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DIGITAL AND AI LITERACY IN LIBRARY AND INFORMATION SCIENCE: BUILDING COMPETENCE FOR THE FUTURE

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Abstract:

The rapid growth of Artificial Intelligence (AI) and digital technologies is transforming the landscape of Library and Information Science (LIS). Modern libraries are shifting from traditional services toward technology-enabled, data-driven environments. This paper examines the importance of digital and AI literacy for LIS professionals, emerging AI applications in libraries, challenges to adoption, and strategies for building future-ready competencies. The study aims to provide a framework for academic and research libraries to integrate AI tools responsibly and effectively.

Keywords: *AI Literacy, Digital Literacy, Library Science, Smart Libraries, Automation, Metadata, Virtual Reference, Academic Integrity, Future Skills.*

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Introduction

The global information environment is undergoing a major transition driven by AI, automation, and digital transformation. Libraries are no longer passive repositories of books—they are becoming technology-enhanced learning hubs. To remain relevant, librarians must acquire strong digital and AI literacy skills. This includes the ability to understand, use, and evaluate AI systems such as chatbots, recommender engines, intelligent search tools, and data analytics.

Concept of Digital and AI Literacy

Digital literacy involves the confident use of ICT tools, digital content creation, information evaluation, and ethical usage. AI literacy extends these skills by enabling professionals to understand how AI systems work, how algorithms process information, and how AI can support library functions.

Key components include:

- Understanding machine learning and natural language processing
- Using AI-powered search and discovery tools
- Managing digital repositories and automated metadata systems
- Ethical concerns such as data privacy, bias, and transparency

AI Applications in Modern Libraries:

1. **Intelligent Cataloging and Metadata Generation:** AI tools can automatically assign subject headings, keywords, and metadata—reducing manual workload.
2. **Chatbots and Virtual Reference Services:** AI chatbots provide 24/7 assistance for library queries, resource search, and circulation support.
3. **Personalized Recommendation Systems:** Machine learning algorithms analyze user behavior to suggest books, articles, and digital resources, improving user engagement.
4. **Plagiarism Detection and Academic Integrity Tools:** AI-powered platforms help faculty and students detect similarity, paraphrasing, and AI-

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generated content, supporting ethical research practices.

5. **Predictive Analytics for Library Management:** AI can forecast user needs, plan acquisitions, and optimize staff and resource allocation.

Benefits of AI Integration in Libraries:

- ❖ Improved service efficiency
- ❖ Enhanced access and discovery of information
- ❖ Better personalization for users
- ❖ Automation of repetitive tasks
- ❖ Support for research, data analysis, and academic writing

Challenges and Ethical Concerns:

Despite the benefits, libraries must address several challenges:

- ❖ Data privacy and security risks
- ❖ Algorithmic bias and transparency issues
- ❖ Limited technical skills among staff
- ❖ High cost of implementation
- ❖ Dependence on proprietary AI tools

Building Competence for the Future:

To prepare LIS professionals for an AI-driven future, institutions should:

- ❖ Integrate AI literacy modules into LIS curriculum
- ❖ Conduct workshops on emerging technologies
- ❖ Promote hands-on training with AI tools
- ❖ Establish digital innovation labs in libraries
- ❖ Encourage collaboration between librarians, IT teams, and faculty

Conclusion:

AI and digital technologies offer tremendous opportunities for libraries to evolve as smart learning ecosystems. Strengthening digital and AI literacy is essential for librarians to manage future challenges and deliver innovative services. Libraries that embrace AI responsibly will play a vital role in supporting education, research, and lifelong learning.

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