"LIBRARIAN AS RESEARCH COPILOT: A CONCEPTUAL FRAMEWORK FOR AI-ENABLED RESEARCH SUPPORT IN ACADEMIC LIBRARIES"

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Abstract :

The rapidly growing use of Artificial Intelligence (AI), particularly Generative AI, is gradually changing the way academic research is conducted and is creating new possibilities for libraries and librarians to strengthen research support services. In some days ago, academic librarians have traditionally supported researchers through collection development, reference services, information retrieval, bibliographic instruction and scholarly communication. However, the emergence of AI-enabled research tools is expanding this role from information provision towards active research collaboration. This paper deliver the concept of the librarian as a Research Copilot, a role in which professional library expertise is combined with AI capabilities to support researchers throughout the research lifecycle. The proposed framework covers research topic identification, research question development, literature discovery, search strategy formulation, source evaluation, literature review, research gap identification, literature mapping, citation management, bibliometric analysis, research data management, scholarly communication and responsible use of AI. The paper argues that AI should not be viewed as a replacement for librarians but as an augmentation mechanism that enables librarians to provide more personalized, efficient and research-oriented services. The proposed conceptual framework identifies six major dimensions: AI awareness and adoption, research support capability, Research Copilot competencies, AI-enabled research services, institutional readiness, and ethical and responsible AI practice. The framework provides a basis for academic libraries to redesign research support services and prepare library professionals for an increasingly AI-driven scholarly environment.

Keywords : Research Support Artificial Intelligence, Generative AI, Academic Libraries, Librarian, Research Copilot, AI Literacy, Library 5.0

Introduction :

Generative AI and AI-supported research applications can assist with information discovery, summarization, question formulation, knowledge organization, research analysis

and scholarly communication. These developments are creating new expectations from academic libraries and library professionals. Researchers today need more than simple access to information; they also require guidance in dealing with the increasingly complex digital and AI-supported research environment. Lo (2025) pointed out that AI literacy in academic libraries should include not only familiarity with AI tools but also technical knowledge, ethical awareness, critical assessment, practical use, and an understanding of the broader implications of AI. Ali and Richardson (2025) similarly highlighted the role of academic librarians in promoting AI literacy through training, workshops, and learning resources, while also emphasizing the need for librarians to enhance their own AI-related skills. Lewis, Cline, Akman, Van Norman, and K. (2026) noted that the emergence of generative AI applications such as ChatGPT, Gemini, Claude, and Microsoft Copilot is influencing established academic practices and raising concerns related to credibility, accessibility, and ethical use. In addition, tools such as Scite, Elicit, and ResearchRabbit can assist researchers in identifying relevant and influential literature beyond conventional database searching.

These developments create a strong basis for viewing the Research Copilot Librarian as an emerging professional role that combines librarians' expertise with AI capabilities to provide effective and responsible research support. The term "copilot" emphasizes collaboration rather than replacement. A Research Copilot works alongside the researcher, combining human professional judgement with technological capabilities to improve the efficiency and quality of research activities. The librarian is therefore no longer limited to answering the question, "Where can I find information?" The emerging role is broader: "How can I help the researcher discover, evaluate, organize, interpret and responsibly use information throughout the research process?" This changing role is particularly relevant to the development of Library 5.0, where human-centred services, intelligent technologies, personalization and collaborative knowledge creation are increasingly important.

Evolution of the Librarian's Role :

The professional identity of librarians has changed alongside technological development.

Traditional Librarian : The traditional librarian primarily focused on physical collections, classification, cataloguing, circulation, preservation and reference services. The librarian was largely viewed as a custodian and provider of information resources.

Digital Librarian : With the growth of computers, the Internet and electronic resources, librarians began managing e-books, e-journals, databases, digital repositories, online catalogues and remote information services. The librarian became a digital information manager.

Research Librarian : The expansion of research-oriented various services further shifted the role. Librarians provided various services like, literature searching, citation analysis, bibliometric services, research data management, systematic review support and scholarly communication assistance.

AI-enabled Librarian : The development of AI has introduced in other role of Librarian. Librarians are increasingly expected to understand modern services like AI-based discovery tools, Generative AI, automated information services, research assistants and AI literacy.

Research Copilot Librarian : The next stage is the emergence as a Research Copilot Librarian, who integrates professional information expertise with AI-enabled capabilities to support researchers throughout the research lifecycle.

Thus, it is represented as:

Traditional Librarian → Digital Librarian → Research Librarian → AI-enabled Librarian → Research Copilot Librarian

This evolution does not eliminate earlier responsibilities. Instead, new competencies and services are added to the professional role.

Literature Review :

Recent literature shows that Artificial Intelligence is increasingly transforming academic library services, particularly research support and information services. Recent studies also highlight the emerging need for librarians to develop AI competencies and take a more active role as research partners.

Kathleen and James (2025) highlighted that Generative AI can developed librarians in strengthening reference and research services. Librarians can use AI to focus on users information needs, explore relevant terminology and provide authetic effective and personalized research assistance. (Ayinde, Ebiefung, & Oladokun, 2026) highlighted systematic review analysed 29 studies published between 2020 and 2024 and found that reference and information services are among the major areas where AI is being applied in academic libraries. The review also focus the need for librarian retraining, development of AI competencies, and prompt-engineering skills to use AI effectively in research and library services. (Lo L. S., 2026) the study proposed CARE approach—Classify, Assess, Review, and Enhance—supports academic librarians in critically evaluating AI-generated responses and helping users access scholarly evidence. This approach focus strengthens the role of librarians as research partners who work collaboratively with AI to provide effective and trustworthy research support. Kattimani, Nandeesha, and Pitla (2026) examined AI literacy, knowledge gaps, user attitude for AI, training needs, and attitudes toward AI adoption among librarians in Indian academic libraries. The study is particularly relevant to the present research because it provides insights into the preparedness and professional development needs of librarians in the Indian academic library context. Maphosa and Tlomatsana (2026) done work on a systematic review of 71 publications and found that Generative AI (GenAI) is influencing student learning, academic library roles, and chatbot-based reference services in higher education. The review highlighted the evolving role of academic libraries in providing research support and developing information literacy in the context of Generative AI.

The existing literature evaluated that considerable research has been conducted on AI literacy, AI adoption, reference services, information literacy, and research support in academic libraries. However, relatively limited attention has been given to incresing a comprehensive framework that positions the librarian as an integrated "Research Copilot." There is a need to connect key with research activities—including literature discovery, research evaluation, research ethics, data support, citation management, academic writing, authentic data and personalized research assistance—within a continuous AI-supported service model led by librarians. This research gap provides a strong basis for establishing the originality and significance thinks of the proposed study.

Research Objectives :

The development and use of AI into academic research is creating new opportunities for librarians to provide intelligent, personalized, and effective research support. The present study therefore focuses on examining the role of librarians as **Research Copilots** in AI-enabled academic libraries in the current senario.

- To examine the role of librarians in AI-enabled research support and identify AI tools used by librarians for research assistance.
- To assess librarians' AI competencies in providing AI-based research support.
- To identify face the challenges in adopting AI research services.
- To developed propose conceptual framework for the Librarian as Research Copilot in academic libraries.

Research Design and Methodology :

Reach the study objectives used descriptive method. Research data collected relevant information will be gathered from scholarly journals, research papers, books, conference proceedings, library websites, institutional reports, and documents related to AI policies and guidelines. These sources will be carefully reviewed and interpreted to understand the changing role of librarians in supporting researchers through AI. The findings will be used to develop a conceptual framework for the Librarian as Research Copilot.

Significance :

This study highlights the evolving role of librarians as research copilots in providing AI-enabled research support. It may help academic libraries strengthen research services, develop librarians' AI competencies, and provide responsible and effective assistance to researchers.

Concept of Librarian as Research Copilot :

A Research Copilot Librarian may be conceptualized as a library professional who works collaboratively with researchers by combining human expertise, scholarly information resources and AI technologies throughout the research lifecycle. The concept has three central components :

Human Expertise	AI Capability	Researcher Collaboration
The librarian contributes	AI can support:	
• Information literacy • Knowledge of scholarly resources • Critical evaluation • Search expertise • Research methodology awareness • Bibliographic knowledge • Research ethics • Copyright awareness • Scholarly communication expertise	• Information discovery • Search assistance • Summarization • Pattern identification • Literature analysis • Knowledge organization • Research trend detection • Data processing • Language support	• The researcher remains responsible for the research objectives, interpretation and scholarly decisions. The librarian provides professional guidance, while AI functions as an assisting technology. • Therefore: Researcher + Librarian Expertise + AI Capability + Scholarly Resources = Research Copilot Ecosystem

Discussion: Librarian as Research Copilot in Research Activities :

The Research Copilot role can extend across almost every stage of the research lifecycle.

1. Research Topic Identification :

Librarians can help researchers identify emerging areas by examining scholarly literature, research trends, citation patterns and subject developments. AI-supported discovery can assist in identifying related concepts and emerging themes. The librarian's contribution remains important because AI-generated suggestions require professional evaluation and contextual interpretation.

2. Research Question Development :

Researchers may use AI to generate preliminary ideas, but librarians can help refine information-related aspects of the research question. They can identify appropriate terminology, subject vocabulary and existing literature relevant to the proposed question.

3. Search Strategy Development :

One of the strongest areas for librarian–researcher collaboration is search strategy development. Research Copilot Librarians can assist in:

- Developing keywords
- Identifying synonyms
- Constructing Boolean searches

- Selecting databases
- Developing subject-specific search strategies
- Using citation chaining
- Evaluating search results

AI can accelerate the generation of search terms, while librarians validate their appropriateness.

4. Literature Discovery :

Academic researchers often face information overload. Research Copilot Librarians can help researchers identify relevant books, journal articles, conference papers, theses, reports and databases. AI-enabled discovery tools can accelerate the identification process, while librarians help determine whether retrieved information is scholarly, relevant and reliable.

5. Literature Review Support :

AI can assist in summarizing and organizing large volumes of literature. However, summaries generated by AI should not automatically be considered accurate. Librarians can guide researchers in source verification, citation checking and comparative analysis.

6. Research Gap Identification :

By combining literature searching, citation analysis, thematic analysis and AI-assisted discovery, librarians can help researchers identify areas that appear under-researched. However, a “research gap” should not be accepted merely because an AI system suggests it. The librarian and researcher must verify the evidence through authoritative scholarly sources.

7. Literature Mapping :

Literature mapping is another promising area for Research Copilot support. Librarians with appropriate training can help researchers identify:

- Major themes
- Key authors
- Important journals
- Research clusters
- Emerging concepts
- Collaboration patterns
- Citation relationships

Tools for bibliometric and network analysis can be integrated with librarian expertise to improve research discovery.

8. Source Evaluation :

The increasing use of Generative AI makes source evaluation more important. AI

systems may generate incorrect information, incomplete explanations or unsupported references.

The librarian can therefore act as an **information quality mediator**, helping researchers evaluate:

- Authority
- Accuracy
- Relevance
- Currency
- Scholarly credibility
- Evidence quality

9. Citation and Reference Management :

Research Copilot Librarians can assist researchers in using reference management systems, organizing bibliographic information and applying appropriate citation styles. AI may assist with citation-related tasks, but references should be verified against original scholarly sources.

10. Bibliometric and Research Impact Support :

Librarians increasingly contribute to research analytics through citation analysis, publication trends, author productivity, journal analysis and research impact assessment. AI and analytical tools can enhance these services by helping process larger amounts of scholarly information.

11. Research Data Management :

Researchers take the help of Research Copilot Librarian in organizing, documenting, preserving and sharing research data. In this process includes guidance regarding metadata, repositories, data management practices and responsible data sharing by given library professionals.

12. Scholarly Communication :

The Research Copilot role can extend to research dissemination through institutional repositories, researcher profiles, scholarly communication channels and research visibility services.

Proposed Research Copilot Framework :

Based on the conceptual discussion, a Research Copilot framework can be organized into six interconnected dimensions.

Dimensions 1	Dimensions 2	Dimensions 3	Dimensions 4	Dimensions 5	Dimensions 6
AI Awareness and Adoption	Research Support Capability	Research Copilot Competencies	AI-enabled Research Services	Institutional Readiness	Ethical and Responsible AI Practice

Covers librarians' knowledge and use of	Included in	The emerging librarian requires	Academic libraries may develop services such as	Successful implementation requires	This dimension is essential and includes
•Generative AI •AI-based research tools •AI discovery systems •AI chatbots •AI-supported research applications	•Literature searching •Literature review support •Research gap identification •Literature mapping •Citation management •Bibliometric support •Research data management	•AI literacy •Prompt literacy •Critical thinking •Research methodology knowledge •Information evaluation •Data literacy •Bibliometric skills •Scholarly communication skills	•AI-assisted reference services •Research consultation •Literature search support •AI literacy workshops •Research tool training •Bibliometric consultation •Research data support	•Technological infrastructure •Institutional support •AI policies •Training programmes •Access to appropriate tools •Financial resources •Professional development opportunities	•Academic integrity •Copyright •Privacy •Bias •AI hallucination •Transparency •Responsible AI use •Human oversight

The Research Copilot Competency Framework :

The future Research Copilot Librarian requires a combination of traditional LIS expertise and emerging digital competencies.

Competency	Application
Information Literacy	Finding and evaluating information
AI Literacy	Understanding AI capabilities and limitations
Prompt Literacy	Developing effective AI instructions
Research Methodology	Understanding research processes
Literature Review	Organizing and synthesizing literature
Bibliometrics	Analyzing scholarly communication and impact
Data Literacy	Understanding and managing research data
Critical Thinking	Evaluating AI-generated information
Research Ethics	Promoting responsible research
Copyright Awareness	Protecting intellectual property
Scholarly Communication	Supporting research dissemination
Digital Skills	Using research and library technologies

The combination of these competencies can create a new professional profile:

LIS Expertise + Research Skills + AI Literacy + Critical Evaluation + Ethical Practice = Research Copilot Librarian

Benefits of the Research Copilot Model :

The proposed model can provide useful benefits to academic libraries and researchers.

- First, it can increase the efficiency of information discovery. Researchers can received more targeted assistance in navigating large scholarly information environments.

- Second, it can enable more user centered research support. Librarians can use AI-assisted tools to understand and respond to different research requirements.
- Third, it can strengthen researcher's AI literacy. Librarians can support as responsible intermediaries between researchers and AI technologies.
- Fourth, it can developed the visibility and relevance of academic libraries within the research enviornment.

Finally, the model can support to strengthen the professional identity of librarians by moving their role from passive information provision towards active research collaboration.

Challenges and Ethical Considerations :

Some challenges faced by the Research Copilot model .

- AI Hallucination : AI can be produce inaccurate information, librarians need to emphasize sources verification.
- Information Bias : AI output produce biases data, critical evaluation must be essential.
- Copyright and Intellectual Property : AI can be produce questions about ownership, licensing and responsible use. Be carefully about it.
- Data Privacy : Researcher may be submitted confidential or sensitive data or information to AI system
- Academic Integrity : Extra dependence on AI may be create risks related to plagiarism, authentic ship. .
- Skill Gaps : Many librarians must have useful required AI skills.
- Institutional Policy : Academic Institutions develop authentic policies for using AI in teaching, research and user services.

We can say the Research Copilot should always under the principle AI assists-Librian Evaluated and Researcher decides.

Proposed Implementation Roadmap :

Academic libraries can introduce Research Copilot services through the following stages:

Stages	Programs	Action	Activities
1	Awareness	Introduce Librarian and Researcher	To AI capabilities and Limitations.
2	Skill Development	Provide Training	In AI Literacy, Prompt Literacy, Research Tools and Research Ethics.
3	Pilot Services	Introduce AI-assisted Literature Search,	In Reference and Research consultation.
4	Research Integration	Integrate AI-enabled support	with literature review, bibliometrics, research data and

			scholarly communication.
5	Policy Development	Develop institutional guidelines	For responsible and ethical AI use
6	Evaluation	Assess user satisfaction	Research efficiency, service quality and librarian competencies.
7	**Research Copilot Service Model**	Establish a sustainable AI-enabled research support service	For the academic library

Future Scope :

The Research Copilot concept indicate the broad scope for further investigation. Future studies may examine the how prepared academic librarians are to undertake on AI-supported research roles and identify the competencies needed for different types of library professionals. Comparative research could also study on the level of institutional and research organizations. A Research Copilot concept more developed to assess factors such as technological infrastructure, librarian skills, institutional policies, research support capacity, user preparedness, and responsible AI practices. Further studies may focus researchers' views of librarians as AI-supported research partners and examine the contribution of such services to research productivity, information literacy, and user satisfaction.

Conclusion :

The new environment of academic libraries, from traditional collections to digital and intelligent knowledge environments, is creating new responsibilities for librarians. Artificial Intelligence offers an opportunity to expand the librarian's role from managing book and information to actively supporting the research process. The Research Copilot Librarian need a change their represents this emerging role, in which librarians work as research partners by combining their professional knowledge with AI-based technologies. Their support may extend across different all and every stages of research, including topic selection, literature searching, information evaluation, synthesis, research data management, and scholarly communication.

The Research Copilot approach does not suggest replacing professional expertise with AI. Instead, it emphasizes human–AI collaboration, where AI helps in searching, organizing, and processing information, while librarians provide professional judgment, contextual understanding, critical assessment, ethical guidance, and information expertise in the research process.

The most important and central principle of the proposed model is:

"AI assists, the librarian validates, and the researcher decides."

Accordingly, today's academic librarian can function not only as an AI user but also as an AI-aware research professional, information validator, evaluator, research mentor, and

technology-supported research partner. The proposed framework can provide to user a foundation for academic libraries to develop innovative, responsible, and human-centred research support services in academic libraries.

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