

ACCESSIBILITY TO DIGITAL INFRASTRUCTURAL RESOURCES AND JOB PERFORMANCE OF ACADEMICS IN A UNIVERSITY OF EDUCATION IN LAGOS STATE

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Doi: <https://doi.org/10.69713/uoaaj2026v04i01.05>

Abstract

The digital transformation of university education has shown the importance of digitalization in influencing the world system by finding relevance at the pinnacle of education. The equitable access to digital infrastructure by stakeholders within the university system, therefore, becomes a thing of concern for the certainty of quality education. This study explores the accessibility to digital infrastructure resources by one of the stakeholders in the University of Education, the academics, and their job performance. The study hinges on three indices basically: digital infrastructure accessibility, financial investment in digital infrastructure, and job performance of academics. By using stratified random sampling techniques, questionnaires were administered and responses analyzed using descriptive and inferential statistics such as linear regression. The finding exposes the disparities in digital access of the academics and recommendations that would assist the institution to better harness institutional digitalization, such as the need to have policy reforms to ensure sustainable digital infrastructure in the university system, were suggested.

Keywords: Digital, Infrastructural Resources, Accessibility, Financial Investment, Academics

INTRODUCTION

The issue of accessibility of digital infrastructure in the teaching and learning activities has diversified higher education and generated greater complexities in its management, redefining the job performance of academics by compelling them to embrace self-development to keep abreast of the challenges of the job. Academics as a career has taken an interesting twist with the application of technology and this has come with attending challenges such as lack of support for technology integration, lack of resources, lack of motivation, beliefs and values of teachers and other staff, resistance to change,

insufficient knowledge of teachers, lack of training opportunities, lack of time, etc. (Sunil and Renuka, 2021). Another researcher mentioned challenges like inadequate funding, poor connectivity, and limited technical support, which can widen the digital divide, impacting academic performance and research output. Improving accessibility requires promoting digital literacy and inclusive policies, fostering a more inclusive, efficient, and technology-driven academic environment (Aly, 2022).

In advanced countries job performance of academics has been well enhanced with the integration and accessibility to digital

infrastructure, which plays an important role in research productivity, teaching effectiveness, and administrative efficiency. Academics in these countries have embraced digital tools and platforms to support their work, thus improving themselves and their institutional outputs. Weller (2018) and Selwyn (2020), appreciating the integration of digital infrastructure in academics, highlighted the digital infrastructure that has found relevance to comprise high-speed internet, cloud computing, online learning management systems (LMS), and digital libraries. They said that some collaborative tools, such as Google Scholar, Scopus, and institutional repositories, allow for seamless access to academic publications and data, thereby supporting research output and citation impact. Likewise, they emphasized that other digital tools, such as Turnitin and Grammarly, enhance the quality of academic writing and reduce plagiarism, thereby contributing to improved performance standards and enabling academics to work more flexibly and productively.

Open Learning is more pronounced in the advanced nations as a result of better utilization of digital facilities by the academics. These nations have greatly impacted the academic teaching domain through the Learning Management Systems such as Moodle, Canvas, and Blackboard. These facilitate the organization of course materials, tracking of student performance, and fostering of interactive learning environments. These systems have allowed academics to deliver hybrid or fully online courses efficiently, a trend that surged during the COVID-19 pandemic and has since become a mainstay in many universities (Czerniewicz et al., 2020).

In the words of Almpanis (2015), digital infrastructure also supports administrative efficiency by applying tools for online scheduling, performance appraisal, and digital reporting thus reducing time spent on bureaucratic tasks and allows academics to

focus more on their core responsibilities of teaching and research. In Nigeria, harnessing the fortune embedded in digital infrastructure is still a tall order, as Mukuni (2019) and Osisami (2023) vividly assert that many developing countries, including Nigeria, have many challenges hampering accessibility to digital infrastructure, ranging from unequal internet access, unreliable services, and high ICT costs, which have hindered the growth of internet-based delivery systems. These issues are pronounced across the different educational strata, discouraging the use of digital infrastructure, and with academics requiring much training and institutions requiring much funding to procure and integrate digital infrastructure. This study is hinged on investigating the extent to which accessibility to digital infrastructure would influence the job performance of academics in the Lagos State University of Education.

Research Objectives

The purpose of the study is to:

1. Examine the influence of Infrastructural accessibility on the job performance of academics in the Lagos State University of Education.
2. Find out the effect of financial investment in digital infrastructure on job performance among academics at the Lagos State University of Education.
3. Investigate the combined influence of infrastructural utilization and financial investment on the job performance of academic staff in Lagos State University of Education.

Research Hypotheses

The following research hypotheses guided the study;

Ho₁: Infrastructural accessibility has no significant influence on the job performance of academics in Lagos State University of Education.

H₀₂: Financial investment in digital infrastructure will not significantly influence job performance among academics in Lagos State University of Education.

H₀₃: There is no combined significant influence of infrastructural utilization and financial investment on the job performance of academic staff in Lagos State University of Education.

LITERATURE REVIEW

Accessibility to digital infrastructure and job performance

The issue of job performance in an academic environment is becoming more complex with the many challenges the academic staff will need to surmount, such as the need for training, adapting to sophisticated technologies, and procurement of such. Job performance, in essence, is defined as the effectiveness and efficiency with which academics fulfill their roles in teaching, research, and service to the institution. According to Oduro and Adusei (2022), job performance is affected by both personal and institutional factors, including motivation, support systems, and working conditions. In the opinion of Almazan and Bala (2020), with the rise of digital technologies, universities are compelled to ensure that lecturers have adequate access to digital tools and infrastructure to enhance productivity, teaching effectiveness, and research capabilities

In the words of Campbell and Wiernik (2015), Performance indicators may include student evaluations, research output, innovation in pedagogy, and contributions to institutional development. Digital infrastructure has been entrenched in the work of academics with the emergence of the 21st century technologies, with reference to the integrated set of information technology systems, platforms, and tools that support digital learning,

communication, and administrative processes in universities (Beetham and Sharpe, 2019). The academic staff's proficiency is put to the test in this wise as succinctly put by Anshari et al. (2020), that the effectiveness of these infrastructures is central to lecturers' ability to perform core academic tasks.

Osisami (2018), Mamiseishvili and Rosser (2011), Mwadiani and Akpotu (2002) all appreciated that faculty performance accountability and productivity have placed increasing demands on academic work to the extent that universities rely on their employees' skills, knowledge, and abilities for efficient and effective delivery of services to stay abreast with new changes and to achieve the vision of the institution. Hence, the need to invest in digital infrastructure for improved job performance. Accessibility to digital infrastructure means the ease with which lecturers can obtain and use digital tools to perform academic tasks. Studies suggest that access must be both physical (hardware and connectivity) and functional (technical support and training) to be impactful. Studies by Dlodlo and Sithole (2020), Okoye and Eze (2021) reiterate that a positive relationship exists between accessibility to digital infrastructure and lecturers' job performance, with a report of higher job satisfaction, effective teaching practices, and high output in research and publication. Empirical studies conducted by Ajadi et al. (2020) across five public universities in Nigeria reported a statistically significant relationship between access to ICT tools (e.g., internet connectivity, computers, and e-learning platforms) and the productivity of academic staff in teaching, research, and administrative tasks.

Infrastructure utilization and financial investment in digital infrastructure

Ololube et al. (2016) noted that the mere presence of ICT infrastructure does not automatically translate to improved staff

performance unless the tools are adequately used. Their study found that universities where academic staff actively utilized digital tools in instructional delivery recorded higher job satisfaction and teaching effectiveness. Also, financial investment in digital infrastructure has been revealed to enhance teaching, research, and administrative efficiency. A study by Tondeur et al. (2017) emphasizes that consistent investment in ICT infrastructure, such as learning management systems (LMS), smart classrooms, and high-speed internet, significantly supports academic staff in integrating technology into teaching practices. Ali et al. (2020) conducted a study in Malaysian public universities and found that digital infrastructure investments, when combined with staff training and policy support for utilization, led to measurable improvements in teaching outcomes, research productivity, and overall job performance. Likewise, Adu et al. (2021) found in Nigerian universities that institutions that aligned financial investment with structured digital literacy programs and utilization incentives experienced higher academic staff engagement and performance outcomes than those that focused on infrastructure acquisition alone.

METHODOLOGY

The study adopted a descriptive research design. The data for the study were collected with the use of a Google form generated to elicit responses from academics on accessibility to digital infrastructural resources and job performance of academics in a University of Education in Lagos State. The population of the study comprised of 452 academic staff in Lagos State University of Education. The sample for the study was drawn by using simple random

sampling techniques with the help of Taro Yamane's Formula (1967).

$$n = \frac{N}{1 + N(e)^2}$$

Where: n= Sample size, N= Population size, e- margin of error 0.05

In all, a sample of two hundred and twelve academic staff (212) was selected for the study.

Data were collected for analysis with an instrument designed by the researchers and constructively validated by two professors in the department. The instrument was named the Digital Infrastructure Accessibility and Job Performance Questionnaire, which comprised two sections. Section A took cognizance of the demographic data of respondents. Section B consisted of three subsections, each taking care of different variables under consideration. A 4-point Likert-type scale of Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD) was employed. The reliability of the instrument was established by administering the questionnaire to a separate group of academics, different from the study population of a sister institution in the State where thirty academic staff filled the questionnaire at regular intervals of two weeks. The collated data were analyzed through the split-half reliability coefficient using the Spearman-Brown formula, and came out with a 0.88 reliability index, indicating that the instrument was suitable for use.

RESULTS AND DISCUSSION

H₀₁: Infrastructural Accessibility has no significant influence on the Job Performance of Academics in Lagos State University of Education

Table 1: Regression Model Summary Indicating the Influence of Infrastructural Accessibility on Job Performance of Academics in Lagos State University of Education

R	R Square	Adjusted R-Square	Std. Error of the Estimate		
0.46 ^a	0.22	0.21	0.46		
Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	11.906	1	11.906	57.601	.000 ^b
Residual	43.405	210	.207		
Total	55.310	211			

- a. Dependent Variable: Job Performance
- b. Predictors: (Constant), Infrastructure

The model summary reveals that the predictor variable, Infrastructure, has a correlation coefficient (R) of 0.46 with Job Performance. This indicates a moderate positive relationship, suggesting that infrastructure improvements are associated with increases in job performance. The coefficient of determination (R Square) is 0.22, meaning that 22% of the variation in job performance can be explained by infrastructure alone. The Adjusted R Square 0.21 value accounted for sample size and the number of predictors, confirming that the model remains a fairly good fit. The standard error of the estimate, 0.46, shows the average deviation of observed values from the regression line. The

ANOVA table further confirms the significance of this model, as the regression sum of squares 11.906 compared to the residual sum of squares 43.405 indicates that a considerable portion of the total variation 55.310 is explained by the model. The F-statistic 57.601 with a significance level of 0.000 demonstrates that the model is statistically significant. In other words, infrastructure significantly predicts job performance among the respondents. Based on these results, it is therefore concluded that infrastructure has a statistically significant and positive influence on job performance. Institutions with better infrastructure tend to record higher job performance among staff.

H0₂: Financial investment in Digital infrastructure will not significantly influence the job performance of academics at the Lagos State University of Education.

Table 2: Regression Model Summary Indicating the Influence of Financial Investment on the Job Performance of Academics in Lagos State University of Education

R	R Square	Adjusted R-Square	Std. Error of the Estimate		
.648 ^a	.420	.418	.39072		
Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	23.252	1	23.252	152.311	.000 ^b
Residual	32.059	210	.153		
Total	55.310	211			

- c. Dependent Variable: Job Performance
- d. Predictors: (Constant), financial investment

The model summary indicates that financial investment has a strong positive relationship

with job performance among academics in Lagos State University of Education, as shown by the correlation coefficient ($R = .648$). The coefficient of determination ($R^2 = .420$) reveals that financial investment explains 42.0% of the total variation in job performance. The Adjusted R^2 value (.418) confirms that after adjusting for sample size and predictor variable, the model still maintains a high level of accuracy. The standard error of the estimate (.39072) represents the average deviation of the observed job performance scores from the predicted values. The ANOVA table further illustrates the statistical significance of the model. The regression sum of squares (23.252) compared to the residual sum of squares (32.059) shows that a substantial proportion of total variance (55.310) in job performance is explained by financial investment. The calculated F-value of 152.311,

with a significance level of .000 ($p < .05$), indicates that the regression model is statistically significant. This means there is a strong and meaningful influence of financial investment in digital infrastructure on job performance. Based on these results, it can be concluded that financial investment in digital infrastructure significantly influences job performance among academics. Higher financial investment in digital infrastructure leads to improved job performance, implying that adequate funding contributes to better efficiency and productivity of academic staff.

H₀₃: There is no significant combined influence of infrastructural utilization and financial investment on the job performance of academics in Lagos State University of Education.

Table 3: Model Summary showing the combined influence of infrastructural utilization and financial investment on the Job Performance of academics in Lagos State University of Education

R		R Square	Adjusted R-Square	Std. Error of the Estimate		
.648 ^a		.420	.418	.39072		
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	23.293	2	11.647	76.026	.000 ^b
	Residual	32.017	209	.153		
	Total	55.310	211			

a. Dependent Variable: job performance

b. Predictors: (Constant), financial investment, infrastructure

The model summary shows that financial investment has a strong positive influence on the job performance of academics, as indicated by the correlation coefficient ($R = .648$). The coefficient of determination R^2 (.420) reveals that financial investment explains 42.0% of the variation in job performance among academics in Lagos State University of Education. The Adjusted R^2 (.418) confirms that the model remains stable and reliable even after adjusting for the number of predictors and sample size. The standard error

of the estimate (.39072) indicates the average deviation between the predicted and actual job performance scores, showing that the model is a good fit. The ANOVA table further supports the strength of the model as the regression sum of squares (23.293) compared with the residual sum of squares (32.017) demonstrates that a substantial amount of variance in job performance is accounted for by the predictor. The F-value (76.026) and the associated significance level (.000, $p < .05$) indicate that the regression model is statistically significant.

This means that financial investment meaningfully predicts and influences job performance among academics, and the likelihood that this result occurred by chance is extremely low. The finding concludes that financial investment significantly influences job performance. Thus, adequate and consistent financial provision, such as funding for academic resources, research grants, and welfare programmes, would enhance the productivity, motivation, and efficiency of academic staff in Lagos State University of Education.

DISCUSSION OF FINDINGS

The result of findings from hypothesis one revealed that infrastructural accessibility significantly influences the job performance of academics. The findings of this study align with the study conducted by Adebayo and Ogunsola (2021), who established that the availability of modern infrastructure in educational institutions improves staff morale and enhances job effectiveness, as employees are empowered with the tools and environment required to carry out their daily tasks. This finding is also in tandem with the studies carried out by Ajadi et al. (2021), Dlodlo & Sithole (2020), and Okoye & Eze (2021) that a positive relationship exists between accessibility to digital infrastructure and lecturers' job performance, with the nexus encouraging job satisfaction, effective teaching practices, and high output in research and publication. The finding corroborates Danlami and Hassan (2022), who found that a significant relationship exists between infrastructural adequacy and job performance, indicating that when institutions invest in physical and technological resources, staff performance outcomes improve. On the contrary, a study by Mensah et al. (2024) did not find infrastructure to be a significant determinant of job performance. Institutions with adequate infrastructure tend to create conducive working environments, improve

employee satisfaction, and ensure better job performance outcomes. The consensus among recent studies indicates that investment in infrastructure is a strategic approach to enhancing employee productivity and organizational efficiency.

Hypothesis two found that financial investment in digital infrastructure does significantly influence job performance. This study agrees with the findings of Tondeur et al (2017); Ali et al (2020), and Adu et al (2021), who discovered that consistent investment in ICT infrastructure, such as Learning Management Systems (LMS), smart classrooms, and high-speed internet, significantly supports academic staff in integrating technology into teaching practices. The findings of this study are also in tandem with the study conducted by Sun and Yoon (2025), where they discovered that digital transformation positively predicts faculty performance. This study also corroborates the outcome of the study conducted by Yoa and Yan (2025), as they found that digital infrastructure significantly promotes new quality productivity and remains robust after a series of stability and endogeneity tests. Hypothesis three found that financial investment significantly contributes to improving job performance. The finding aligns with studies by Ajadi et al (2021); Okoye & Eze (2021); Ali et al (2020), and Adu et al (2021), who found that infrastructural accessibility and financial investment do significantly combine to influence the job performance of academics.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The researcher investigated the accessibility to digital infrastructural resources and job performance of academics in a university of education in Lagos State. The research has shown that accessibility to digital infrastructural resources and the financial investment in this boosts the job performance of academics. Efforts of the management must

be made to ensure continuous improvement in the job output of valued staff by adequately funding the procurement, maintenance of digital infrastructure, and the training of academic staff regularly.

Recommendations

Based on the findings that accessibility to digital infrastructure and financial investment influences the job performance of academics, the following recommendations are made:

1. The University should strengthen digital infrastructure and accessibility through the improvement in internet connectivity by ensuring the provision of stable, high-speed, and affordable internet access across all academic departments, offices, libraries, and laboratories. This will enhance research, teaching, collaboration, and administrative efficiency. The management of this institution should provide modern ICT Facilities by investing in up-to-date computers, smart boards, projectors, and other digital learning tools to enable academics to effectively deliver their lectures and conduct acceptable research.
2. The University should engage in continuous capacity building and digital literacy of its talented academics by engaging in regular training and workshops relating to professional development programs on digital tools, e-learning platforms, research software, and data analysis packages to enhance their digital competence. Digital literacy and ICT proficiency should be incorporated into staff promotion criteria to motivate academics to improve their technology adoption and productivity. The University should increase its financial investment in academic support systems by allocating funds for research and innovation: The University should increase its financial investment in research grants, conference sponsorships, and publication support to

encourage innovative and high-impact academic work. Funds should be appropriated for the maintenance and upgrading of digital infrastructure/facilities to prevent obsolescence and ensure sustainability.

3. The University should foster partnerships and collaborate with technology companies, telecommunication providers, and development agencies to improve infrastructure, access to digital resources, and capacity-building initiatives. Inter-university collaborations for shared access to digital databases, online libraries, and joint research funding should be encouraged to enhance resource efficiency and collective performance. The University should evolve/ formulate institutional policies on digital infrastructure management, equipment utilization, and financial investment priorities that align with global best practices.

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