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Librarians' Perceptions, Information Technology Competencies and Use of Cloud-Based Storage Systems in Academic Libraries in South-West Nigeria

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Abstract

The study investigated how perceptions and IT competencies of academic librarians influenced their use of Cloud-Based Storage (CBS) systems in libraries in South-West Nigeria. Primary data were collected from 127 academic librarians working in 11 university libraries across six Southwestern states of Nigeria. The answers from these valid copies of the questionnaire were descriptively (frequency count and percentage) and inferentially (regression statistics) analyzed using SPSS version 23. The findings revealed that the librarians had high perceptions for the use of CBS systems and also their IT competencies were on the high side. The perceptions and IT competencies of librarians significantly influenced the use of CBS systems in Nigerian academic libraries. In addition, the findings also indicated that perceptions and IT competencies of librarians jointly significantly influenced the use of CBS systems in Nigerian academic libraries. The significant outcomes of this study are that the perceptions and IT competencies of librarians have been found to be positively associated with the use of CBS systems in academic libraries in South-West Nigeria. Hence, a critical effort is required to improve the librarians' encouraging perception and level of optimism of IT competency in increasing the awareness and application of CBS systems and other library technologies among librarians in South-West Nigeria and Nigeria at large.

Keywords

Perceptions; IT Competencies; Use of Cloud-Based Storage Systems; Cloud Computing; Academic Libraries; Nigeria

Introduction

Libraries are regarded as institutions through which sources of accumulated information, knowledge, and experiences are systematically selected, collected, acquired, organized, preserved, and disseminated to the patrons who need them. Onwubiko and Uzoigwe (2004) defines library as an information center located in an organization such as government agencies, industries, and universities. The central intent of the library is to help in the realization of the broad objectives of the parent organization and the satisfaction of users' information needs and information seeking process. Rajkoomar (2012) affirms this by stating unmistakably that the

library is a storehouse of knowledge. Several kinds of libraries exist and they are school, public, national, special, and academic libraries.

Singh and Kaur (2009) emphasize that preservation and access to information and knowledge is the main mandate of academic libraries alongside supporting the mission of the parent institutions basically learning, teaching, and research. Academic libraries are at the forefront of providing information services to their respective communities comprising students, lecturers, and researchers in support of their aspirations. Academic libraries are referred to as the heart or nerve centers of institutions of higher learning where all academic activities revolve. At the core of the operation and service delivery of the academic libraries are the academic librarians. These academic librarians are expected to embrace information technology in carrying out their professional functions in the library.

Information technology has emerged as an indispensable tool for processing, storing, and disseminating information (Ramzan et al., 2021) in this progressing technological age. Abidi and Abidi (2012) maintain that information technology such as cloud computing emanated from the Web and the Internet, setting a computing standard that determines information sharing and storage. Cloud computing is a technology that utilizes the Internet in association with central isolated servers with the aim of providing an array of services such as information storage, sharing, retrieval, management, and also incorporating diverse aspects of information usage (Goldner, 2014; Leavitt, 2016). It facilitates the delivery of support applications for organizations preventing the demand for more sophisticated information technology systems (Feuerlicht et al., 2016). Nonetheless, the understanding of the basis of certain technology-driven information processes in the library such as storage (an aspect of cloud computing) is an advantage to the librarian and the library institution. This is because academic libraries have shifted from traditional (paper-based services) to digital library services in respect of storing information paving the way for Cloud-Based Storage (CBS) systems.

The Cloud-Based Storage (CBS) systems have changed the paradigm of service delivery in library and information science. It is a model of computer data storage in which the digital data are stored in logical pools (said to be on "the cloud"). The physical storage spans multiple servers (sometimes in multiple locations), and the physical environment is typically owned and managed by a hosting company known as Cloud Storage Provider (CSP). The CSP is responsible

for keeping the data available and accessible, and ensuring that the physical environment is protected and running for the use of libraries. Some of the basic CBS services used by the librarians and the academic libraries are Amazon S3, Google Box, Microsoft Azure, Dropbox, SkyDrive, Google Drive, Flicker, Google Music, Apple iCloud, and Amazon Cloud Player (Christinger, 2017). These platforms allow virtual sharing of library resources as well as access to resources remotely.

The CBS systems are managed by a third party, responsible for the provision of computing resources which can be accessed by anyone and anywhere provided there is an Internet connection. This implies that individuals and libraries can choose a service model which best suits their needs paying for what they use. According to Deng et al. (2021), Dhanushraja and Jayalakshmi (2014), and Mell (2015), there are three basic service models of cloud computing which is also applicable to CBS systems. Firstly, 'Software as a Service (SaaS)' that allows users to use the provider's applications on the cloud through a web browser. Secondly, 'Platform as a Service (PaaS)' that allows users to deploy their own applications on the provider's cloud infrastructure under the provider's environment. The third model is the 'Infrastructure as a Service (IaaS)' which allows users to control and manage computing resources. Irrespective of the model(s) adopted by the library, Yuvaraj (2015) opines that when librarians have positive disposition towards using CBS systems as a means of rendering services to patrons, certain library services could be avoided resulting to reduced library spending. Further, some services become remotely accessible to the patrons. This act may enhance the delivery level and the positive perception of the librarians about library work.

Walgito (2010) defines perception as a psychological process of human thinking about certain phenomena. The activities in this psychological process enable organisms to organize and interpret the stimulus received into meaningful knowledge and act in a coordinated manner. Robbins (2004) explains that perception can be positive or negative. Positive perception comes from individual's satisfaction about certain objects that becomes his/her source perception, individual knowledge, and individual experience of the object perceived. Negative perception comes from individual dissatisfaction about certain objects becoming his/her source perception, individual ignorance, and the lack of experience of the object perceived. Slameto (2010) further identifies the two factors that influence perception and they are internal and external factors.

Internal factors come from within an individual. They depend on thoughts, feeling, willingness, need, attention, and motivation. External factors come from outside an individual, that is, the environment. However, the perception of any individual may depend on his/her competency in respect of the skills, knowledge, and/or experience required to carry out an action.

Wong (2020) describes competencies as task-oriented parameters by which an individual's performance is measured in the execution of a task. Larzen (2006) stresses that competencies are a combination of theoretical knowledge and practical experiences that form the hallmark of individual skills in taking the right action in executing a task. In support, Ferreira et al. (2007) emphasizes that competencies include knowledge, skills, abilities, experience, behaviors, and attitudes that is acquired through education and training. The library professionals need to be sufficiently equipped with new and adequate technological skills, knowledge, and experiences that will assist in the handling of very diverse information needs of patrons (Minish-Manjaja, 2007). Hence, librarians' competencies can be defined as a set of predefined knowledge, skills, abilities, experiences, and behaviors that contribute to individual and organizational performance. Yuveraj (2011) explains that competencies focus on results and describe the features of work areas or job outputs, non-transferable from one individual to another, and its assessment is based on performance on the job.

An important aspect of competencies is Information Technology Competency (IT competency), which contribute in no small measure to the advancement of individuals and organizations. Following Pérez-López and Alegre (2012), this study defines IT competency as how the academic library uses these technologies (CBS systems) to manage and store its information effectively. Information technology is actually a broad name basically describing programs, computers, and telecommunications. However, Mithas et al. (2011), mentions that the term IT competency is more expansive and denotes the use of these technologies to gratify the information needs of an organization. Pérez-López and Alegre (2012) discuss about the three dimensions of the concept – IT competency, namely IT knowledge, IT operations, and IT infrastructure. Tippins and Sohi (2003) clarify that they are co-dedicated assets that show the organization's dimensions to absorb and utilize the apparatus essential for handling information about customers (in this case, patrons). Additionally, in September 2012, the Employment and Training Administration of the US Department of Labor developed an IT Competency Model

that identifies the knowledge, skills, and abilities needed for workers to perform successfully in the field of information technology. However, the model is portrayed as a pyramid consisting of several tiers with the competencies at the top not being at a higher level of skill.

The data and discussion generated through this study will positively help decision makers, policy makers, library and information professionals, and researchers in understanding the perceptions and competencies of academic librarians towards the trending use of CBS systems in South-West Nigeria.

Statement of the Problem

The library has gained from cloud computing technology by the enhancement of computing performance, storage capacity, universal accessibility, and cost reduction (Tuncay et al., 2011) – with the libraries fixated on revealing their huge but helpful collections (Gbaje & Aliyu, 2014). These helpful collections can only be accessed when they are adequately stored, hence, the CBS systems. The CBS systems being Web and Internet orientated have its intricacies despite the fact that many academic librarians are still struggling to keep up with the pace of IT expansion, particularly in developing countries. Therefore, a research is required to determine the influence of the perceptions and IT competencies of librarians on the use of CBS systems. It is important to know the effect of librarians' perceptions considering CBS systems criticisms such as privacy, compliance, legal issues, open-source provision, security, sustainability, abuse, and IT governance (Yuvaraj, 2014). Additionally, librarians would need a set of competencies that are essential for the effective implementation and management of cloud services such as the IT competencies. But, do academic librarians have these IT competencies?

By and large, there is a dearth of empirical research about librarians' perceptions, IT competencies, and use of CBS systems in developing countries, particularly in Nigeria and in the Southwestern part of the country. Hence, this study investigated how the variables of perceptions and IT competencies of academic librarians influenced their use of CBS systems in libraries in South-West Nigeria. This study is highly significant because the exhibition of positive perceptions and a high level of IT competencies towards the use of CBS systems by academic librarians may imply the acceptance of the technologies and fast-track its application in academic libraries. Conversely, if academic librarians in universities assume negative perceptions and IT

competencies, they may become an obstacle in library innovations, consequently, slowing down the progress of the dissemination of information and knowledge in universities.

Research Questions

This study will answer the following research questions.

1. What are librarians' perceptions towards the use of CBS systems in academic libraries in South-West Nigeria?
2. What are librarians' IT competencies in academic libraries in South-West Nigeria?
3. Do librarians' perceptions significantly influence the use of CBS systems in academic libraries in South-West Nigeria?
4. Do librarians' IT competencies significantly influence the use of CBS systems in academic libraries in South-West Nigeria?
5. Do perceptions and IT competencies of librarians jointly significantly influence the use of CBS systems in academic libraries in South-West Nigeria?

Literature Review

Cloud computing demonstrates that library services can be provided using diverse kinds of networks (Dhanushraja & Jayalakshmi, 2014; Enefu et al., 2015; Yuvaraj, 2014). The majority of cloud computing applications and infrastructure are built with the assumption that users will access them via the Internet on multiple platforms and from anywhere in the world (Han, 2010; Hoy, 2012; Yuvaraj, 2014). The study of Kaushik and Kumar (2013) on librarians' perceptions towards cloud computing revealed that the main reason why libraries are adopting cloud computing is to increase the efficiency of library services. Okai et al. (2014) focused on the obstacles responsible for the slow rate of cloud computing adoption and usage in developing countries' universities. The study identified three major shortcomings namely issue of security, privacy, and reliability of cloud service providers, and provided strategic guidelines for successful cloud computing implementation. Among them are planning, migration, and integration, which talk to perception and competency of the users such as librarians. Further, Burger (2019) submitted that the utilization of cloud computing may not be a positive transformation as perceived as there are quite a number of complexities and implications that ought to be considered. For instance, do the librarians have the technical skill (competency) to understand and adopt cloud computing?

Achugbue (2018) investigated librarians' awareness and perception towards the adoption of cloud-based technologies in public university libraries in South-South Nigeria. The study established that the level of librarians' awareness and perception towards the adoption of CBS technologies was poor. The study recommended that proper and adequate trainings, workshops, and conferences should be organized to sensitize and improve librarians' knowledge and understanding of emerging technologies in libraries. Aliyu et al. (2019) reviewed related and relevant literature in an effort to get authors' views on librarians' use of cloud computing in Nigerian academic libraries. The synthesized literature review revealed that most librarians had little knowledge about cloud computing and its unlimited benefits. These could be the reason why there was less usage of the technology. Aiyebelehin et al. (2020) examined the awareness and use of cloud computing services by librarians in selected universities in Edo State, Nigeria. From the analysis of the gathered data, it was found that the librarians in the studied universities were aware of the use of Online Computer Library Center (OCLC), World Cat, and Google Docs to a very high extent. The study also revealed that librarians used cloud computing services and technologies for collection development functions and cataloging.

Otolo et al. (2018) conducted a research on the perceptions and attitudes of librarians towards cloud computing in the University of Dar es Salaam Library. The findings revealed that librarians at the University of Dar es Salaam were aware of cloud computing technology. They had positive perceptions on CBS systems and also had positive disposition towards its usage. The study recommended that librarians should be encouraged to use and apply CBS systems, and that the university management should endeavor to sponsor staff to seminars and conferences to understand the new technology. In another study of the same higher institution, Idhalama and Fidelis (2020) found that the majority (over two-third) of the surveyed librarians had high perceptions of cloud computing. This discovery implied a beneficial and affirmative stance concerning this technology. Sudhier and Seena (2018) studied perception and use of cloud computing technologies among the library professionals in the Kerala University Library India. The study revealed that over one-third of the studied library professionals did not have much idea about cloud computing technology. Further analysis showed that Facebook, Google Apps like Gmail, Google Doc, and so on were the cloud computing technologies used by the majority of the respondents. It was also noted that the library professionals were using cloud computing technologies without being aware of doing so. It was also uncovered that librarians' awareness of

cloud service models was relatively low. The library professionals had an average skill in using these technologies. The study concluded that there was a need to provide training for librarians on how to operate new technology to enrich library services offered to users. Yuvaraj (2016) studied the perceptions of library professionals in response to the adoption of cloud computing. The findings of the study revealed that library professionals were using cloud-computing tools in their daily works. They desired the adoption of cloud computing in the libraries to improve library services and avoid work redundancy. Their perception and adoption of this technology in the libraries is driven by its pervasive availability, economy, and the various service layers.

Adedoyin (2005) studied 18 university libraries in Nigeria and found that just close to one-third of the respondents were ICT competent. This inferred that librarians in Nigeria were yet to achieve the desired levels of competencies needed for a technological-driven society. In concurrence, Adomi and Anie (2006) analyzed the computer skills of professional librarians in Nigerian universities. Their findings showed that librarians were not highly computer literate as most of them had recently been introduced to computers in libraries. Then, computers were mostly used for cataloguing and serials on a limited scale. Ekoja (2007) also asserted that ICT competencies acquisition among library staff in Nigerian universities were still below average. Ekoja stated that many librarians and library staff in Nigerian university libraries couldn't use ICT even when they were available and just a few library staff that made effort to acquire competencies in ICT use had put them into practice. Nonetheless, Igben and Akobo (2007) carried out a study on the state of ICTs in academic libraries in Rivers State, Nigeria. The study indicated that three-quarter of the libraries in Rivers State incorporated ICT in their library operations. More recently, Oyedokun et al. (2018) assessed the ICT competencies of librarians in some selected universities in Kwara State. The study focused on basic and intermediate ICT skills. The findings showed high levels of ICT competencies on the part of library staff in the selected libraries. In addition, Atanda and Udoeduok (2019) investigated librarians' competencies and students' satisfaction with information services in the University of Uyo Library. The findings indicated that there was a significant influence between librarians' technical skills and students' satisfaction with information services. The study suggested that as a matter of urgency librarians should strive to develop the required competencies in ICT and information literacy.

Kumaravel (2006) carried out a comparative survey to ascertain the ICT literacy levels among university library staff of Anglophone and Francophone countries of West Africa. The findings showed very high levels of ICT illiteracy among all levels of library staff both in the Anglophone and Francophone countries. In India, Babu et al. (2007) assessed the ICT competencies of 171 librarians of Engineering Educational Institute of Tamil Nadu. The findings revealed that close to half of the studied librarians had some knowledge of library automation software but were weak in web page design and electronic bulletin board. This revelation implied a non-acceptable level of ICT competency. Conversely, in Pakistan, Arshad and Siddique (2020) conducted a study on ICT competencies among university library professionals in Punjab. The findings showed that library professionals were good at automation, digitization, and other required professional competencies in libraries.

Okusaga et al. (2021) examined the different types of cloud-based information resources and services available to academic librarians in Nigerian universities. The results indicated that the majority of the respondents strongly agreed that Gmail, Facebook, Internet, Yahoo, cloud-based sharing services, cloud-based social networking, and CBS services were some of the cloud-based information resources and services available to academic librarians. The study uncovered that ICT literacy and competency have been increasing, particularly among the librarians in Nigerian academic libraries. Inferentially, this study revealed that these noted advantages have not transformed to competencies in the use of cloud computing in general, and CBS systems in particular is yet to be a subject of proper academic investigation.

Methodology

The main objective of this study was to investigate the influence of librarians' perceptions and IT competencies on use of CBS systems in academic libraries in South-West Nigeria. The study adopted the survey research design. The target population of the study comprised all professional librarians in all universities in Southwestern part of Nigeria totaling 400. The Southwestern part of Nigeria has Ekiti, Lagos, Ogun, Ondo, Osun, and Oyo States. This zone was chosen because it has the highest number of public and private universities in Nigeria (Nigerian Universities Commission, 2021). The study employed the purposive and proportional sampling method to have a manageable size of the population. The sampling methods led to the selection of 11 universities - two federal universities, three state universities, and seven private universities from

which 32, 64, and 48 professional librarians were also selected respectively – in all, 144. A structured questionnaire was used as the data collection instrument. All the 144 copies of the questionnaire were administered to the librarians, and 127 copies returned and valid (a response rate of 88.2%). The Statistical Package for the Social Sciences (SPSS) version 23 was used to analyze the data. The descriptive statistics of frequency count and percentage was used for demographic information presentation and research questions one and two. The regression statistics were used to analyze research questions three to five. The formulated hypotheses were tested at the level of significance of 0.05. Ethical standards of confidentiality and anonymity were upheld throughout the study.

Results

Demographic Information of the Respondents

The analysis of the data items collected on the demographic profile of the study respondents is presented in Table 1.

Table 1: Demographic Information of the Respondents N= 127

Demographic Information	Labels	Frequency	Percentage (%)
Gender	Male	60	47.2
	Female	67	52.8
Age	30 years and below	23	18.1
	31-40	42	33.1
	41-50	34	26.8
	51 years and above	28	22.1
Academic Qualifications	BSc	33	26.0
	MSc	63	49.6
	PhD	31	24.4

Source: Field Survey, 2022

Table 1 presents the demographic information of the respondents. Out of 127 respondents, 67 (52.8%) were females while 60 (47.2%) were males. This implies that female respondents participated more in this study. Table 1 further shows the age range of the respondents: 42 (33.1%) were between 31 and 40 years (the highest) and 23 (18.1%) were between 30 years and below (the lowest). This indicates that the respondents between the age range of 31 and 40 years participated more in this study. In addition, Table 1 shows the respondents' academic qualifications: 63 (49.6%) had master's qualification (the highest) and 31 (24.4%) had doctorate qualification. This implies that master degree holders participated more in this study.

Research Question 1: What are the librarians' perceptions towards the use of CBS systems in academic libraries in South-West Nigeria?

The results on the librarians' perceptions towards the use of CBS systems in academic libraries in South-West Nigeria are presented in Table 2.

Table 2: Librarians' Perceptions towards the Use of CBS Systems N=127

Statements	**Strongly Agreed (%)**	**Agreed (%)**	**Disagreed (%)**	**Strongly Disagreed (%)**	**Mean**	**SD**
CBS simplifies work flow	60 (47.2)	66 (52.0)	0 (0)	1 (0.8)	3.46	0.55
CBS makes work more effective and efficient	72 (56.7)	53 (41.7)	2 (1.6)	0 (0)	3.55	0.53
CBS saves time	70 (55.1)	55 (43.3)	1 (0.8)	1 (0.8)	3.53	0.56
CBS reduces dependency on local storage back up and maintenance	57 (44.9)	58 (45.7)	9 (7.1)	3 (2.4)	3.33	0.71
CBS is the new trend to keep library collection abreast of latest development in technological innovation in data storage	71 (55.9)	51 (40.2)	4 (3.1)	1 (0.8)	3.51	0.60
CBS enables library to build outstanding institutional repository on the Web	65 (51.2)	59 (46.5)	2 (1.6)	1 (0.8)	3.48	0.58
CBS increases productivity	61 (48.0)	61 (48.0)	1 (0.8)	4 (3.1)	3.41	0.67
CBS allows for professional interaction among library cadres.	51 (40.2)	63 (49.6)	8 (6.3)	5 (3.9)	3.26	0.75
CBS prevents loss of data	54 (42.5)	67 (52.8)	6 (4.7)	0 (0)	3.38	0.58
CBS enhances efficient collaboration with other libraries	57 (44.9)	65 (51.2)	5 (3.9)	0 (0)	3.41	0.57
Weighted Mean = 3.00 (75%)						**0.60**

Source: Field Survey, 2022

*****Decision Rule: if mean is ≤ 1.49=Strongly Disagreed; 1.5 to 2.49=Disagreed; 2.5 to 3.49=Agreed; 3.5 to 4=Strongly Agreed.**

The results showed a weighted mean of 3.00 (75%). The implication was that the librarians' perceptions agreed to the use of CBS systems in Nigerian academic libraries.

Research Question 2: What are librarians' IT competencies in academic libraries in South-West Nigeria?

The findings on the librarians' IT competencies in academic libraries in South-West Nigeria are showed in Table 3.

Table 3: Information Technology Competencies of Librarians N= 127

Statements	Strongly Agreed (%)	Agreed (%)	Disagreed (%)	Strongly Disagreed (%)	Mean	SD
I can handle email, intranet, Internet, messaging, multi-media, interconnectivity, in - house CD-ROM, full-text databases	80 (63.0)	46 (36.2)	1 (0.8)	0 (0)	3.62	0.50
I can convert the functions of cataloguing, circulation, acquisition and serials from manual to automated mode	64 (50.4)	50 (39.4)	13 (10.2)	0 (0)	3.40	0.67
I know how to design and develop Web-based materials and document for on-line use	42 (33.1)	58 (45.7)	27 (21.3)	0 (0)	3.12	0.73
I can search documents on the internet using advance search options	63 (49.6)	59 (46.5)	5 (3.9)	0 (0)	3.46	0.57
I can access and manage library software	51 (40.2)	66 (52.0)	9 (7.1)	1 (0.8)	3.31	0.64
I can use Online Public Access Catalogue (OPAC) very well	73 (57.5)	54 (42.5)	0 (0)	0 (0)	3.57	0.50
I can locate e-resources on the Web	61 (48.0)	62 (48.8)	3 (2.4)	1 (0.8)	3.44	0.59
I have the knowledge of on-line security	51 (40.2)	61 (48.0)	11 (8.7)	4 (3.1)	3.25	0.75
I can set up social media networking applications	46 (36.2)	65 (51.2)	12 (9.4)	4 (3.1)	3.20	0.74
I can manage networked systems	43 (33.9)	67 (52.8)	16 (12.6)	1 (0.8)	3.20	0.68
Weighted Mean = 3.30 (82.5%)						**0.60**

Source: Field Survey, 2022

*****Decision Rule: if mean is ≤ 1.49=Strongly Disagreed; 1.5 to 2.49=Disagreed; 2.5 to 3.49=Agreed; 3.5 to 4=Strongly Agreed.**

Table 3 reveals the result of descriptive analysis of the librarians' IT competencies in Nigerian academic libraries. The result showed a weighted mean of 3.30 (82.5%). This result implied that the librarians' IT competencies were on the high side. The majority of them had a tolerable

knowledge of all the highlighted indicators of IT competencies. Hence, they had a tendency to use the CBS systems in the Nigerian academic libraries.

Research Question 3: Do librarians' perceptions significantly influence the use of CBS systems in academic libraries in South-West Nigeria?

The results of the regression analysis on the hypothesis of – 'Do librarians' perceptions significantly influence the use of cloud-based storage systems in academic libraries in South-West Nigeria' are presented in Table 4.

Table 4: Regression Analysis of the Influence of Librarians' Perceptions on the Use of CBS Systems

	Unstandardized Coefficients		**Standardized Coefficients**		
Model	**B**	**Std. Error**	**Beta**	**t**	**Sig.**
1 (Constant)	**9.876**	**3.560**		**2.774**	**0.006**
Librarians' Perceptions	0.667	0.103	0.502	6.496	0.000
a. Dependent Variable: **Use of CBS System**					
R = 0.502, R Square = 0.252, Adjusted R square = 0. 246, F (1, 126) = 42.195					

*****0.05 Significant Level**

The results in Table 4 indicated that librarians' perceptions significantly influenced the use of CBS systems in Nigerian academic libraries ($p=0.000$ which is less than $\alpha=0.05$). Therefore, the null hypothesis was rejected. The adjusted R-Square was 0.246. This meant that 24.6% of the variation in librarians' perceptions could be explained in the use of CBS system in Nigerian academic libraries. The result also showed a positive slope of ($B=0.667$). The result further showed that there was a positive relationship between librarians' perceptions and the use of CBS system in Nigerian academic libraries ($Beta=0.502$). This meant that a unit increase in librarians' perceptions resulted to 50.2% increase in the use of CBS system in Nigerian academic libraries.

Research Question 4: Do librarians' IT competencies significantly influence the use of CBS systems in academic libraries in South-West Nigeria?

The results of the regression analysis on the hypothesis of – 'Do librarians' information technology competencies significantly influence the use of CBS systems in academic libraries in South-West Nigeria' are presented in Table 4.

Table 5: Regression Analysis of the Influence of Librarians' IT Competencies on the Use of CBS Systems

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	**13.534**	**2.786**		**4.858**	**0.000**
Librarians' Competencies	0.579	0.083	0.531	7.003	0.000
a. Dependent Variable: **Use of CBS System**					
R = 0.531, R Square = 0.282, Adjusted R square = 0. 276, F (1, 126) = 49.035					

***0.05 Significant Level**

The results in Table 5 indicated that librarians' IT competencies significantly influenced use of CBS system in Nigerian academic libraries ($p = 0.000 < 0.05$). Therefore, the null hypothesis was rejected. The Adjusted R-Square was 0.276. This meant that 27.6% of the variation in librarians' IT competencies could be explained in the use of CBS system in Nigerian academic libraries. The result further showed that there was a positive relationship between librarians' IT competencies and the use of CBS systems in Nigerian academic libraries (Beta=0.531). This meant that a unit increase in librarians' IT competencies resulted to 53.1% increase in the use of CBS systems in Nigerian academic libraries.

Research Question 5: Do perceptions and IT competencies of librarians jointly significantly influence the use of CBS systems in academic libraries in South-West Nigeria?

The results of the regression analysis on the hypothesis of - 'Do perceptions and IT competencies of librarians jointly significantly influence the use of CBS systems in academic libraries in South-West Nigeria' are presented in Table 6.

Table 6: Joint Influence of Librarians' Perceptions and Information Technology Competencies on the Use of CBS Systems in Nigerian Academic Libraries

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	**5.059**	**3.498**		**1.446**	**0.151**
Librarians' Perceptions	0.415	0.112	0.312	3.718	0.000
Librarians' Competencies	0.404	0.092	0.371	4.412	0.000
a. Dependent Variable: **Use of CBS System**					
R = 0.595, R Square = 0.354, Adjusted R square = 0. 343, F (2, 125) = 33.944					

***0.05 Significant Level**

The results in Table 6 indicated that perceptions and IT competencies of librarians jointly significantly influenced the use of CBS systems in Nigerian academic libraries ($p = 0.000<0.05$ and $p = 0.000 <0.05$ respectively). Table 6 further showed that the Analysis of Variance (ANOVA) for the regression yielded an F-value of 33.944 ($p<0.05$ level). This implied that the joint influence of the independent variables on the dependent variable was significant. This indicated that perceptions and IT competencies influenced the use of CBS systems in Nigerian academic libraries. Besides, Table 6 also revealed a coefficient of multiple correlation of R= 0.595, coefficient of R^2= 0.354 and adjusted R^2= 0.343. This implied that perceptions and IT competencies jointly account for 34.3% change of variation of the use of CBS systems in Nigerian academic libraries. In other words, 34.3% of variability in conformity to the use of CBS systems in Nigerian academic libraries was explained by perceptions and IT competencies of the librarians. The remaining 65.7% as observed may be due to other factors determining the use of CBS systems in Nigerian academic libraries. Hence, the null hypothesis that perceptions and IT competencies of librarians do not jointly significantly influence the use of CBS system in Nigerian academic libraries was rejected. In terms of magnitude, the results showed that the independent variables contributed differently to the use of CBS system in Nigerian academic libraries. Specifically, librarians' IT competencies mostly contributed to the use of CBS systems in Nigerian academic libraries (β=0.371; $P<0.05$) and followed by librarians' perceptions (β=0.312; $P< 0.05$).

Discussion

In divergence to the widespread belief that librarians in developing countries are inclined to resist changes, especially technology change, the findings of this study revealed that, largely, the librarians of academic libraries in South-West Nigeria are progressive about the use of CBS systems in their libraries. They exhibit laudable perceptions concerning the CBS systems. This is also in concurrence with the librarians' high levels in IT competencies. This simply means that the knowledge acquisition of the librarians concerning IT must have made them desirous of the CBS systems. Although not all the librarians show high levels in some of the indicators of IT competencies, they feel that possessing IT capability is a useful instrument and driving force to embrace and use the CBS systems in different library-related functions. This may not be unconnected to the librarians adopting the CBS systems to intensify efforts towards enhancing the effectiveness of library services (Kaushik & Kumar, 2013). Moreover, they must be

cognizant that progressively more effort is needed to improve in the areas of: designing and developing Web-based materials and document for on-line use; accessing and managing library software; knowledge of online security; social media networking applications; and managing networked systems.

Librarians' perceptions significantly influence the use of CBS systems in Nigerian academic libraries, significant at the 0.05 level. The analysis affirms the research question that librarians' perceptions significantly influence the use of CBS systems in academic libraries in South-West Nigeria. Unlike Achugbue (2018), Aliyu et al. (2019), and Burger (2019), the finding of the present study is not line with their assertions that the use of cloud computing may not be a positive change as it was poorly adopted and librarians having little knowledge about the technology and its benefits from the librarians' perceptions. However, the study's finding is in line with Idhalama and Fidelis (2020), Otolo et al. (2018), and Yuvaraj (2016), who showed a high level of perception with the use of cloud computing technology.

Librarians' IT competencies significantly influence the use of CBS system in Nigerian academic libraries, significant at the 0.05 level. The analysis affirms the research question that librarians' IT competencies significantly influence the use of CBS systems in academic libraries in South-West Nigeria. This simply implies that librarians must improve on their IT skills as studies from the literature showed mixed results of low and high level of librarians' competencies. However, the finding of the current study concurs with Okusaga et al. (2021) who reported that the ICT competencies of the academic librarians in Nigeria have been expanding and also connected to their acquaintance with cloud-based information resources and services.

Librarians' perceptions and IT competencies jointly significantly influence the use of CBS system in Nigerian academic libraries, significant at the 0.05 level. The analysis affirms the research question that perceptions and IT competencies of librarians jointly significantly influence the use of CBS systems in academic libraries in South-West Nigeria. The findings show that librarians' perceptions and IT competencies are important variables influencing their use of CBS systems. The study pinpoints the fact that librarians' positive perceptions and IT competencies could be leveraged on library's capacity to boost the acquisition and use of CBS systems and other technologies, given adequate training, exposure to technologies, financial

support, librarians' role in decision-making and support from technical staff and other departments.

Conclusion

The significant outcomes of this study are that the perceptions and IT competencies of librarians have been found to be positively associated with the use of CBS systems in academic libraries in South-West Nigeria. Hence, a critical effort is required to improve the librarians' encouraging perception and level of optimism of IT competencies (as revealed by the IT indicators) in increasing the awareness and application of CBS systems and other library technologies among librarians in South-West Nigeria and Nigeria at large. Librarians should take the initiative of playing active roles in library policy formulation to further boost their soft skills.

It is not enough for organizations such as universities to encourage librarians to acquire academic degrees. Additional efforts should be made to encourage and support librarians to attend workshops, seminars, short-term training courses and visits both local and abroad so that they get acquainted with new and up-to-date technologies and raise their level of knowledge to implement the appropriate ITs in academic libraries in South-West Nigeria. The librarians should also take bold steps in 'domesticating' foreign library technologies to address our indigenous library and information needs – herein lies technology ownership and control towards ownership, and progressively increasing positive perceptions and adoption of cloud-based storage systems and other information technologies by librarians.

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