



THE FRENEMY RELATIONSHIP BETWEEN ACADEMIC LIBRARIES AND ARTIFICIAL INTELLIGENCE: NAVIGATING THE TRANSFORMATION

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Abstract

Purpose - This paper examines the relationship between academic libraries and Artificial Intelligence (AI) in the evolving information environment, focusing on the opportunities and challenges AI presents to academic libraries and librarianship, particularly within developing countries such as Nigeria.

Design/Methodology/Approach - The paper adopts a conceptual and analytical research design involving literature review.

Findings - The paper argues that AI has created a frenemy relationship with academic libraries, serving simultaneously as a valuable partner and a potential competitor to traditional library functions. AI enhances information retrieval, automates routine tasks, improves metadata management, supports personalized services, and strengthens user experience. At the same time, it raises concerns relating to increasing user self-reliance, changing information-seeking behaviour, and threats to the professional identity of librarians. The paper maintains that while AI can efficiently perform technical and repetitive tasks, it cannot replace the ethical judgment, critical thinking, information mediation, and user-centered expertise provided by professional librarians.

Practical implications - Academic libraries must strategically embrace AI while preserving their core mission of equitable information access and knowledge support. The paper recommends the integration of digital fluency, AI literacy, and interdisciplinary competencies into Library and Information Science education, alongside continuous training and retraining programmes to equip librarians with the skills required to remain relevant and effective in the digital age.

Originality/Value - The paper's original contribution lies in its conceptualization of the academic library–AI relationship as a "frenemy" dynamic, capturing a dual character (both partnership and competition) that existing literature tends to treat as separate rather than intertwined, and in situating this analysis within the specific context of developing countries such as Nigeria.

Paper type – Position paper

Keywords: Frenemy, artificial intelligence, academic libraries, opportunities, librarians.



Introduction

All types of library, whatever physical or virtual, are where information resources are accessed, and information services are rendered by professionals specialising in identifying, collecting, organising, and processing information sources and interpreting information needs. Libraries are established to support the mission and objectives of their parent institutions. Thus, they perform custodial, educational, informative, and research roles. Traditional library practice embodies the core functions of acquiring, organizing, preserving, and providing access to knowledge, and they serve as a foundation for information management for centuries and even now. Libraries, especially those in institutions of higher learning, are equipped to support the research activities of faculty members and students. They provide both print and electronic information resources to support research. They also train staff and students on how to search electronic databases effectively.

Over time, the philosophy of libraries has consistently undergone review to align with the information needs of users and prevailing societal trends. Recent philosophical shift witnessed in libraries is the transition from a content-focused approach to a client-focused, spurred by the emergence of technologies. From the early stages of the read-only web (Web 1.0) to the intelligent web (Web 5.0), these technologies have rapidly developed. Librarians are, therefore, experiencing professional transition at an alarming rate, prompting them to adopt strategies to harness the vast potential of technologies in delivering information services. Nevertheless, in developing countries, libraries still grapple with the adoption and integration of social networking web technologies (Web 2.0) (Ocheibi & Nwogu, 2023).

In the digital age, libraries face significant challenges and opportunities brought about by the rapid advancement in technologies, particularly artificial intelligence (AI). AI has revolutionized various aspects of human society, including how information is retrieved and used. Rather than linger at the library's doorstep, the impact of technology now permeates every facet of library operations, posing the risk of unplanned obsolescence if not adequately harnessed. These new technologies are rapidly shaping various aspects of human lives, revolutionizing industries, and transforming work processes, communication, and access to information. This holds immense potential to enhance library services such as guiding users towards appropriate resources; providing tailored collections and services; and offering immersive experiences within library spaces. On the other hand, users can access varieties of information at a click from remote location, having a self-imposed self-reliance in



information retrieval and use processes. This requires librarians to acquire more than average digital skill to measure up with this mutated user behaviour. Hence, the objective of the paper is to examine the opportunities and threat offered by technology in professional librarianship.

Literature Review

Academic libraries have historically functioned as custodians of recorded knowledge, central to the educational mission of higher institutions. Traditionally, their roles were limited to the acquisition, organization, preservation, and dissemination of print materials. However, the last few decades have witnessed a significant transformation in their structure and function, spurred by rapid advancements in digital technologies. The digital shift has seen libraries evolve from physical repositories to dynamic knowledge environments that integrate print and electronic resources. According to Sheila (2016), the modern academic library is no longer merely a place to store books but a responsive learning space that facilitates access to digital content, collaborative learning, and scholarly communication. This transformation is part of a broader trend toward integrating technology into educational systems to support more flexible, student-centered, and accessible learning models.

As institutions of higher learning continue to adopt digital pedagogies and research methodologies, academic libraries have repositioned themselves as service-oriented and knowledge-driven centers. The role of the library now transcends information provision to include user-centered services such as information literacy instruction, digital reference support, research data management, and scholarly publishing assistance. Kwanya *et al.*, (2015) emphasized that academic libraries are recognized as strategic partners in teaching, learning, and innovation, contributing to knowledge production rather than just knowledge access. The hybrid library model combining physical collections with digital platforms has become the norm, enabling seamless access to diverse resources while fostering intellectual engagement and academic success. This conceptual reorientation underscores the ongoing relevance of the library in an age characterized by digital convergence and information abundance.

Artificial Intelligence (AI) refers to the simulation of human intelligence in machines that are programmed to think, learn, and make decisions. In the context of information science, AI encompasses a range of technologies that enable automation, pattern recognition, natural language processing, and predictive analytics. As Sreenivasulu (2000) noted, AI represents a turning point



in the field of information management, allowing systems to mimic cognitive functions that support data organization, retrieval, and dissemination. The core capabilities of AI such as machine learning, voice recognition, and algorithmic processing are being harnessed to streamline library operations, improve access to information, and enhance user experience.

Recent advancements have led to the development and integration of intelligent tools directly relevant to library services. Tools such as ChatGPT support real-time conversational interfaces for reference services; Scholarcy automates the summarization of academic content; while Synthesia facilitates multimedia generation and accessibility. These innovations reflect the transition from basic automation such as cataloguing and check-in/check-out systems to more advanced forms of augmentation, where AI supports librarians in decision-making, content creation, and personalized service delivery. According to Starr (2011), this shift marks a new era in which AI is not just replacing routine tasks but enhancing the overall effectiveness of information professionals. Ocheibi and Nwogu (2023) also observed that the evolution of AI applications has expanded the boundaries of library science, positioning AI as both a transformative tool and a catalyst for redefining professional practice within the discipline.

The integration of Artificial Intelligence into library operations has opened new avenues for improving the precision, speed, and personalization of services. In cataloguing and metadata generation, AI tools can automatically classify, tag, and update bibliographic records, significantly reducing human error and workload. Natural Language Processing (NLP) allows AI-driven systems to understand user queries in conversational form, offering more intuitive reference services. As noted by Kawatra (2000), AI has transformed traditional reference desks into dynamic virtual help systems capable of handling diverse and complex user information needs. In addition, intelligent systems are being utilized to improve search and retrieval by interpreting context, refining keywords, and predicting user intent, thereby increasing retrieval accuracy and user satisfaction.

Beyond basic tasks, AI also supports strategic functions in collection development and user engagement. Through user behavior analytics and machine learning algorithms, libraries can anticipate demand, recommend resources, and tailor services to individual preferences. Grigsby (2019) highlighted that AI-enhanced systems can analyze circulation data, search history, and academic trends to guide acquisition decisions and optimize resource allocation. In advanced economies, academic libraries have already begun integrating AI tools into digital platforms,



offering personalized reading lists, automated literature reviews, and adaptive learning resources. These examples demonstrate the collaborative potential between AI and human librarians, where machines handle repetitive functions while professionals focus on higher-order tasks such as information literacy instruction and scholarly communication. Rather than replacing librarians, AI serves as a collaborative agent enhancing service quality, operational efficiency, and user-centered innovation.

The growing presence of Artificial Intelligence in academic libraries has sparked a dual perception, one of collaboration and another of competition thus, framing what scholars describe as a frenemy relationship. On one hand, AI offers remarkable convenience, speed, and scalability; on the other, it raises questions about the future role of professional librarians. As Starr (2011) observed, the ease with which users now retrieve information through AI-driven systems, has led to increasing digital self-reliance, especially among students and researchers who prefer instant, algorithm-curated responses over traditional reference services. This shift in user behavior has introduced tension within the profession, as some fear that the technological efficiency of AI may gradually erode the perceived necessity of human expertise in library functions.

Despite these concerns, many scholars and practitioners argue against the complete replacement of librarians by AI. It is contended that, while AI can perform routine and technical tasks, it lacks the ethical judgment, critical thinking, and contextual understanding that professional librarians bring to the information environment (Sousa, 2025; Alawamleh, 2026). The librarian's role as an educator, curator, and advocate for information literacy remains indispensable in an age of misinformation and digital overload. The frenemy paradox, therefore, should be viewed as an evolving dynamic that calls for redefinition of roles rather than obsolescence. When integrated strategically, AI can enhance rather than diminish librarianship, allowing professionals to focus on higher-level intellectual and consultative services while letting machines handle repetitive processes.

The Challenge – Frenemy Relationship

“who needs a librarian and cataloger when you have Google and internet?”

The library represents a crucial institution for functional society. Librarianship, as a profession, is in constant developmental flux. Hence, “the library is not just the room where books are stored, but the entry point for new, innovative technologies, as well as the hub from which those technologies are introduced to the world” (Grigsby 2019, 1). Currently, libraries depend largely



on information and communications technology (ICT) to render services to patrons. The adoption of ICT into the mainstream of library services is not a new phenomenon in the operational library procedure. With each achievement in technology, the information use behavior of users continues to evolve very rapidly. Kwaatra (2000) posited that modern librarianship depends on technological skills because the vast amount of information present in the world can only be handled electronically.

The term "frenemy" represents the intricate relationship between libraries and AI. AI technologies offer immense potential for academic libraries. AI-powered systems, such as chatbots or virtual assistants, can also assist library users in finding relevant resources and answering basic inquiries. There are many of such AI being doled out daily. The recent intelligent chatbot known as Chat Generative Pre-Trained Transformer (ChatGPT) is taking over text-generation activities. A technology that is programmed with natural language and indexed with the web with the capability of end user discussion in form of chat. These types of A.I are in various forms and functions (Table 1.).

Table1. Prominent types of emerging artificial intelligence.

S/N	FUNCTION	TYPE
1.	Text-to-Text	ChatGPT, GPT-4, Notion AI, Samwell.ai.
2.	Text-to-Code	Copilot, Codex, CodeWhisperer, Tabnine.
3.	Text-to-Images	Midjourney, Bria, Evoto.
4.	Text-to-Audio	MusicLM, Murf AI, Specify.
5.	Test-to-Motion/Video	Steve AI, Pictory, DeepBrain.
6.	Research	Scholarcy, Adept, Summat.it.
7.	Design	PhotoRoom, Galileo AI, Vizard.
8.	Presentation	Beautiful AI, Simplified, SlideGo.
9.	Spreadsheets	Ajelix, Botsheets, Sheet+.
10.	Productivity	Synthesia, Bardeen, Copy AI.

Such capabilities are increasingly creating the illusion of self-sufficiency among information users and making information management an affair for all (professional and non-professionals). AI with its multimodal mix of possibilities, threats and opportunities is here to fulfil the position of Starr (2011) that in the future, most library operations would have to be based online, or there will



be unintended consequences. It is unintended that soon almost anybody with a background in computer science would be able to confidently carry out the work of a professional librarian, thereby relegating the library profession to obscurity. AI-driven activities and systems, while efficient, may inadvertently reinforce information explosion, limiting exposure to diverse perspectives. Accordingly, key trends in information business include rapid development and convergence of digital technologies, massive growth in non-specialist interaction with information and technology, and the evolution of the network society as a participatory culture. Thus, the library is in a competitive relationship with the emergent technologies and, as such, is facing an identity crisis. Hence the question, “who needs a librarian and cataloger when you have Google and internet?”

Navigating the transformation: the way forward.

One obvious lesson history has taught mankind is that the bane of ignorance is a severe developmental retardation. It is observed that “many of the librarians and other information science professionals understand that their tech skills are a core capability and basic part of the value they contribute” (Dority 2017, 12). New concepts and models have emerged, such as blended librarianship, embedded informationists, inside-out collections, the participatory library, and space-as-service. Professional preparation programs and continuing education activities must focus on key areas where enhanced capabilities are important and urgent, including technological fluency, relationship building, and reflective practice. Academic libraries and information services must continually evolve in response to challenges in the wider organization and environmental context. (Sheila 2016, 1).

According to Kwanya, *et al.*, (2015), librarians must assume apo-mediatory roles to mediate between these myriads of technologies and users. Since the contention is between librarians and technologies, librarians should become specialist in their own forte by wholly embracing technologies - A specialist librarian who must manage and organize the digital library, handle the specialized tasks of massive digitization, storage, access, data mining, digital reference services, electronic resources, search coordination, and manage the archive and its access. The digital librarian mediates between the information superhighway and users, acting as a symbiotic human-machine guru. (Sreenivasulu 2000, 12).

Libraries in developed economy are proactively integrating AI into their operations and services. These libraries utilize AI algorithms to analyze vast amounts of data to identify patterns and trends,



aiding in collection development and resource allocation. Natural language processing (NLP) techniques enable advanced search capabilities, making it easier for users to access relevant information quickly. They use AI in digital preservation, metadata management, and copyright analysis, streamlining library workflows. Libraries in Nigeria could harness the functions of this artificial intelligence in the following areas:

Rethinking the Library and Information Science (LIS) Education: Digital Fluency and Interdisciplinary Integration

The foundation of library education must evolve beyond traditional skills to include digital fluency, coding basics, AI ethics, and data literacy. Integrating these components into LIS programs will better prepare future librarians for emerging technologies. From the author's perspective, interdisciplinary modules with computer science, data analytics, and media studies would bridge the current knowledge gap and make LIS graduates more versatile and competitive.

Training and Retraining of Library Professionals

For those already in the profession, regular capacity-building workshops and certification programs on AI tools and digital platforms are vital. Many librarians feel overwhelmed by the pace of technological change; structured retraining initiatives will ensure they remain relevant and confident in adopting innovations. In practice, short courses and peer learning models within library consortia can be effective.

Institutional Strategies for Balanced Integration of Human Expertise and AI Tools

Libraries need clear, inclusive policies that define how AI complements rather than replaces human input. From experience, institutions that involve librarians in the decision-making process when adopting AI tools have smoother transitions. Balancing automation with human discretion ensures both efficiency and professional integrity.

Promoting Multi-disciplinary Research among Librarians and Technologists

Collaboration between library professionals and AI developers can lead to user-centered solutions. Encouraging joint research initiatives will allow libraries to influence the development of tools that align with ethical standards and service values. Librarians must be co-creators, not just consumers, of emerging technologies.

Emerging Professional Roles (e.g., Digital Librarian, Information Technologist)

The evolution of librarianship opens new career pathways. Roles such as digital librarian, metadata analyst, and data curation specialist are gaining prominence. It has been observed that



professionals who embrace these emerging identities tend to lead innovation in their institutions, reshaping the perception of librarianship in this digital era.

Thus, navigating the AI transition in libraries requires not resistance but strategic readiness. Librarians must evolve from passive custodians to active participants in the design, implementation, and governance of AI systems preserving their relevance while enhancing their impact in the information age (Sreenivasulu, 2000). This adaptation demands a balanced approach that respects traditional values while embracing technological innovation. Rather than viewing AI as a threat, librarians should see it as a tool to augment, not replace, human expertise. By collaborating with AI researchers and data scientists, libraries can play a pivotal role in developing AI models that are transparent, unbiased, and grounded in the core principles of information access, user privacy, and equity.

Conclusion

The integration of AI into academic libraries introduces a transformative shift in their role and functions. While AI presents opportunities for improved efficiency and user experience, libraries must be cautious of potential pitfalls. Librarians can embrace AI in academic libraries to harness its potential while preserving their core mission of providing equitable access to knowledge, fostering critical thinking, and supporting lifelong learning. With strategic planning, collaboration, and ethical considerations, academic libraries can navigate this evolving landscape and continue to be indispensable institutions in this digital era. The availability of Google, the internet and AI does not make librarians and cataloguers obsolete, just as Wikipedia does not replace teachers and WebMD does not replace doctors. Their expertise remains necessary for effectively finding, evaluating and organizing information.



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