

UTILISATION OF ARTIFICIAL INTELLIGENCE AMONG SIWES STUDENTS FOR KNOWLEDGE MANAGEMENT PRACTICES IN BENUE STATE UNIVERSITY LIBRARY MAKURDI .

ANITA TERSUR ASEN PHD

Head of Cataloguing and Classification

Benue State University Library and Information Services, Makurdi, Nigeria.

PHOEBE APINEGA CLN

Librarian Reform Theological Seminary Mkar

Gboko, Benue state Nigeria.

And

DOOCIVIR FAITH ANNUNE

Head, acquisition unit. Francis Suleman Idachaba Library,

Joseph Sarwuan Tarkaa University Makurdi

ABSTRACT

This study investigated Utilization of artificial intelligence among Siwes students For knowledge management practices in Benue State University Library Makurdi. The research questions were to determine students' awareness of AI tools for cataloguing and classification, identify knowledge management tools used and KM, identify challenges encountered, and outline strategies for improvement. The study adopted a quasi-

experimental design with a population of 120 SIWES students, using total enumeration. Data were collected through questionnaires and practical screenshots, and analysed using frequencies, percentages, mean, and standard deviation. Findings showed high awareness of key AI tools such as ChatGPT (90%), Fast AutoClass (78.3%), and CataloguingAI (85.8%). Knowledge management tools such as knowledge repositories, document-sharing tools, search engines, data mining tools among others. Students moderately used AI tools for tasks such as OPAC organisation, subject retrieval, class mark retrieval, database population among others. However, challenges such as lack of formal AI/KM policies, inadequate training, limited technological infrastructure, and insufficient collaboration hindered optimal utilisation. The study identified strategies such as strengthening policies, providing training, and improving technology, enhancing communication, joining consortiums, and creating supportive work environments. The study concludes that while SIWES students demonstrate high awareness and moderate use of AI tools for knowledge organisation, utilisation of KM tools remains low and is constrained by systemic challenges.

Introduction

Artificial intelligence is a rapidly developing field of technology that involves simulating human intellect through machines that can comprehend, reason, learn, and use knowledge to act, operate, and mirror the human mind's capacity for problem-solving and decision-making. Libraries can now have access to machines that can perceive, comprehend, act, and learn thanks to the use of artificial intelligence, which can be seen as a set of cutting-edge technology (Oyetola, 2023). AI in libraries dates back to the mid-20th century, when the first computerized systems were implemented to automate tasks like cataloging, circulation, and inventory management (Jayavadivel et al., 2024). While these early systems were relatively basic by today's standards, they represented a major leap forward from traditional manual methods. A pivotal moment in this development was the introduction of the MARC (Machine-Readable cataloging) format in the 1960s, which

significantly improved the efficiency of cataloguing and facilitated the exchange of bibliographic data between libraries.

AI-based tools are increasingly becoming central to library service delivery, enhancing operational efficiency, improving user experience, and enabling libraries to meet the evolving needs of their patrons. These tools leverage artificial intelligence to automate tasks, personalize services, and optimize information management. Several key AI based tools in libraries are improving administrative functions, library operations and user interactions. Cataloguingai generate metadata for library items, saving librarians from the tedious task of manual entries

AI tools such as optical character recognition (OCR) and machine learning-based metadata generation are automating cataloging processes in libraries. These tools extract metadata from a variety of digital resources, such as books, articles, and multimedia materials, and create machine-readable records that streamline resource management. Li u & Zhang (2023) highlight that tools like OCLC's WorldShare Management Services automate cataloging tasks by scanning and classifying materials across formats, which reduces the labor involved in manual cataloging and improves discoverability for users. This automation ensures that resources are more efficiently organized and accessible.

A similar example is the ascertain by Robinson (2024) who explains that platforms like DuraSpace and Figshare integrate AI tools to help manage digital data storage, sharing, and publishing, thereby improving the effectiveness and efficiency of data distribution and

management. Pereira (2022) further explains that platforms like LibraryThing and Goodreads employ AI-powered recommendation engines, which libraries can integrate into their systems to suggest resources tailored to users' interests and preferences.

AI-based tools are transforming library service delivery by automating routine processes, enhancing user interactions, and improving the accessibility and discoverability of resources. These tools, from chatbots, chatgpt and search systems to cataloging automation and data management, are enabling libraries to adapt to the changing needs of their users and streamline operations. As these technologies evolve, their integration into library services will continue to improve library operation and ease the work of librarian from the traditional library operations.

AI-Based Search and Discovery Systems traditional cataloging and search systems in libraries are being enhanced through natural language processing (NLP) and machine learning (ML) technologies. These AI tools enable users to search using natural language queries (e.g., "How do I find title e.g. Mastering Library and Information Science?") rather than relying on predefined keywords, improving search accuracy and relevance (Nguyen & Lee, 2023). AI-based systems can also personalize search results based on user behavior, preferences, and past searches, thereby optimizing information retrieval. Sullivan & Sykes (2022) note that platforms like Ex Libris Alma and EBSCO Discovery Service use machine learning algorithms to tailor search results and provide personalized recommendations, enhancing the discovery experience for library users.

In the library, Knowledge Management as an emerging discipline focuses on the various management processes that facilitate finding, identifying, capturing, creating, storing, sustaining, applying, sharing, and renewing knowledge to improve an organization's performance. The advent of the internet and related technological development has transformed the nature of library and information services. Amid these changes, knowledge management has emerged as a further significant influence on library practice. Knowledge management encompasses activities such as selection, acquisition, Cataloguing, classification, indexing, and abstracting, dissemination through various means, especially OPAC and IRS. It entails identifying the types of knowledge required to support over all institutional activities as well as integrating, indexing, searching and technology to assist libraries and librarians in organizing data from different sources and delivering only relevant information to users.

Knowledge management are essential aspects of library operations, ensuring that information is effectively collected, organized, preserved and disseminated to serve the needs of patrons. Knowledge management is a tool that helps in this regard and at this crucial moment. Davenport cited in Uzohue and Yaaya (2016) explains that knowledge management as a process is about acquisition, creation, packaging and application of reuse of knowledge. In any organization, libraries are the backbone of information dissemination and the different services offered by the libraries are mainly designed to fulfill the

goals/missions of the organization. The main aim of library is to provide right information to the right user at the right time.

In libraries, there are methods and practices of knowledge management, such as knowledge creation, knowledge organizations, and knowledge sharing. These practices considered as the key knowledge sources of a library which should be managed properly. Kpakiko, Suleiman and Abubakar (2018) states that management as the process of coordinating total resources of an organization towards the accomplishment of desired goals of that organization through the execution of a group of inter-related functions such as planning, organization, staffing, directing and controlling, this in the library operations are managed by the librarians recently using integrated library management software's.

Statement of the problem

Despite the growing importance of artificial intelligence (AI) in transforming library operations, the level of utilization among academic librarians remains unclear especially at the technical section of the library. This has hinder effective work flow, optimal service delivery and user satisfaction. It is on this premise that this study is aimed at examining the level of awareness of artificial intelligence based tools among academic librarians for classification of library resources using the commonly using Chatgpt in Benue state University library in North-Central Nigeria.

Research Questions

1. What is the level of Awareness of the types of artificial intelligence use for cataloguing and classification in BSU?
2. What are the types of knowledge management tools use at the cataloguing and classification section?
3. What are the challenges of using AI for knowledge organization at the cataloguing and classification unit?
4. What strategies can be adopted for enhancing the use of AI for knowledge organization at the cataloguing and classification Unit.?

Literature review

Academic librarian utilization of artificial intelligence (AI) based tools varies significantly, impacting service delivery and user experience. Despite AI's potential, librarians face challenges in adopting and effectively utilizing AI – based tools which Khan et al., (2020) identified limited awareness and understanding of AI – based tools. Breeding (2019) identified insufficient training and support.

Intelligent library management systems is one of available artificial intelligence based tools for service delivery by academic librarians. Intelligent library management systems powered by AI can automate various library processes such as cataloging, circulation and inventory management. These systems can streamline library operations,

increase efficiency and free up staff time to focus on providing better services to users (Kim 2019).

There are several factors influencing artificial intelligence based tools in enhancing service delivery by academic librarians. Baruchson-Arbib and Cullen (2020) identified availability of data as well as technological infrastructure. Gopinath and Abdukadir (2017) identified training and expertise, integration with existing library services. Khan (2019) identified ethical consideration, user acceptance as well as cost consideration as factors influencing artificial intelligence based tools in enhancing service delivery by academic librarians.

Level of awareness of artificial intelligence based tools for service delivery by the libraries can influence the usage of artificial intelligence. Boyer (2020) stated that the extent to which academic librarians are aware of and trained in using artificial intelligence – based tools can significantly impact their ability to leverage these technologies for enhancing service delivery.

There are several factors that influence the level of awareness of artificial intelligence based tools for service delivery by academic librarians. These factors include training and education. Mann and Duggid (2019) stated that the availability of training programs and workshops on artificial intelligence tools can impact the awareness levels among librarians. Murphy (2019) stated that support and encouragement from top

management within the academic library for adopting AI technologies can influence the awareness levels among librarians.

Methodology

This section describes the methods that were used in carrying out the study. They are presented in the following subheadings: Design of the study was quasi experimental design, while the area of the study was Benue state, population of the study was the 2023/2024 students on industrial training in the library, the sample size was 120 student divided into 10 groups comprising of 12 students per group, sampling technique was the total enumeration as the population was manageable, the instrument for data collection was a questionnaire and evidence of screen shots from the practical work carried on using the artificial intelligence tool available, data was analyzed using simple percentages, mean and standard deviation.

Data Analysis

Descriptive statistics of frequencies, percentages, mean and standard deviation were employed in addressing the research questions with the aid of the Statistical Package for Social Sciences (SPSS) version 26. Precisely frequencies and percentages were used to answer research questions 1, while mean and standard deviations were used in answering research questions 2,3and 4. A bench mark of 50% and above was used in making

decisions for research questions 1, an item with 50% and above will be accepted and vice versa.

Results and Discussions

This section presents the result of data analysis and interpretation of results as well as discussion in line with the research questions of the study.

Research Question 1

What is the level of Awareness of the types of artificial intelligence use for cataloguing and classification in BSU?

Table 1: Frequency and percentages of the types of artificial intelligence for cataloguing and classification

S/N	Item Statement (N = 120)	Aware Freq.	%
1	ChatGPT	108	90.0
2	Fast autoClass	94	78.3
3	Google cloud metada	7	5.8
4	Cataloguingai	103	85.8
5	Elicit	16	13.3
6	Scispace	11	9.2

Result in Table 1 shows the frequency and percentages of the artificial intelligence tools for cataloguing and classification among SIWES students in BSU. The result indicates that SIWES students are aware of ChatGPT (108, 90.0%),Fast autoClass(94, 78.3%), Cataloguingai (103, 85.8%)artificial intelligence for cataloguing and classification in BSU. On the contrary, the result shows that SIWES students are not aware of Google cloud metada(7, 5.8%),Elicit(16, 13.3%),and Scispace(11, 9.2%)artificial intelligence for cataloguing and classification in BSU.

Discussion

For the awareness and types of AI tools use results indicate frequency and percentages of the artificial intelligence tools for cataloguing and classification among SIWES students in BSU shows that SIWES students are aware of ChatGPT (108, 90.0%), this result in line with the findings of Mann and Duggid (2019) who state that there are several factors that influence the level of awareness of artificial intelligence based tools for service delivery by academic librarians. These factors include training and education. Mann and Duggid (2019) also stated that the availability of training programs and workshops on artificial intelligence tools can impact the awareness levels among librarians. Academic librarians play a vital role in helping students and researchers navigate complex digital and physical resources, offering personalized reference services to meet specialized research needs (Liu & Zhang, 2023).

Research Question 2

What are the types of knowledge management tools use at the cataloguing and classification section?

Table 2: Mean and Standard deviation of SIWES students on the types of knowledge management tools use at the cataloguing and classification section

S/N	Item Statement (N = 120)	\bar{x}	SD	Remark
1	Knowledge Repository	3.05	.808	Moderately Used
2	Document Management System	2.02	.809	Less Used
3	Document Sharing Tools	3.20	.729	Moderately Used
4	Web Portals	1.74	.728	Less Used
5	Blogs for Communication	1.63	.721	Less Used
6	Social Media	1.90	.854	Less Used
7	RSS Tools	1.73	.764	Less Used
8	Information Retrieval Tool	2.93	.817	Moderately Used
9	Data Mining	2.93	.817	Moderately Used
10	Search Engines	3.30	.656	Moderately Used
	Cluster Mean	2.44	.264	Less Used

Key: N = Number of respondents, \bar{x} = mean, SD = Standard Deviation.

Result as presented in Table 2 shows that items 1, 3, and 8-10 have mean ratings ranging from 2.50-3.49 designated for moderately used.

Discussion

For types of knowledge management tools use at the cataloguing and classification section among SIWES students in BSU results indicate that information retrieval tools ($\bar{x} = 2.93$, SD = .817), data mining ($\bar{x} = 2.92$, SD = .817), and search engines ($\bar{x} = 3.30$, SD = .656) are the types of knowledge management tools moderately used at the cataloguing and classification section in BSU. Drawing from Teng, (2023) who ascertain that librarians focus on promoting information literacy, teaching critical thinking and digital literacy skills to help students evaluate sources effectively in today's information-heavy environment as emerging technologies like AI reshape research, academic librarians manage innovations such as AI-driven cataloging systems and virtual research assistants to improve accessibility (Nguyen & Lee, 2023).

Research Question 3

What are the challenges of using AI for knowledge organization at the cataloguing and classification unit?

Table 3: Mean and Standard deviation of SIWES students on the challenges of using AI for knowledge organization at the cataloguing and classification unit

S/N	Item Statement (N = 120)	\bar{x}	SD	Remark
1	Lack of formal policies on AI and knowledge management hinders implementation	3.60	.509	Agree
2	Insufficient training of librarians in AI and knowledge management practices is a significant challenge	3.51	.534	Agree
3	Limited access to necessary technology restricts effective knowledge management	3.50	.550	Agree
4	Time constraints prevent librarians from fully utilizing	3.19	.725	Agree

	knowledge management tools			
5	Poor communication channels limit knowledge sharing within the library	3.32	.700	Agree
6	Lack of collaboration between departments and staff impedes AI and knowledge management	3.48	.565	Agree
7	Vocational support for practical skill development in knowledge management is lacking	3.45	.592	Agree
8	The absence of informal learning opportunities for staff hampers continuous improvement	3.37	.607	Agree
9	Libraries lack discussion sessions for staff to share knowledge and best practice	3.47	.579	Agree
10	Unfavorable working conditions and environments hinder effective knowledge management	3.48	.518	Agree
	Cluster Mean	3.44	.360	Agree

Key: N = Number of respondents, \bar{x} = mean, SD = Standard Deviation.

Result as presented in Table 5 shows that items 1-10 have mean ratings above the 2.50 set as benchmark for accepting an item. This implies that SIWES students agreed that to lack of formal policies on AI and knowledge management hinders implementation ($\bar{x} = 3.60$, SD = .509), insufficient training of librarians in AI and knowledge management practices is a significant challenge ($\bar{x} = 3.51$, SD = .534), and limited access to necessary technology restricts effective knowledge management ($\bar{x} = 3.50$, SD = .550) among other items in Table 5 as the challenges of using AI for knowledge organisation at the cataloguing and classification unit.

Results on challenges indicate that SIWES students agreed to lack of formal policies on AI and knowledge management hinders implementation ($\bar{x} = 3.60$, SD = .509), insufficient training of librarians in AI and knowledge management practices is a significant challenge

Research Question 4

what strategies can be adopt for enhancing the use of AI for knowledge organization at the cataloguing and classification unit?

Table 4: Mean and Standard deviation of SIWES students on the strategies for enhancing the use of AI for knowledge organization at the cataloguing and classification unit

S/N	Item Statement (N = 120)	\bar{x}	SD	Remark
1	Establishing formal policies on knowledge management in university libraries	3.46	.500	Agree
2	Training librarians on knowledge management practices will improve efficiency	3.43	.496	Agree
3	Providing modern technologies will enhance knowledge management efforts in libraries	3.34	.476	Agree
4	Improving communication channels between library staff will foster better knowledge sharing	3.40	.492	Agree
5	Joining consortiums and external collaborations will boost knowledge management initiatives	3.39	.490	Agree
6	Encouraging vocational training will help librarians develop practical knowledge management skills	3.45	.500	Agree
7	Organizing regular group discussions for staff will facilitate knowledge sharing	3.43	.498	Agree
8	Ensuring supportive working conditions will enable librarians to perform better	3.48	.501	Agree
	Cluster Mean	3.42	.331	Agree

Key: N = Number of respondents, \bar{x} = mean, SD = Standard Deviation.

Result as presented in Table 6 shows that items 1-8 have mean ratings above the 2.50 set as benchmark for accepting an item. This implies that SIWES students agreed that establishing formal policies on knowledge management in university libraries ($\bar{x} = 3.46$, SD = .500), the result shows that there are strategies for enhancing the use of AI for knowledge organization at the cataloguing and classification unit among SIWES students.

Discussion

Librarians are increasingly integrated into research teams, providing support with data management, publishing, and open-access communication. They offer consultations on digital tools like citation management software and data repositories (Zhang et al., 2024). They also curate collections that meet the evolving needs of academic disciplines, ensuring equitable access and diversity in library resources (Liu & Zhang, 2023). In response to evolving student needs, librarians are reimagining learning and study spaces to foster collaboration and creativity, designing physical and virtual environments that promote interactive learning (Sullivan & Sykes, 2022)

Recommendations

Based on the findings of the study, the following recommendations are made:

1. Develop and implement formal AI and KM policies
The Library and University Management should establish clear policies guiding the adoption, use, and evaluation of AI and KM tools to ensure standardized and sustainable practices.
2. Provide continuous training for librarians and SIWES students
Regular hands-on workshops on AI tools such as ChatGPT, Fast AutoClass, CataloguingAI, and metadata tools should be organised to improve competence and reduce resistance to technology.

3. Invest in modern digital infrastructure

The university should provide reliable internet access, up-to-date computers, and subscription-based AI platforms to enhance knowledge organisation processes.

4. Improve working conditions and provide adequate support

Creating a conducive work environment and ensuring librarians receive the necessary administrative support will motivate effective use of AI and KM tools.

5. Integrate vocational and practical training into SIWES programmes

Structured AI-based cataloguing and classification modules should be embedded in SIWES orientation to enhance students' practical skills.

CONCLUSION

The study examined utilisation of artificial intelligence among siwes students for knowledge management practices in Benue state university library Makurdi. Guided by three research questions which assessed students' awareness and utilisation of AI tools, their level of understanding and competence during the SIWES period, as well as the challenges encountered in applying AI to cataloguing and classification tasks.

Using a quasi-experimental research design and total enumeration sampling technique of 120 SIWES students, the findings revealed a high level of awareness of commonly used AI tools such as ChatGPT, CataloguingAI, and Fast AutoClass. The study further showed that AI tools were moderately utilised for subject analysis, class mark retrieval, OPAC

organisation, and metadata handling, while students demonstrated a good level of understanding and effective use of AI and knowledge management practices during their industrial training. The findings underscore the need for deliberate institutional commitment to strengthening digital literacy and AI integration in university libraries.

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