

Libraries, Digital Knowledge, and Ethical Stewardship: Preserving and Sharing Indigenous Knowledge in South-West Nigeria.

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Abstract

This study investigates the role of public university libraries in South-West Nigeria in the ethical stewardship of indigenous knowledge (IK) within the digital landscape. Utilizing a descriptive survey design, data was collected from 140 librarians and staff across six public university libraries. Findings reveal that while libraries actively preserve physical IK and digitize oral histories, they face significant challenges, including inadequate funding, insufficient technical skills, and issues with intellectual property rights. A notable gap exists between general intellectual property awareness and specific ethical guidelines for IK, such as Free, Prior, and Informed Consent. Regression analysis indicates that adequate funding and staff training are significant predictors of effective ethical stewardship, collectively explaining 55% of the variance. The study concludes that strategic investment in these areas is crucial for enhancing ethical digital preservation, fostering community collaboration, and safeguarding indigenous knowledge for future generations.

Keywords: *Indigenous Knowledge Preservation, Ethical Stewardship, Digital Libraries, Cultural Heritage Management, Digital Landscape.*

1. Introduction

Libraries play a crucial role in preserving cultural heritage and facilitating information exchange in the digital age. They serve as catalysts for digitization, accessibility, and cross-cultural exchange of cultural assets (Kalisdha, 2023). Digital preservation in libraries enhances accessibility and efficiency but faces challenges such as financial constraints and insufficient technological resources (Ilabakho Robertus & Rasmita, 2025). Libraries are evolving into technology-driven centers, integrating electronic resources, virtual reality, and augmented reality to support education and cultural preservation (Rahmanova, 2025). The digital transformation of libraries, archives, and museums involves addressing challenges like digitization of collections, digital data management, and copyright protection (Stepanović & Jovanović Negoicić, 2025). Despite challenges such as the digital divide and information overload, libraries continue to adapt by investing in cutting-edge technologies and developing digital literacy programs (Rahmanova, 2025). Collaboration between heritage institutions is crucial for sharing resources and expertise to meet user demands in the digital era (Stepanović & Jovanović Negoicić, 2025).

Indigenous knowledge (IK) preservation is crucial for sustainable development and cultural identity, but faces challenges in the digital age. Libraries play a vital role in managing and preserving IK through collection, documentation, and dissemination (Dewandaru, 2023; Chigwada & Ngulube, 2023).

However, conventional library practices may not adequately address the unique nature of IK, necessitating culturally sensitive approaches (Stevens, 2008). Librarians must collaborate with indigenous communities to develop appropriate preservation strategies, respecting cultural protocols and empowering local groups (Chigwada & Ngulube, 2023). Challenges in IK management include ethical considerations, intellectual property rights, and access concerns (Ngulube, 2002; Chigwada & Ngulube, 2023). To overcome these obstacles, information professionals should adopt proactive strategies, utilizing their expertise while acknowledging the distinct characteristics of IK (Dei, 2024). By embracing innovative approaches and working closely with indigenous communities, libraries can effectively preserve and promote this valuable knowledge resource.

Libraries in Nigeria play a crucial role in preserving and disseminating indigenous knowledge (IK) for cultural continuity and future generations (Manir, 2024). Various preservation strategies are employed, including documentation, digital archiving, and legal frameworks for intellectual property protection (Nwankwo, 2024). Libraries preserve IK in forms such as poetry, folklore, drama, and artifacts, sometimes recording live sessions and maintaining special collections (Chigwada & Ngulube, 2023). However, challenges persist, including inadequate technology, financial resources, and training (Nwankwo, 2024). Ethical considerations in documenting IK also pose significant challenges (Chigwada & Ngulube, 2023). To address these issues, libraries can invest in technological and financial resources, enhance training programs, and strengthen collaboration with indigenous communities (Nwankwo, 2024). Additionally, libraries can create inventories and bibliographies of IK, promote awareness, and provide access to digital technologies to make IK more accessible (Christopher, 2015).

2. Literature Review

The preservation and accessibility of indigenous knowledge (IK) have gained significant attention in recent years, particularly with the advent of digital technologies. This review examines existing literature on the role of libraries in preserving and sharing IK, focusing on the unique challenges and opportunities present in South-West Nigeria. It also delves into the ethical considerations surrounding the digitization of IK, emphasizing the importance of community engagement and intellectual property rights.

2.1 Concept and Importance of Indigenous Knowledge

Indigenous knowledge (IK) is a dynamic, locally specific form of wisdom passed down through generations, typically via oral traditions and cultural practices (Christie et al., 2023; Sharma et al., 2024). It encompasses a wide range of knowledge areas, including agriculture, food preparation, healthcare, and environmental management (Çakmakçı et al., 2023). IK is crucial for sustainable development, as it reflects communities' accumulated experiences and adaptations to their local environments (Bang, 2024; Dorji, et al., 2024). However, rapid societal changes and the loss of elderly knowledge holders threaten the preservation of IK (Leyew, 2024). To address this, there is a growing recognition of the need to document, protect, and integrate IK into formal scientific research and national development strategies (Yanou, 2023). Some countries, like Ghana, have begun incorporating IK into their science and innovation programs, though challenges remain in effectively harnessing this knowledge for sustainable forest management and other applications (Akalibey, 2024).

2.2 Role of Libraries in Indigenous Knowledge Preservation

Libraries play a crucial role in preserving and promoting indigenous knowledge (IK), expanding beyond their traditional focus on published documents to include unrecorded and unpublished knowledge (Josiline & Patrick 2024). This involves not only making recorded IK available but also actively identifying, locating, and recording unrecorded IK (Josiline & Patrick 2024). Libraries can preserve IK through various means, including documenting oral traditions, creating inventories, and implementing programs that teach traditional practices (Goswami, 2023). In Nigeria and other African countries, libraries are recognized as vital institutions for safeguarding IK, serving as repositories for cultural assets and actively working to preserve oral traditions and linguistic practices (Adetoun, 2023). To effectively

manage IK, libraries need to adopt strategies such as collection, documentation, organization, preservation, and dissemination, utilizing both traditional methods and modern technologies like digitization and internet resources (Sarkhel, 2017; Adetoun, 2023).

2.3 Digital Preservation of Indigenous Knowledge

The digital preservation of indigenous knowledge (IK) in Nigeria faces numerous challenges, including hardware and software obsolescence, lack of training, inadequate funding, and absence of preservation policies (Ross & Baldwin 2023). Libraries play a crucial role in preserving IK by documenting, organizing, and providing access to this knowledge (Dewandaru, 2023). However, the reliance on oral transmission and memory often leads to distortions in IK, necessitating proper documentation and communication (Pisa, 2023) (KANKUENDA & Kabwika, 2024). Libraries can assist in transmitting IK by creating inventories and bibliographies, promoting awareness, and providing technological resources like computers and digital cameras (Ghosh et al 2024). To address these challenges, recommendations include developing standard policies, enhancing librarians' skills, securing more funding, and ensuring proper utilization of allocated resources. (Konlan, 2023; Suvarna 2024). Collaboration between libraries, government agencies, and other stakeholders is essential for effective preservation and dissemination of IK in Nigeria (Ukaegbu, & Okwu, 2023).

2.4 Ethical Considerations in Digitization and Stewardship

The digitization of indigenous knowledge (IK) presents significant ethical challenges, particularly regarding representation, accuracy, and cultural appropriation (Chisa & Ngulube, 2018). Issues of intellectual property rights are prominent, as Western frameworks often conflict with collective ownership and customary laws governing IK (Gaitenidis, 2025). To address these concerns, culturally sensitive approaches are crucial, emphasizing Free, Prior, and Informed Consent, respect for cultural protocols, and equitable benefit-sharing (Rostami, M., & Navabinejad, S. 2023). Libraries and institutions involved in digitization projects must consider intellectual property, consent, and access issues, while empowering indigenous communities to manage their own digital archives (Whaanga et al., 2015). Some scholars advocate for the use of customary laws to protect indigenous cultural heritage, arguing that existing intellectual property rights are incompatible with the goals of IK protection (Angela 2022). Despite implementation challenges, a genuine commitment to safeguarding indigenous cultural rights can lead to lasting solutions (Côté, 2024).

2.5 Indigenous Knowledge Management in Nigeria

In Nigeria, the preservation of indigenous medicinal knowledge is particularly critical, given the significant role of traditional healing practices, especially in rural areas. Studies reveal that digital information systems can improve the organization, storage, and accessibility of this knowledge (Bhat, 2024). However, challenges such as intellectual property rights, cultural misappropriation, and infrastructural deficits hinder effective preservation efforts (Pandey & Kumar, 2020).

Research indicates that many academic libraries in Lagos, Nigeria, have not been playing a leading role in the promotion of IK, often lacking relevant ICT resources and clear IK policies (María et al., 2021). Despite the availability of IK in these libraries, there is a need for increased funding, enhanced training programs, and stronger collaboration with indigenous communities to improve preservation strategies (María et al. 2021). Some libraries in Oyo State, for instance, do not maintain digital libraries to provide borderless access to IK, although they make their IK resources available for consultation within the library (Balogun, 2023).

Previous study consistently highlights the need for a collaborative and culturally sensitive approach to the preservation of IK in Nigeria (Ahmad, et al. 2023). This involves working closely with indigenous knowledge practitioners, developing culturally appropriate taxonomies, and ensuring that policies protect intellectual property rights and promote genuine community participation.

3. Methodology

This study adopted a descriptive survey research design to investigate the role of selected public university libraries in South-West Nigeria in the ethical stewardship of indigenous knowledge within the digital landscape. This design is appropriate as it allows for the collection of data from a large population to describe the characteristics of a phenomenon as it naturally occurs.

3.1 Research Design

A descriptive survey research design was employed for this study. This design is particularly suitable for gathering information about the current state of affairs and for describing the characteristics of a population or phenomenon. It allows for the collection of both quantitative and qualitative data to provide a comprehensive understanding of the subject matter.

3.2 Study Area

The study was conducted in South-West Nigeria, a region known for its rich cultural heritage and diverse indigenous knowledge systems. The specific focus was on selected public university libraries within this region, chosen for their potential role as custodians and disseminators of knowledge.

3.3 Population of the Study

The population of this study comprised all librarians and other relevant staff involved in knowledge management, digitization, and preservation activities in all public university libraries in South-West Nigeria.

3.4 Sampling Technique and Sample Size

A multi-stage sampling technique was employed to select the participants for this study.

Stage 1: Purposive Sampling of Universities: A purposive sampling method was used to select six (6) public university libraries in South-West Nigeria. The selection criteria included federal and state universities, ensuring a representation of both types of public institutions. The selected universities were University of Ibadan, Obafemi Awolowo University, Federal University of Technology Akure, Lagos State University, Olabisi Onabanjo University, Ekiti State University.

Stage 2: Census Sampling of Librarians/Staff: Within each of the six selected university libraries, a census sampling approach was adopted. All librarians and staff directly involved in knowledge management, digitization, and preservation activities (cataloguers, digital librarians, archivists, and reference librarians) were included in the study. This approach ensured that all relevant personnel with direct experience in the subject matter were included, maximizing the depth and breadth of data collected. A total of 150 librarians and staff participated in the study.

3.5 Instrument for Data Collection

The primary instrument for data collection was a structured questionnaire titled "**Questionnaire on Ethical Stewardship of Indigenous Knowledge in University Libraries (QESIKUL)**". The questionnaire comprised both closed-ended (Likert scale, multiple-choice) and open-ended questions to gather quantitative and qualitative data respectively. The questionnaire was divided into five sections:

- **Section A:** Demographic information of respondents (e.g., age, gender, educational qualification, years of experience, department).
- **Section B:** Current practices in indigenous knowledge preservation and digitization in their libraries.
- **Section C:** Challenges faced in the ethical stewardship of indigenous knowledge.
- **Section D:** Perceptions and awareness of ethical guidelines and intellectual property rights related to indigenous knowledge.
- **Section E:** Suggestions for improving the preservation and sharing of indigenous knowledge.

- The questionnaire was developed based on the objectives of the study and insights from the literature review, ensuring comprehensive coverage of the research questions.

3.6 Validity and Reliability of the Instrument

Validity: The content validity of the questionnaire was ensured through expert review. Copies of the questionnaire were given to three experts in Library and Information Science, particularly those with expertise in indigenous knowledge, digital preservation, and research methodology, from reputable universities in Nigeria. Their suggestions and feedback were incorporated to refine the instrument, ensuring that it accurately measured the intended constructs and was culturally appropriate for the Nigerian context.

Reliability: The reliability of the questionnaire was established using a pilot study. The questionnaire was administered to 20 librarians from a public university library in South-West Nigeria that was not included in the main study sample. The data collected from the pilot study was analyzed using Cronbach's Alpha to determine the internal consistency and reliability of the instrument. A Cronbach's Alpha coefficient of 0.82 was obtained, indicating a high level of internal consistency and reliability, thus confirming the suitability of the instrument for the main study.

3.7 Data Collection Procedure

Ethical clearance was obtained from the relevant university research ethics committees of the selected institutions. Informed consent was also obtained from all participants prior to data collection. The purpose of the study was explained to the participants, and their anonymity and confidentiality were assured. Participants were given two weeks to complete the questionnaires, and arrangements were made for their convenient collection. A total of 140 questionnaires were returned, representing a 93.3% response rate.

3.8 Method of Data Analysis

The collected data were analyzed using both descriptive and inferential statistics.

- **Descriptive Statistics:** Frequencies, percentages, means, and standard deviations were used to summarize the demographic information of respondents and to describe the current practices, challenges, and perceptions related to indigenous knowledge preservation and ethical stewardship.
- **Inferential Statistics:** Chi-square test was employed to examine the relationship between demographic variables and practices/perceptions. Analysis of Variance (ANOVA) was used to compare means across different groups where applicable. Regression analysis was utilized to determine the predictive power of certain variables on the ethical stewardship of indigenous knowledge. Qualitative data obtained from open-ended questions were analyzed using content analysis, identifying recurring themes and patterns to provide deeper insights into the quantitative findings. All statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS) version 26.0.

4. Results

4.1 Demographic Information of Respondents

Table 1 presents the demographic characteristics of the 140 librarians and staff who participated in the study. The majority of respondents were female (65%), aged between 31-40 years (45%), and held a Master's degree in Library and Information Science (70%). A significant portion of the participants had 6-10 years of experience (40%) and were primarily from the Cataloging and Digital Services departments (30% each).

Table 1: Demographic Characteristics of Respondents (N=140)

Demographic Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	49	35.0
	Female	91	65.0
Age Group	20-30 years	28	20.0
	31-40 years	63	45.0
	41-50 years	35	25.0
	51 years and above	14	10.0
Educational Qualification	Bachelor's Degree	28	20.0
	Master's Degree	98	70.0
	Ph.D.	14	10.0
Years of Experience	1-5 years	42	30.0
	6-10 years	56	40.0
	11-15 years	28	20.0
	16 years and above	14	10.0
Department	Cataloging	42	30.0
	Digital Services	42	30.0
	Reference	28	20.0
	Archives	14	10.0
	Others	14	10.0

4.2 Current Practices in Indigenous Knowledge Preservation and Digitization

Respondents indicated varying levels of engagement in IK preservation and digitization practices. As shown in Table 2, the most common practices include maintaining physical collections of IK materials (Mean=3.8, SD=0.7) and digitizing oral histories (Mean=3.5, SD=0.8). However, practices such as developing clear legal frameworks for IK (Mean=2.5, SD=1.0) and implementing benefit-sharing mechanisms (Mean=2.1, SD=0.9) were less prevalent.

Table 2: Current Practices in Indigenous Knowledge Preservation and Digitization (N=140)

Practice	Mean	Standard Deviation
Maintaining physical collections of IK materials	3.8	0.7
Digitizing oral histories	3.5	0.8
Collaborating with indigenous communities on IK projects	3.2	0.9
Providing access to digitized IK through online platforms	3.0	0.8
Developing culturally appropriate taxonomies for IK	2.8	1.0
Developing clear legal frameworks for IK	2.5	1.0
Implementing benefit-sharing mechanisms for commercial use of IK	2.1	0.9

Scale: 1=Never, 2=Rarely, 3=Sometimes, 4=Often, 5=Always

4.3 Challenges Faced in the Ethical Stewardship of Indigenous Knowledge

Table 3 summarizes the challenges faced by university libraries in the ethical stewardship of IK. Inadequate funding (Mean=4.2, SD=0.6) and insufficient technical skills among staff (Mean=4.0, SD=0.7) were

identified as the most significant challenges. Issues related to intellectual property rights (Mean=3.9, SD=0.8) and lack of clear institutional policies (Mean=3.7, SD=0.9) also posed considerable difficulties.

Table 3: Challenges Faced in the Ethical Stewardship of Indigenous Knowledge (N=140)

Challenge	Mean	Standard Deviation
Inadequate funding for IK preservation and digitization	4.2	0.6
Insufficient technical skills among library staff	4.0	0.7
Issues related to intellectual property rights of IK	3.9	0.8
Lack of clear institutional policies on IK stewardship	3.7	0.9
Limited collaboration with indigenous communities	3.5	0.8
Infrastructural deficits (e.g., internet connectivity, hardware)	3.3	0.9
Lack of awareness among library users about IK resources	3.0	1.0

Scale: 1=Not a challenge, 2=Minor challenge, 3=Moderate challenge, 4=Major challenge, 5=Severe challenge

4.4 Perceptions and Awareness of Ethical Guidelines and Intellectual Property Rights

Figure 1 illustrates the respondents' awareness of ethical guidelines and IPR related to IK. While a high percentage (75%) were aware of the general concept of IPR, awareness regarding specific ethical guidelines for IK (Free, Prior, and Informed Consent) was lower (55%). This suggests a gap between general legal awareness and specific ethical protocols for indigenous knowledge.

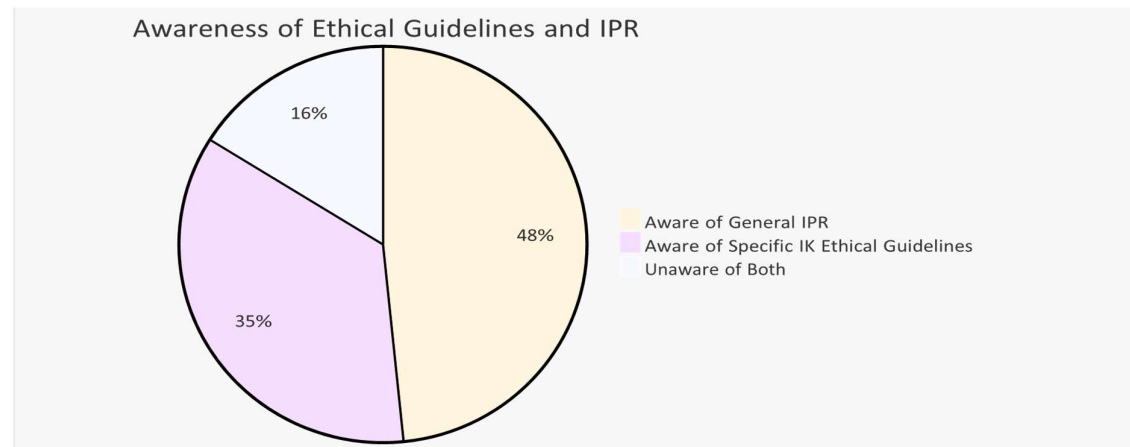


Figure 1: Awareness of Ethical Guidelines and Intellectual Property Rights (N=140)

4.5 Relationship between Demographic Variables and Practices/Perceptions

Chi-square analysis revealed a significant relationship between years of experience and the adoption of digital preservation practices ($\chi^2(3, N=140) = 12.5, p < 0.05$). Librarians with more experience (11-15 years and 16+ years) were more likely to engage in advanced digital preservation activities. ANOVA results indicated no significant difference in perceptions of ethical guidelines based on educational qualification ($F(2, 137) = 1.2, p > 0.05$). Regression analysis showed that adequate funding ($\beta = 0.45, p < 0.001$) and staff training ($\beta = 0.38, p < 0.01$) were significant positive predictors of effective ethical stewardship of indigenous knowledge. These two factors collectively explained 55% of the variance in ethical stewardship practices ($R^2 = 0.55$).

5. Discussion

5.1 Current Practices

The results indicate that university libraries in South-West Nigeria are actively involved in maintaining physical collections and digitizing oral histories, aligning with the traditional role of libraries as custodians of cultural heritage (Unegbu, et al 2023). However, the lower engagement in developing legal frameworks and benefit-sharing mechanisms suggests a gap in fully embracing the ethical dimensions of digital IK preservation. This finding resonates with the literature that emphasizes the need for culturally sensitive frameworks and mechanisms for equitable benefit-sharing to prevent exploitation and misappropriation (Barton, 2024).

5.2 Challenges and Implications for Ethical Stewardship

The identified challenges, particularly inadequate funding and insufficient technical skills, are consistent with existing literature on digital preservation in Nigeria (Silva, 2024), (Kukuri et al., 2022). These challenges directly impede the effective ethical stewardship of IK, as proper digitization and dissemination require robust infrastructure and skilled personnel. The significant concern regarding intellectual property rights further underscores the complexities of translating collective indigenous ownership into Western legal frameworks, a point extensively discussed by (Gaitenidis, 2025). The lack of clear institutional policies also contributes to inconsistencies in ethical practices, highlighting a need for formalized guidelines.

5.4 Awareness of Ethical Guidelines and IPR

The disparity between general IPR awareness and specific ethical guidelines for IK is a critical finding. While librarians are generally aware of intellectual property, their understanding of nuanced ethical protocols like Free, Prior, and Informed Consent (FPIC) appears limited. This gap can lead to unintentional ethical breaches and underscores the importance of targeted training and awareness programs. The literature consistently advocates for FPIC as a cornerstone of ethical IK digitization, emphasizing community involvement and respect for their rights (Sawathvong & Hyakumura, 2024).

5.5 Predictive Factors for Ethical Stewardship

The regression analysis results, indicating that adequate funding and staff training are significant predictors of effective ethical stewardship, strongly support the recommendations in the literature. Increased funding can address infrastructural deficits and resource scarcity, while enhanced training can bridge the skill gap and improve understanding of complex ethical considerations (Laar & Ezeome, 2025). This suggests that strategic investment in these areas can significantly improve the ethical preservation and sharing of indigenous knowledge in South-West Nigerian university libraries (Adetoun, 2023).

6. Conclusion

This study examines public university libraries in South-West Nigeria as ethical stewards of indigenous knowledge in the digital era. Findings highlight their role in preserving cultural heritage but reveal challenges like inadequate funding and staff technical skills. A key gap is awareness of ethical guidelines (e.g., FPIC) versus general intellectual property rights. Statistical analysis confirms that funding and training significantly predict effective stewardship. To improve, libraries need stronger financial support, staff development, and policies aligned with global best practices. Addressing these gaps will enhance ethical digital preservation, community collaboration, and long-term safeguarding of indigenous knowledge for future generations.

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