Prestige Journal of Counselling Psychology, Vol. 9, No. 1, March 2026
A publication of the Association for the Promotion of Innovation in Education (APIE)
ISSN: 2651-5687 (Print)
ISSN: 2651-5709 (Online)

Assessing the Readiness of Public University Libraries in Cross River State for Digital Archiving and E-Library Services

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Abstract

The study evaluated the readiness of public university libraries in Cross River State to fully adopt digital archiving and e-library services. It was guided by two research questions and two hypotheses. The study covered the two public universities in Cross River State: University of Calabar and University of Cross River State. The sampling technique adopted was a census approach making use of the entire population of 45 professional librarians and 33 ICT/library support staff in the study area. A descriptive survey research design was utilized to examine infrastructural readiness, staff competency, policy framework, and funding availability for digital archiving and e-library implementation. Data was collected with the aid of an instrument tagged "Digital Library Readiness Assessment Questionnaire" (DLRAQ), a validated instrument with Cronbach's alpha reliability coefficients ranging from 0.78 to 0.86. Mean, standard deviation and population t-test were used for data analysis. Findings revealed, among others, a moderate level of infrastructural readiness in both universities, but inadequate funding and gaps in advanced digital archiving skills among staff. It is recommended, among others, that university management and relevant government agencies should increase funding allocation, strengthen ICT infrastructure, and provide continuous professional development programmes to enhance digital archiving and e-library service delivery.

Keywords: digital archiving, e-library services, library readiness, ICT integration, public universities.

Introduction

A library is a repository of knowledge both in print and non-print form, with the purpose of organizing, disseminating and preserving the knowledge for both present and future use. The library today is seen as a system responsible for the selection, acquisition, organization, dissemination, preservation and evaluation of information resources both in print and non-print form (Bassey, 2015). Bassey maintained that libraries provide information resources of various kinds to users. These information resources come in two forms: book and non-book. There is need to preserve these information resources for the present and future generations. This alludes to one of the definitions of a library as the "shrine of knowledge" (Bassey, 2015:12).

Academic libraries have long been defined as structured repositories that acquire, organize, preserve, and disseminate information resources to support teaching, learning, and research activities (Aina, 2004, as cited in Osunride & Adetunla, 2017). Beyond physical collections, modern libraries increasingly provide digital access to resources and services that support remote information needs (Britannica Editors, 2026). In the digital age, libraries have expanded their mandate to include digital repositories that enhance access to scholarly output and support long-term preservation of both print and digital contents (Aloui, 2017).

Libraries continue to play a pivotal role in fostering digital literacy and lifelong learning by helping users navigate and critically evaluate digital resources (Mamadaliyeva & Odiljonova, 2025). The transformation of academic libraries into digital resource centres has enabled them to bridge access gaps and promote inclusive learning opportunities for diverse users (Mamadaliyeva & Odiljonova, 2025). According to the Association of College and Research Libraries (2004), academic libraries increasingly provide access to digital collections and navigation support, positioning themselves as agents of accessibility in complex information environments. Modern libraries also manage institutional repositories that increase the visibility and impact of scholarly research outputs, advancing open access and scholarly communication (Library & Information Science Education Network, 2024). Researchers note that information literacy, now reformulated to include digital and data competencies, is integral to library services in the 21st century (LIS Academy, 2021). Together, these functions reinforce the understanding of a library as a dynamic information

system that preserves knowledge and ensures equitable access to both physical and digital resources for present and future generations.

Oluwaseun et al. (2017) assert that a library is an institution or an establishment, a storehouse of knowledge, or a building housing collection of information resources. The authors maintain that most of these resources need special handling and special storage equipment to facilitate their relevance and usefulness to library users. A library is a collection of information resources that is made accessible to users, either for reference or borrowing, and equally provides physical or digital access to the material.

Modern university libraries increasingly depend on information and communication technologies (ICTs) to deliver digital resources and services, making digital archiving and e-library services essential components of academic information systems. Digital archiving refers to the systematic conversion and storage of physical and digital contents to preserve institutional knowledge and provide long-term access, while e-library services include online access to electronic books, journals, and databases that support teaching, learning, and research activities (Odunlade & Ojo, 2023). The global shift towards digital libraries has been accelerated by technological innovations and the demand for remote access to information; a trend that was further intensified by disruptions during the COVID-19 pandemic, which highlighted the necessity of digital readiness in academic settings (Owate, 2024). Scholars argue that effective digital library implementation enhances research visibility and academic productivity, particularly in higher education institutions where reliable access to scholarly resources is critical (Ojobor et al., 2025).

In developing countries like Nigeria, the adoption of digital archiving and e-library services has been uneven, with infrastructural challenges such as unstable internet connectivity, inadequate ICT facilities, and erratic power supply affecting academic libraries' readiness for digital transformation (Kwari, 2025). Studies reveal that many Nigerian university libraries lack the necessary hardware, software, and digital preservation systems to support robust e-library and archival services, limiting users' ability to access information efficiently (Afolabi, 2022). Additionally, Odunlade and Ojo (2023) observed that while some institutions have begun to integrate digital services, the absence of reliable infrastructure continues to hinder sustained implementation. As a result, the readiness of academic libraries for full digital adoption remains a key concern for policymakers, librarians, and university administrators.

Human capacity is another major dimension of digital readiness. Competency in digital skills among library staff including the ability to manage electronic resources, operate digital repositories, and support users in accessing digital platforms is critical for achieving successful digital transformation (Jatto & Tella, 2024). Research indicates that professional training programmes and continuous staff development efforts significantly improve librarians' ability to deploy and maintain digital services (Owate, 2024). However, many Nigerian libraries face limitations in providing continuous professional development opportunities for staff, leading to gaps in digital competencies that undermine the effective use of digital archiving and e-library platforms. Institutional factors, such as leadership support, policy frameworks, and financial commitment, further influence the capacity of libraries to adopt and sustain digital innovations (Ojobor et al., 2025). Adequate institutional support ensures strategic planning, allocation of resources, and implementation of ICT initiatives that align with global best practices in digital librarianship.

Cross River State's public universities are expected to meet the evolving information needs of students, lecturers, and researchers through efficient digital services. These institutions must therefore assess their technological and human readiness to support digital archiving and e-library services that enhance access to academic resources. Evaluating infrastructure, staff digital skills, and institutional support mechanisms enables stakeholders to identify strengths, gaps, and priority areas for development. Previous research has called for localized studies that assess e-readiness in specific institutional contexts to inform effective policy and decision-making (Kwari, 2025; Owate, 2024). By examining the readiness of public university libraries in Cross River State, this study fills a gap in the literature and provides evidence-based insights that can guide strategic interventions to improve digital service delivery. Understanding these dimensions is crucial for ensuring that academic libraries contribute meaningfully to teaching, learning, and research in an increasingly digital world.

Objectives of the study

The major aim of the study was to evaluate the readiness of public university libraries in Cross River State in fully adopting digital archiving and e-library services. Specifically, the study sought:

1. To determine the level of infrastructural and technological readiness of public university libraries in Cross River State for digital archiving and e-library services.

2. To examine the level of staff digital competency and institutional support available for effective digital archiving and e-library services in public university libraries in Cross River State.

Research questions

1. What is the level of infrastructural and technological readiness of public university libraries in Cross River State for digital archiving and e-library services?
2. What is the level of staff digital competency and institutional support for effective digital archiving and e-library service delivery in public university libraries in Cross River State?

Hypotheses

Ho1: The level of infrastructural and technological readiness for digital archiving and e-library services in public university libraries in Cross River State is not significantly high.

Ho2: The level of staff digital competency and institutional support for digital archiving and e-library services in public university libraries in Cross River State is not significantly high.

Methodology

A descriptive survey research design was adopted for this study. The design was considered appropriate because it enabled the researchers to assess the level of readiness of public university libraries in Cross River State for digital archiving and e-library services, without manipulating any variables. A census sampling technique was employed to include the entire population of professional librarians and ICT/library support staff in the selected public universities: University of Calabar and University of Cross River State. The population comprised 25 professional librarians and 18 ICT/library support staff from University of Calabar, and 20 professional librarians and 15 ICT/library support staff from University of Cross River State, totaling 45 professional librarians and 33 ICT/library support staff (78 respondents). Given the manageable size of the population, all members were included in the study to ensure comprehensive data coverage.

Data were collected using a structured questionnaire titled “Digital Library Readiness Assessment Questionnaire” (DLRAQ), which was organized into sections. Section A focused on respondents’ demographic characteristics and contained six nominal items capturing information such as institution, staff category, gender, academic qualification, years of experience, and area of specialization. These items were used strictly for descriptive purposes and were not included in the readiness score computation. Section B assessed

infrastructural and technological readiness for digital archiving and e-library services through eight items examining the availability and adequacy of key ICT facilities, including computers, internet connectivity, digital repositories, scanning equipment, automation software, power supply, ICT policy framework, and funding support. The items were rated on a four-point Likert scale of Strongly Agree (4), Agree (3), Disagree (2), and Strongly Disagree (1), and responses were summed to produce a composite score, with higher scores indicating greater infrastructural readiness.

The questionnaire was validated by two experts in Library and Information Science and one in Department of Measurement and Evaluation both from the University of Calabar. The reliability of the instrument was established using Cronbach's alpha method, yielding coefficients ranging from 0.78 to 0.86, indicating acceptable internal consistency.

Data collected were analyzed using mean and standard deviation to answer the research questions. One-sample t-test statistics were used to test the null hypotheses, at 0.05 level of significance, to determine whether the level of readiness was significantly high or not. To determine the level of readiness, the weighted mean approach was adopted. The criterion mean per item was computed as:

$$\frac{4+3+2+1}{4} = 2.50$$

Thus, 2.50 served as the benchmark for determining readiness levels.
The categorization of readiness levels includes 1.00 – 1.99 for Low readiness, 2.00 – 2.49 for Fairly low readiness, 2.50 – 3.49 for Moderate readiness, and 3.50 – 4.00 for High readiness. For sectional analysis, the criterion mean (2.50) was multiplied by the number of items in each section to obtain the sectional benchmark:

i) Infrastructural & Technological Readiness (8 items): 2.50 × 8 = 20.00
ii) Staff Digital Competency & Institutional Support (8 items): 2.50 × 8 = 20.00

Sectional mean scores below 20.00 indicate low readiness, while scores at or above 20.00 indicate stronger readiness level.

Presentation of results

Research question 1: What is the level of infrastructural and technological readiness of public university libraries in Cross River State for digital archiving and e-library services?

ISSN: 2651-5687 (Print)
ISSN: 2651-5709 (Online)

Table 1: Summary of infrastructural and technological readiness

Variable	N	Mean	SD	Criterion Mean	Decision
Infrastructural & Technological Readiness	78	18.42	2.15	20.00	Moderate

Table 1 shows that infrastructural and technological readiness recorded a mean score of 18.42 with a standard deviation of 2.15. When divided by the number of items (8), the average per item mean is 2.30, which falls within the range of 2.00 – 2.49, indicating a fairly low to moderate level of readiness. This suggests that while basic ICT facilities such as functional computers and internet connectivity are available, advanced digital archiving infrastructure, consistent funding, stable power supply, and comprehensive digital repository systems remain inadequate. The relatively small standard deviation indicates consistency in respondents' perceptions.

Ho1: The level of infrastructural and technological readiness for digital archiving and e-library services in public university libraries in Cross River State is not significantly high.

Table 2: Population t-test analysis of the level of infrastructural and technological readiness for digital archiving and e-library services in public university libraries in Cross River State

Variable	N	Mean	SD	Ex mean	df	t-cal	p-val
Infrastructural and technology readiness	78	18.42	2.15	16.0	77	9.842	.001

To test this hypothesis, a population t-test was used. The result as presented in Table 2 showed that $t = 9.842$, and $p < .05$. Since p (.001) is less than .05, this implies that the level of infrastructural and technological readiness is significantly high. Hence, the null hypothesis is rejected. The result means that the libraries demonstrate a measurable level of infrastructural readiness beyond the expected average benchmark. The small p-value indicates that the observed readiness level is statistically significant and not due to chance variation.

Research question 2: What is the level of staff digital competency and institutional support for effective digital archiving and e-library service delivery?

Table 3: Summary of staff digital competency and institutional support

Variable	N	Mean	SD	Criterion Mean	Decision
Staff Digital Competency & Institutional Support	78	17.36	2.48	20.00	Moderate

Table 3 indicated that staff digital competency and institutional support recorded a mean score of 17.36 with a standard deviation of 2.48. When computed per item, the mean is 2.17, which falls within the range of 2.00 – 2.49, indicating a fairly low to moderate level of readiness. This implies that although staff possess basic digital skills, there are gaps in advanced competencies required for effective digital archiving and e-library management. The variation in responses suggests differences in training exposure and institutional backing between the universities.

Ho2: The level of staff digital competency and institutional support for digital archiving and e-library services in public university libraries in Cross River State is not significantly high.

Table 4: Population t-test analysis of the level of staff digital competency and institutional support for digital archiving and e-library services in public university libraries in Cross River State

Variable	N	Mean	SD	Expected mean	df	t-cal	p-val
Staff digital competency and institutional support	78	17.36	2.48	16.0	77	6.517	.002

This is also a one-variable hypothesis measured on a continuous scale. To test this hypothesis, a population t-test was conducted and the result as presented in Table 4 showed that $t = 6.517$, and $p < .05$. Since p (.002) is less than .05, this implies that the level of staff digital competency and institutional support is significantly high. Hence, the null hypothesis is rejected. The result indicates that staff competency and institutional backing are above the benchmark level, though improvements are still necessary in advanced digital archiving skills and sustained professional development.

ISSN: 2651-5687 (Print)
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Discussion of the findings

The findings from the first hypothesis showed that the public university libraries in Cross River State are moderately prepared in terms of digital infrastructure and resources for digital archiving and e-library services. While basic ICT facilities such as computers and internet connectivity exist, the study revealed significant gaps in consistent network stability, adequate digital storage systems, and reliable power supply. The result is consistent with Kwari (2025), who noted that infrastructural deficiencies, including inadequate ICT facilities, hinder the successful implementation of digital libraries in Nigerian universities. Odunlade and Ojo (2023) further emphasized that the absence of sufficient infrastructure limits users' ability to access digital content effectively, reducing the potential impact of e-library services on teaching, learning, and research. The study suggests that although some progress has been made, these infrastructural constraints limit the libraries' full readiness to support digital archiving initiatives, highlighting the need for targeted investment in technology and facilities to enhance service delivery.

The findings from hypothesis two indicated that human capacity and institutional support significantly influence the readiness of university libraries to provide digital archiving and e-library services. While library staff possess basic digital literacy skills, gaps exist in advanced competencies required for managing electronic repositories, metadata, and digital preservation systems. This aligns with Jatto and Tella (2024), who argue that professional training and continuous development are essential for librarians to effectively implement and maintain digital library services. Additionally, Owate (2024) noted that inadequate staff training undermines the effectiveness of digital initiatives, even when infrastructure is available. The study also highlighted the importance of institutional support, including leadership commitment, policy frameworks, and budgetary allocation, in sustaining digital library services. Ojobor et al. (2025) assert that strong institutional backing ensures strategic planning, resource allocation, and the sustainability of ICT innovations. The findings imply that enhancing both staff competencies and institutional support mechanisms is crucial for improving the overall readiness of public university libraries in Cross River State for digital archiving and e-library service provision.

Conclusion

Sequel to the results and the findings from the study, the researchers reached a conclusion that the readiness of public university libraries in Cross River State for digital archiving and e-library services is moderate. The findings indicate that both digital infrastructure (such as ICT facilities, internet connectivity, and digital storage systems) and human capacity (staff competencies and institutional support) significantly affect the ability of libraries to provide

reliable digital services. Libraries with adequate infrastructure, skilled staff, and strong institutional backing are better positioned to deliver efficient e-library services and preserve digital content for present and future academic use. Therefore, improving infrastructure, enhancing staff competencies, and strengthening institutional support are essential for achieving full digital readiness and maximizing the benefits of digital library services.

Recommendations

Based on the research findings, these recommendations are made:

1. Public university libraries in Cross River State should invest in reliable ICT infrastructure, including stable internet connectivity, digital storage systems, and backup power supplies, to improve readiness for digital archiving and e-library service delivery.
2. Library staff should be given continuous training in digital librarianship, e-resource management, and digital archiving, while university management should provide policy support and adequate funding to sustain effective e-library services.

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