

Librarians as Catalysts for Integrating AI Tools in Scholarly Research: A Proposed Model



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INTRODUCTION

- Artificial intelligence is the science of making machines that can think like humans. It can do things that are considered "smart." AI technology can process large amounts of data in ways, unlike humans. The goal for AI is to be able to do things such as recognize patterns, make decisions, and judge like humans.
- Artificial intelligence technologies have become a transformational force in academic research, offering the potential to increase productivity, efficiency, and the capacity to discover new insights.
- Librarians are in a unique position to enable scholars to comprehend the revolutionary potential of these cutting-edge technologies, from curating AI-powered resources to offering training and assistance.

OBJECTIVES OF THE STUDY

- To make a strategic framework for librarians to facilitate the integration of AI tools in scholarly research; and
- To identify and address the challenges encountered by librarians in developing countries when integrating AI tools.



METHODOLOGY

- A literature review methodology is utilized to thoroughly investigate and analyse the current body of literature.
- To find out the relevant literature, the researchers searched various online databases including Taylor and Francis, Sage, Emerald Insight, EBSCOhost, Web of Science, Scopus, LISTA, LISA, and Science Direct, etc.
- The study employed several search terms in these databases such as "AI in research", "Librarians' role in research", "Librarians and research", etc., to query the compiled literature.

ROLE OF LIBRARIANS IN SUPPORTING RESEARCH ACTIVITIES

- Drawing on the expertise in information management and research activities, librarians serve as invaluable guides by offering substantial support to scholars at every stage of their research trajectory through the utilization of diverse AI tools and technologies.
- The present study has proposed a model outlining how academic librarians can support research activities using AI tools (Figure 1).

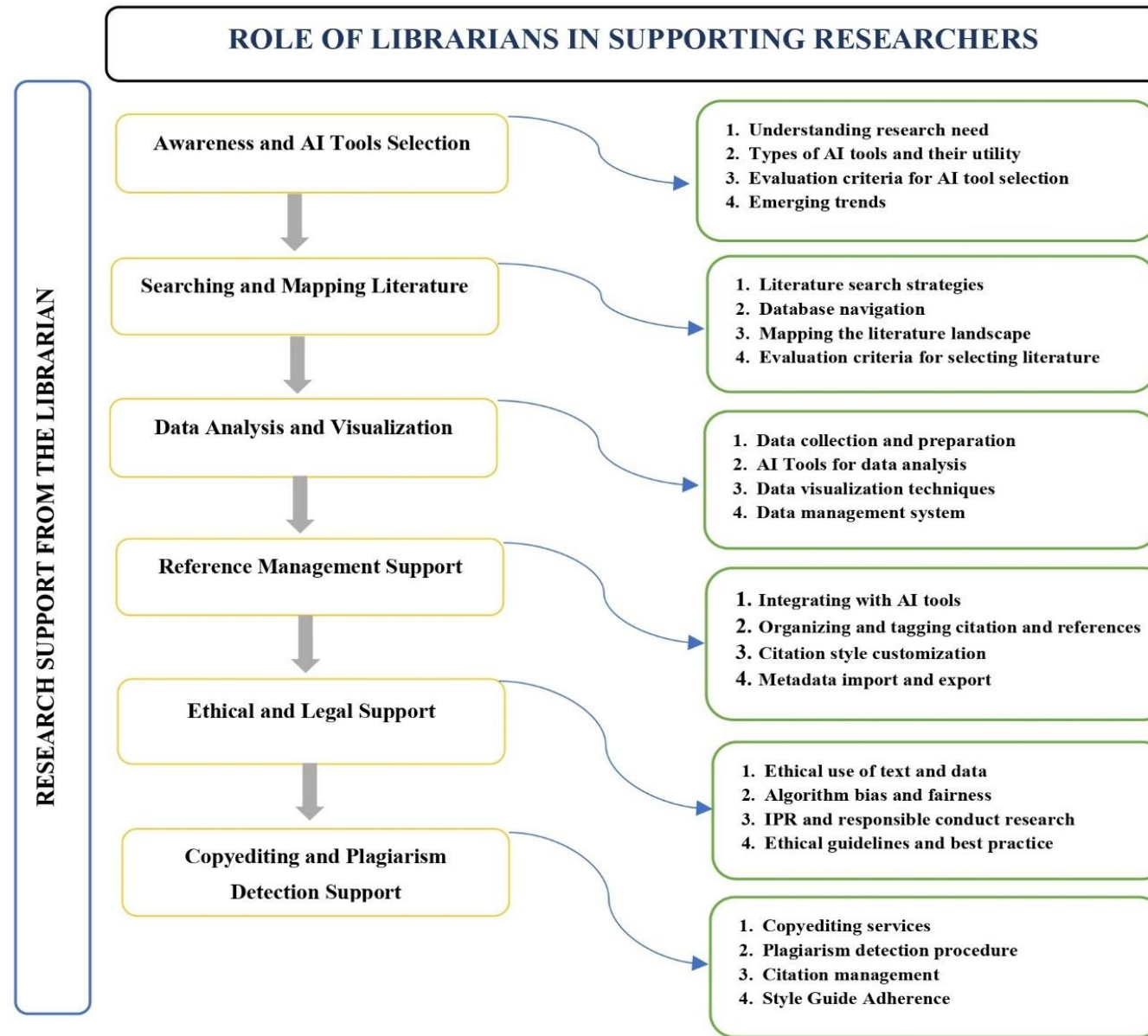
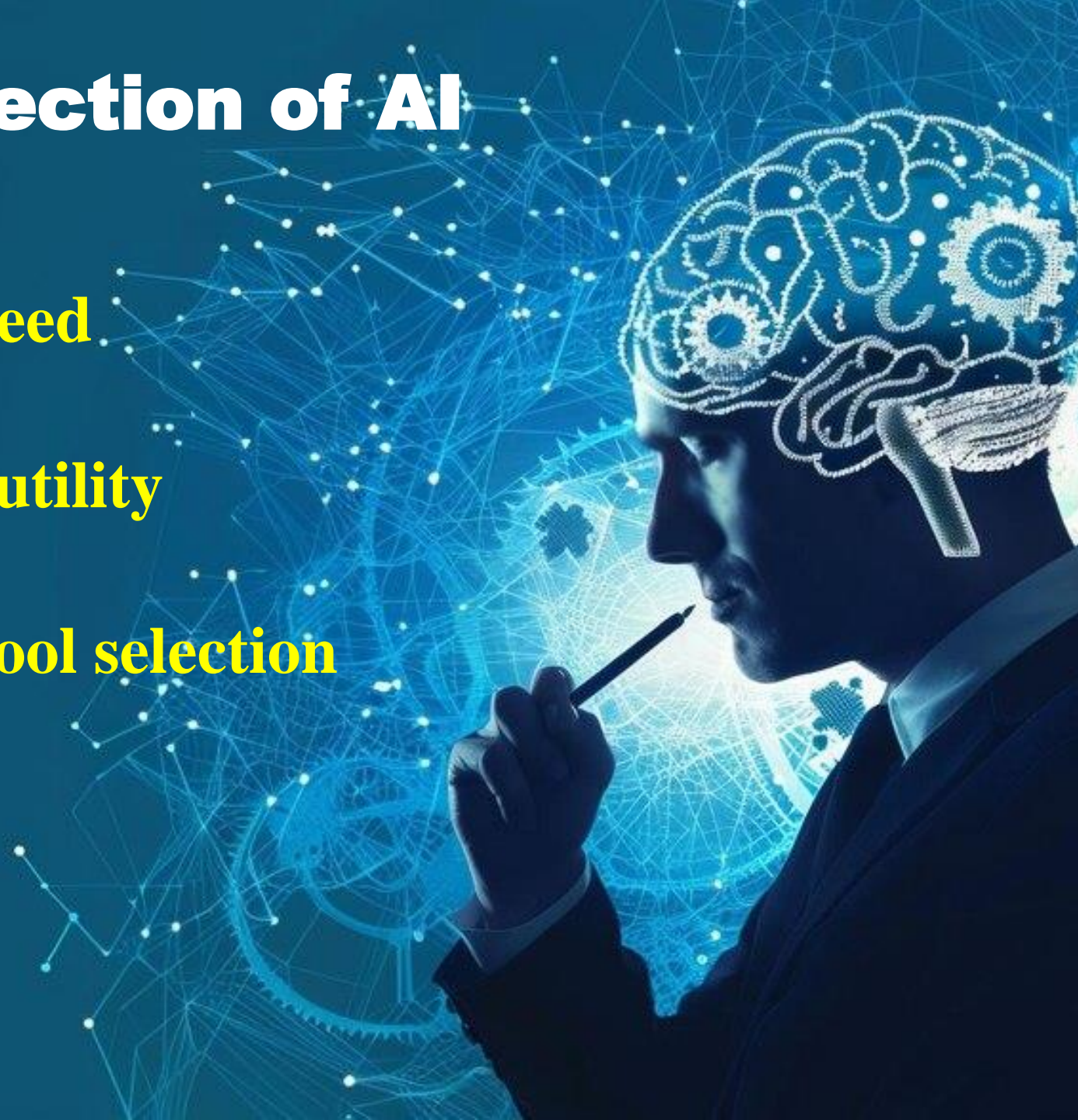


Figure 1: A Proposed Model for Librarians Supporting Researchers in the Use of AI Tools

Awareness and Selection of AI Tools

- **Understanding Research Need**
- **Types of AI tools and their utility**
- **Evaluation criteria for AI tool selection**
- **Emerging Trends**



Searching and Mapping Literature

➤ Literature search strategies

(Elicit, Researchrabbit, SciSpace, Connected Papers, Semantic Scholar, etc.)

➤ Database navigation

(Explain Paper, AI GPU, Lucidchart, etc.)

➤ Mapping the literature landscape

(Any Summary, Books AI , Inciteful, Litmaps, etc.)

➤ Evaluation criteria for selecting literature



Data Analysis and Visualization

➤ Data collection and preparation

(OpenRefine, IBM Watson Studio, KNIME, RapidMiner, etc.)

➤ AI Tools for data analysis

(Qlik Sense, Jupyter AI, MonkeyLearn, Polymer, KNIME, Nvivo, etc.)

➤ Data visualization techniques

(Tableau excels, Power BI , Qlik Sense, Looker, IBM Cognos Analytics, etc.)

➤ Data management system

(Talend Data Fabric , DataRobot , etc.)

Reference Management Support

➤ Integrating with AI tools

(Zotero, Mendeley, ReadCube Papers, EndNote, etc.)

➤ Organizing and tagging citation and references

(ReadCube)

➤ Citation style customization

(Trinka AI, Scholarcy, Semantic Scholar, Paper Digest, etc.)

➤ Metadata import and export

(CiteULike, JabRef, Writesonic, Anyword. Etc.)

Ethical and Legal Support

- Ethical use of text and data
- Algorithm bias and fairness
- IPR and responsible conduct of research
- Ethical guidelines and best practice

Copyediting and Plagiarism Detection Support

➤ Copyediting services

(Jasper, Rytr, Quillbot, and Hurix Digital, etc.)

➤ Plagiarism detection procedure

(Quetext, GPTZero, Duplichecker, and Grammarly, etc.)

➤ Citation management

➤(Zotero, Mendeley, ReadCube Papers, EndNote, etc.)

➤ Style Guide Adherence

CHALLENGES OF LIBRARIANS IN DEVELOPING COUNTRIES

- Researchers such as **Ali et al. (2020)**, **Echedom and Okuonghae (2021)**, **Ajani (2022)**, **Hussain, (2022)**, **Hussain (2023)**, **(Eke, 2023)**, **Mahmud (2024)**, and **Barsha and Munshi (2024)** have identified numerous hurdles faced by librarians in these regions.
- Among these lack of challenges, awareness, inadequate IT infrastructure emerges as a prominent issue.
- Lack sufficient hardware, software, and Internet connectivity, with outdated IT systems, budgetary limitations, restricted access to digital resources and limited capabilities for digitizing and curating their collections

CONCLUSION

- Undoubtedly, AI is reforming our lives, perception, and professional realms.
- Librarians, positioned at the centre of information dissemination, can extensively facilitate researchers by integrating AI-based services within library.
- Staying updated on the latest AI advancements and their real-world implications, librarians are proficient at guiding researchers in selecting customized AI solutions to meet their specific needs.
- Through comprehensive training and support, librarians empower researchers to maximize their research productivity by utilizing the power of AI tools effectively.



A photograph of a desk setup. In the foreground, a white card with the words "Thank you" written in a black cursive font is placed on a brown envelope. A black pen with a silver clip lies diagonally across the bottom left of the card. The envelope and card are resting on a white laptop keyboard, which is partially visible in the background. The entire scene is set on a light-colored wooden surface.

Thank you