between classroom building and effective instructional delivery in Rivers State Universities.

**Hypothesis 2**

There is no significant relationship between laboratories and effective instructional delivery in public universities in Rivers State

**Table 4.5: Pearson Correlation Summary Analysis between laboratories and effective instructional delivery in public universities in Rivers State**

Variable	N	$\sum X$	$\sum X^2$	$\sum Y^2$	$\sum X \sum Y$	df	A	$r_{cal}$	$r_{crit}$	$t_{cal}$	$t_{crit}$	RMKS
laboratories (X)	733	836.04	2741.08		2907.07	731	0.05	0.800	0.195	23.51	1.96	Sig. Reject $H_0$
Effective Instructional Delivery (Y)	733	1108.04	3228.06									

Source: *Researcher's Field Result, 2024*

Table 4.5 shows Pearson correlation summary between laboratories and effective instructional delivery in public universities in Rivers State. Result from Table 4.5 revealed that the sum and sum of squares for laboratories and effective instructional delivery in public universities in Rivers State are 836.04 and 2741.08 while that of effective instructional delivery are 1108.04 and 3228.06 respectively. The sum of product of scores on the two variables (Laboratories and Effective Instructional Delivery) is 2907.07. The correlation coefficient is 0.80 which is greater than the critical value of r (0.195) at 731 degrees of freedom under 0.05 level of significance. Therefore, the null hypothesis of no significant relationship between laboratories and effective instructional delivery in public universities in Rivers State is rejected. This implies that there is a positive relationship between laboratories and effective instructional delivery in public universities in Rivers State

**Hypothesis 3**

There is no significant relationship between libraries and effective instructional delivery in public universities in Rivers State



**Table 4.6: Pearson Correlation Summary Analysis between libraries and effective instructional delivery in public universities in Rivers State.**

Variable	N	$\sum X$ $\sum Y$	$\sum X^2$ $\sum Y^2$	$\sum XY$	df	A	$r_{cal}$	$r_{crit}$	$t_{cal}$	$t_{crit}$	RMKS
Libraries (X)	733	760.11	2618.12								
Effective Instructional Delivery (Y)	733	1108.04	3228.06	2573.12	731	0.05	0.860.195	28.02	1.96		Sig. Reject $H_{03}$

Source: *Researcher's Field Result, 2024*

Table 4.6 shows Pearson correlation summary between libraries and effective instructional delivery in public universities in Rivers State. Result from Table 4.6 revealed that the sum and sum of squares for libraries and effective instructional delivery in public universities in Rivers State are 760.11 and 2618.12 while that of libraries and effective instructional delivery are 1108.04 and 3228.06 respectively. The sum of product of scores on the two variables (libraries and effective instructional delivery) is 2573.12. The correlation coefficient is 0.86 which is greater than the critical value of r (0.195) at 731 degrees of freedom under 0.05 level of significance. Therefore, the null hypothesis of no significant relationship between libraries and effective instructional delivery in public universities in Rivers State is rejected. This implies that there is a positive relationship between libraries and effective instructional delivery in public universities in Rivers State

**Discussion of Findings**

The discussion of findings in this study were done under the following subheadings.

**Relationship between classrooms building and effective instructional delivery in public universities in Rivers State**

The finding of the study for research question one revealed that there is a positive relationship between classroom building and effective instructional delivery in Rivers State Universities. The analyses from Table 4.1 reveals a correlation value of  $r = 0.83$ . This value is high and positive, thus indicating that there is high and positive relationship between classrooms building and



effective instructional delivery in public universities in Rivers State. The relationship here being positive indicates a proportional increase of both physical resources (classrooms building) and effective instructional delivery. The correlation coefficient is 0.83 which is greater than the critical value of  $r$  (0.195) at 731 degrees of freedom under 0.05 level of significance. Therefore, the null hypothesis of no significant relationship between classroom building and Effective Instructional Delivery in universities in Rivers State is rejected. This implies that there is a positive relationship between classroom building and effective instructional delivery in Rivers State Universities.

This finding is supported by the findings of Samuel (2012) who affirmed that proper lighting, ventilation, and temperature control in classrooms create an optimal environment for effective instruction. Adeniyi (2015) further revealed that suitable classroom furniture promotes student engagement and learning during instruction. This finding also agreed with Lusardi (2021) on classroom building as measures for academic effectiveness who found that there is no significant relationship between classroom building and Effective Instructional Delivery in universities in Rivers State

### **Relationship between Laboratories and Effective Instructional Delivery in public Universities in Rivers State**

The findings of the study for research question two revealed that a correlation value of  $r = 0.80$ . This value is high and positive, thus indicating that there is high and positive relationship between laboratories and effective instructional delivery in public universities in Rivers State. The relationship here being positive indicates a proportional increase of both physical resources (laboratories) and effective instructional delivery. The corresponding hypothesis two also revealed that the sum and sum of squares for laboratories and effective instructional delivery in public universities in Rivers State are 836.04 and 2741.08 while that of effective instructional delivery are 1108.04 and 3228.06 respectively. The sum of product of scores on the two variables (Laboratories and Effective Instructional Delivery) is 2907.07. The correlation coefficient is 0.80 which is greater than the critical value of  $r$  (0.195) at 731 degrees of freedom under 0.05 level of significance. Therefore, the null hypothesis of no significant relationship between laboratories and effective instructional delivery in public universities in Rivers State is rejected. This implies that there is a positive relationship between laboratories and effective



instructional delivery in public universities in Rivers State. This finding was corroborated by the findings of Barineka and David (2019) which revealed that the laboratories have sufficient workspace for students to conduct experiments or practical work. The findings also agreed with Okeke (2012) that the laboratory spaces are designed to accommodate the number of students in each class effectively and the laboratory sessions are well-coordinated with the theoretical aspects of the course. Igwe (2019) also revealed that the laboratories have sufficient resources (manuals, guides, etc.) to support practical learning.

### **Relationship between Libraries and Effective Instructional Delivery in public Universities in Rivers State**

The analyses from Table 4.3 reveals a correlation value of  $r = 0.86$ . This value is high and positive, thus indicating that there is high and positive relationship between libraries and effective instructional delivery in public universities in Rivers State. The relationship here being positive indicates a proportional increase of both physical resources (Libraries) and Effective instructional service delivery. Result from Table 4.8 revealed that the sum and sum of squares for libraries and effective instructional delivery in public universities in Rivers State are 760.11 and 2618.12 while that of libraries and effective instructional delivery are 1108.04 and 3228.06 respectively. The sum of product of scores on the two variables (libraries and effective instructional delivery) is 2573.12. The correlation coefficient is 0.86 which is greater than the critical value of  $r$  (0.195) at 731 degrees of freedom under 0.05 level of significance. Therefore, the null hypothesis of no significant relationship between libraries and effective instructional delivery in public universities in Rivers State is rejected. This implies that there is a positive relationship between libraries and effective instructional delivery in public universities in Rivers State.

Okodu (2014) study further supports this finding, that the university library has an adequate collection of books, journals, and other resources relevant to my courses and the library's website and online resources are mobile-friendly and accessible from anywhere. However, Ereh (2019) disagreed with the findings that the library has a comfortable and conducive environment for studying and reading. Eneku (2013) revealed that in a well-designed library classroom, students not only have access to a vast array of academic resources but also benefit from a conducive atmosphere that fosters research, critical thinking, and information literacy skills



## **Conclusion**

Based on the findings, it was concluded that there is a positive relationship between the various physical resources and effective instructional delivery by academic staff of universities. This is evident in universities in Rivers State. Physical resources such as classroom building, laboratories, libraries, ICT facilities and recreational facilities enhances effective instructional service delivery.

The study findings clearly demonstrate a strong positive relationship between various physical resources and effective instructional delivery in public universities in Rivers State. Specifically, high positive correlations were found between classroom buildings, laboratories and libraries and effective instructional delivery. The corresponding hypotheses were rejected, indicating significant positive relationships between each of these physical resources and effective instructional delivery in the universities studied. These findings highlight the crucial role that physical infrastructure plays in facilitating and enhancing the teaching and learning process in higher education institutions.

## **Recommendations**

Based on the findings of the study, the following recommendations were made:

1. University Management should allocate adequate funds for the construction, renovation, and maintenance of classroom buildings to ensure they meet modern standards and provide conducive learning environments.
2. University Management should establish a comprehensive plan for the development and upgrading of laboratory facilities, including the procurement of modern equipment and resources, to support practical and experiential learning.
3. University Management should prioritize the expansion and modernization of university libraries, including the acquisition of up-to-date physical and digital collections, to facilitate effective research and self-study.

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