

Influence of Cloud Computing on Librarians' Job Performance in Libraries of Selected Public Tertiary Institutions in South-South Nigeria

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DOI: <https://doi.org/10.47772/IJRISS.2026.10200178>

Received: 13 February 2026; Accepted: 19 February 2026; Published: 28 February 2026

ABSTRACT

The research investigated the extent to which cloud computing has influence in the job performance of librarians in libraries of selected public tertiary institutions in south-south Nigeria. The specific objective was to ascertain the influence of cloud computing on librarian's job performance in libraries of selected public tertiary institutions in South-South Nigeria, find out the difference in the application of cloud computing based on libraries of selected public tertiary institutions in South-South Nigeria. Two corresponding questions and hypotheses were formulated. The study was predicated on theory of expectancy. The conceptual framework was highlighted, a thorough review of previous studies carried out to explore the existing research carried out on cloud computing and librarian's job performance. The empirical reviews carried out provided us with a clear gap in knowledge which this study filled. Descriptive survey design was adopted for study. A total of 132 library staff constituted the population of the study while 108 was sampled using Multi stage approached for the selection. A research structured questionnaire title "Cloud Computing and Librarian's Job Performance Questionnaire" (CCALJPQ)" was used to collect data. The dependent and independent t-test were used to analysis the collected data. The result of the findings revealed a significant influence of cloud computing on librarian's job performance in libraries of selected public tertiary institutions in South-South Nigeria.

Keywords: Cloud Computing, Information Technology, Librarians, Job Performance, Tertiary Institutions.

INTRODUCTION

However, observations by the researchers through visits to some tertiary institutions libraries revealed Information technology has continued to make massive impact on information service delivery in academic libraries which brought about significant changes in information service provision. The revolution of ICT has introduced tools and programs with huge potentials to help librarians address the challenges associated with traditional library system paving way for effective and efficient management and dissemination of information resources which is their core responsibility. One of these numerous ICT tools and programs that is so captivating to library and information services management in tertiary institution Libraries is cloud computing. Tertiary education (universities, polytechnics and colleges of education) is the highest educational system in Nigerian and it has the primary role of training students who will be awarded with different qualifications depending on the choice of education. In response to the effective and efficient training of students, tertiary institution libraries are established to provide adequate access to information resources and services needed to stimulate, encourage and develop in student-teachers the learning abilities for life-long self education.

The provision of information resources and services according to Mbagwu (2020) are channeled through library activities services like acquisition, cataloguing, classification, circulation, reference service, selective dissemination, inter-library loan, referral services as well as current awareness services (CAS). With the emergence of information technology, these services that were once provided manually are carried out using digital tools such as cloud computing.

Cloud computing is a technology delivery model that provides far-reaching and on-demand applications and services which allows for the use of online and remote resources that can be provided with minimal

management or service provider interaction. According to Igbudu *et al.* (2021), cloud computing is a collection of hardware, software and other telecommunication services that are hosted on the Internet and that can be accessed on client computers over the network. It is simply a system that allows end users to run software applications and access data from anywhere, any time and from any computer or Internet device (Sambrani and Rajashekarappa, 2016). According to Fagbola *et al.* (2021), the principal idea behind cloud computing in academic libraries is that, it facilitates sending, receiving, storing and disseminating information resources whenever it is required by the user(s) and this information are stored and distributed through networks. This technology is very important in improving the job performance of librarians because it removes the burden of technical know, cost of acquisition and maintenance of information technology (IT) infrastructure and space considerations since library users can have access to information resources easily without any interruption as long as there is a subscription and an internet device.

that the level of job performance of librarians is not up to expectation to some extent. This brings to the fore, the level of the application of cloud computing which could enhance their job performances. It is against this background that this study investigates the influence of cloud computing on librarians' job performance of in libraries of selected tertiary institutions in South-South, Nigeria.

Statement of the Problem

Information technology has continued to make massive impact on information service delivery in academic libraries. The application of digital technologies in academic libraries like cloud computing are aided by the presence of information technology which continues to change the working environment of the library personnel demanding new knowledge and skills for them to perform their job effectively and efficiently. On the other hand, tertiary institutions houses academic libraries in order to not be left behind in the technology driven world have taken the giant strides to acquire digital technologies and apply same in library processes and procedures so as to achieve maximum productivity in terms of supporting learning, teaching and research activities of their parents' institution as well as achieve their set objectives. The library staff are expected to embrace these digital technologies in the provision of information resources and services in order to meet the information need of the 21st century users. More so, as it is a sine quo non to effective job performance because it is believed that the application of digital technologies can improve the job performance of library staff. However, there are instances based on observations by the researchers suggest that the level of job performance of library staff is not up to expectation to some extent. This brings to the fore, the level of the application of digital technologies and this could impact their job performance. It is against this background that this study investigates the influence of cloud computing on academic librarians' job performance in libraries of selected public tertiary institutions in South-South, Nigeria.

Purpose of the Study

The aim of this study will be to investigate the influence of cloud computing on librarians' job performance in libraries of selected public tertiary institutions in South-South Nigeria. The specific objectives of the study are to:

Ascertain the influence of cloud computing on librarians' job performance in libraries of selected public tertiary institutions in South-South Nigeria.

Find out the difference in the application of cloud computing based on libraries of selected public tertiary institutions in South-South Nigeria.

Significance of the Study

The findings of this study would be of immense benefits to the Librarians, tertiary institutions, library management, library users and researchers. Management of academic libraries would find this study of great benefits as it would enable them to determine the available cloud computing technologies and its application by their librarians to enhance their job performances.

Research Questions

The following research questions were raised to guide the study:

To what extent does cloud computing influence librarians' job performance in libraries of selected public

tertiary institutions in South-South Nigeria?

What are the different cloud computing applications based on libraries of selected public tertiary institutions in South-South Nigeria?

Research Hypotheses

The following null hypotheses are formulated for testing:

There is no significant relationship between cloud computing and librarians' job performance in selected public tertiary institutions in South-South Nigeria.

There is no significant relationship between different cloud computing applications and librarians' job performance in selected public tertiary institutions in South-South Nigeria.

Scope of the Study

The study was delimited to selected public tertiary institutions in South-South Nigeria. It focused on influence of cloud computing on librarians' job performance in libraries of selected public tertiary institutions in South South Nigeria.

Theory of Expectancy by V. H. Vroom(2020)

The theory of expectancy as propounded by V. H. Vroom in Nhung and Do (2020) was adopted for the study. Vroom's expectancy theory assumes that behavior results from conscious choices among alternatives whose purpose is to maximize pleasure and to minimize pain. Vroom realized that an employee's performance is based on individual factors such as personality, skills, knowledge, experience and abilities. The first assumption is that people join organizations with expectations about their needs, motivations and past experiences. These determine how individuals react, to the person's motivation. He uses the variable expectancy organization. The second assumption is that an individual behavior instrumentality and valence to account for this.

Expectancy (E)

Expectancy is the belief that increased effort will lead to increased performance. This is affected by such things as; having the right resources available (e.g. raw materials, time), having the right skills to do the job, and having the necessary support to get the job done(e.g. supervisor support, or correct information on the job).

Instrumentality (I)

Instrumentality is the belief that if you perform well that a valued outcome will be received. The degree to which a first level outcome will lead to the second level outcome, that is if I do good job, there is something in it for me. This is affected by such things as; clear understanding of the relationship between performance and outcomes e.g. the rules of the reward 'game' trust in the people who will take the decisions on who gets what outcome, and transparency of the process that decides who gets what outcome.

Valence (V)

Valence is the importance that the individual places upon the expected outcome. For the valence to be positive, the person must prefer attaining the outcome or not. For example, if someone is mainly motivated by money, he or she might not value offer of additional time off.

The three elements are important behind choosing one element over another because they are clearly defined! Effort-performance expectancy (e-p expectancy) and performance-outcome expectancy (P>0 expectancy).

The relevance of this theory to the study is predicated on job enhancers (motivation) which would elicit corresponding job efficiency and effectiveness on the part of the librarians. More so, the relevance of this

theory shows that librarians will perform better on their jobs if the raw materials (tools) are made available which would translate into quality and efficient outputs in terms of supporting the objectives of the parent institution and that of the library.

Conceptual Framework Cloud Computing and Job Performance of Librarians

Cloud computing according to Yuvaraj (2013) is referred to as a connection of server, network, connection and resources. It describes a computing architecture ensuring resource deployment and maintenance through networked web environments, ranked as a major digital evolution of the previous decade. While Irenoa *et al* (2018), To put it simply, cloud technology is the gathering of computer gear, applications, and services that are accessible online rather than on a private server or desktop. It is based on the idea that assets and facilities should be shared for the purpose of rendering services with maximum precision and optimal performance. through the supply of applications in addition to necessary physical assets that are utilized as a virtualized platform across several computer systems linked to the global web or an organization's internal network. Similarly, Sakib *et al.* (2019) define a cloud environment as a framework for distributed and parallel processing systems composed of multiple interconnected, virtualized machines continuously coordinated and delivered as consolidated computing assets in line with contractual terms agreed upon by clients and service providers.

Cloud computing has two basic components. The divisions feature virtual service arrangements and online infrastructure patterns. These platforms deliver a model for organizations to secure systems particular to their expectations. Njoku and Ken-Agbirogu (2021) argue that three unique categories address firm prerequisites and deliver added value to enterprises. Though there are assortments of hosting solutions, the main ones remain IaaS, PaaS, and SaaS. As noted by Swaminathan (2020), IaaS entails employing servers, storage facilities, and virtualization tools to furnish clients with utilitylike solutions. The underlying structure consists of actual computational hardware, networking capabilities, and centralized virtual resources under provider administration.

Patel and Kansara (2021) emphasize that its main advantage is removing the capital requirement for internal infrastructure, as users can purchase, deploy, and operate essential software layers such as OS platforms, middleware, analytics tools, and development frameworks. This eliminates heavy infrastructure investments. In practical terms, IaaS integrates critical components like virtual computing nodes, storage systems, and databases into one environment for software deployment and execution. Libraries oversee data, operating environments, and installed solutions but not the underlying hardware.

Platform-as-a-Service furnishes a controlled setting to support software development processes. Essentially, PaaS enables research libraries to construct, customize, and deliver network-based systems within hosted environments, taking advantage of the extensive processing assets of cloud computing ecosystems. Consumers retain authority over deployed software and configuration settings, yet have no governance over the fundamental cloud composition, which includes servers, system software, networking structures, or storage layers (Pandey and Kushwaha, 2015).

Software-as-a-Service (SaaS) consists of applications developed by providers that deliver user-friendly cloud-based platforms and systems, enabling clients to access fully functional programs online at any time. Sether (2016) describes SaaS environments as structured frameworks that permit consumers to operate diverse software solutions as remotely hosted services rather than installing them locally. These arrangements deliver an extensive array of computing applications and utilities, many of which remain unseen by the typical SaaS user. Deployment can occur directly on Infrastructure-as-a-Service layers, and access permissions may be configured as complimentary or subject to minimal charges. Common examples include Gmail, Dropbox, Google Drive, and YouTube.

the National Institute of Standards and Technology identifies four major cloud utilization types: personal, collaborative, public-domain, and hybrid clouds.

Private Cloud: Private clouds are hosted on-premises by organizations and are managed by in-house staff. They are sometimes considered as extensions of an organization's data center. The foundation of a private cloud is an open resource pool with limited access within organizational borders. According to Njoku and Ken-

Agbiriogu (2021), a private cloud is a kind of internet service that becomes accessible to just one company with several customers (business units, a certain university library) to utilize exclusively. It may be located on or off the organization's property, and it could be owned, run, and controlled by the organization, someone else, or a mix of these.

Regarding libraries in academic institutions, cloud computing facilitates the adoption of external platforms for automation and supports the establishment of comprehensive online library services. It enables librarians to exchange and manage distributed assets originating from multiple entities or digital sources. According to Breeding (2018), the term “cloud computing” broadly applies to virtualized environments where libraries utilize remotely hosted frameworks to conduct significant automated processes. Typical examples of such cloud solutions include social media tools, online mail services, digital storage systems, and virtual business software. Its structural design allows seamless access to computing power and data resources from any location with internet availability. The approach consolidates storage facilities, processing infrastructure, and specialized solutions for institutional and individual use. These provisions primarily aim to enhance the efficiency and productivity of library personnel. Cloud-based technology improves service delivery in educational libraries, and academic libraries use it for more successful and productive data service delivery in order to improve how well they do at work.

Empirical Framework- Cloud Computing

Efevberha-Ogodo and Ivwighreghweta (2023) examined the perceptions and comprehension of librarians about implementing cloud Applications utilized by university bibliographic facilities in the southern corridor were assessed to inspect associates’ stances and proficiency concerning internet databases. The process employed a question-based evaluation, covering 374 operatives from both state and federal academic information hubs. Findings were processed using analytical summary with emphasis on percentage representation. According to the investigation findings, south-south Nigerian public university librarians possess a high level of proficiency with cloud-based applications. OCLC, Dropbox, and World Cat are just a few of the digital library tools that the libraries employ. According to the study's findings, the cloud-based system was utilized for bibliographic compilation and verification as well as digitally preserving of information resources. It was suggested, amongst various others, that suitable internet computing training be conducted on a regular basis through workshops and seminars in light of results of this research.

METHODOLOGY

Descriptive survey design would be adopted for study. A total of 132 library staff constituted the population of the study while 108 was sampled using Multi stage approached for the selection. A research structured questionnaire title “Cloud Computing and Librarian’s Job Performance Questionnaire” (CCALJPO)” was used to collect data. The dependent and independent t-test were used to analysis the collected data .

RESULTS AND FINDINGS

Research Question One

To what extent does cloud computing influence librarians’ job performance in libraries of selected public tertiary institutions in South-South Nigeria?

Analysis of Mean and Weighted Average Indicators Depicting Role of Cloud Computing Applications in Boosting Performance Levels among Librarians in selected public tertiary institutions in South South Nigerian

Variables	N	Mean	Weighted mean	Remark	
Cloud computing	108	29.86	2.98		
				strong influence	

Job performance	108	62.47	3.12		
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The mean for cloud computing, according to the results in table 4.1 is 29.86. The product's average weighting of 2.98 indicates a significant impact. This suggests that librarians efficiency at selected public tertiary institutions in South-South Nigerian is impacted by the use of the cloud.

Research Question Two

What are the different cloud computing applications based on libraries of selected public tertiary institutions in South-South Nigeria?

Overview of average scores and dispersion values on the application of cloud computing based on library facilities in selected public tertiary institutions in South-South Nigeria

Variables	Types of library	N	Mean	SD	Remark
	Federal	55	3.37	2.91	
Cloud computing application					Difference
	State	53	3.02	3.32	

The findings in Table 4.2 demonstrated how technological advances were applied differently by Federal and State libraries employees in south-South Nigeria. The table shows that the mean Federal score is 3.37 and the average State score is 3.02. This indicates that Federal library workers received higher scores than State library staff. Additionally, the table indicates that the two library employees' standard deviations were within a range of 2.91 to 3.32 and did not deviate significantly from the mean. This suggests that in south-south Nigeria, Federal library employees use technological devices more frequently than State library employees

CONCLUSION

The study examined the influence of cloud computing on librarians' job performance in libraries of selected public tertiary institutions in South-South Nigeria. The study concludes that that an employee's performance is based on individual factors such as personality, skills, knowledge, experience and abilities. The first assumption is that people join organizations with expectations about their needs, motivations and past experiences. These determine how individuals react, to the person's motivation. This revelation offered the opportunity for the researcher to fill the missing gap considering the importance of cloud computing by librarians in libraries of public tertiary institutions in South-South, Nigeria.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations were posited: 1. Public tertiary institutions in Nigeria should provide cloud computing facilities in their libraries in order to enhance the job performance of their librarians. 2. Librarians should be trained and retrained in the application of cloud computing technologies in performing their duties.

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