

# MEETING THE 21ST CENTURY CHALLENGES OF CONDUCTING RESEARCH IN LIBRARY AND INFORMATION SCIENCE: A DESK REVIEW

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## Abstract

This desk review aims to identify and discuss the key challenges researchers face in conducting research in Library and Information Science in the 21st century and propose strategies to address them. This review identifies key challenges faced by researchers in the field and proposes strategies to address them. It shows that the exponential growth of digital information is a primary challenge for researchers in LIS. Besides, the dynamic nature of technology presents another significant hurdle. There are challenges of ethical use of information such as plagiarism, intellectual property rights, and data privacy; collaboration and interdisciplinary research which has gained increasing importance in the 21st century. Researchers are encouraged to make their findings freely available to the public, promote transparency and accessibility. In conclusion, meeting the challenges of conducting research in LIS in the 21st century requires researchers to adapt to the digital era, stay updated with technological advancements, uphold ethical standards, foster interdisciplinary collaboration, and embrace open-access principles. Addressing these challenges allows researchers to make significant contributions to the field and navigate the complex information landscape of the modern era.

**Keywords:** Challenges, Research, Library and Information Science, Review

## Introduction

Library and information science (LIS) is a multidisciplinary field that encompasses the study of information, its creation, organization, retrieval, and dissemination, as well as the role of libraries and information institutions in facilitating access to information (Stephen, 2020). Similarly, research in LIS is interdisciplinary, cross-disciplinary and multidisciplinary drawing upon fields such as computer science, cognitive psychology, sociology, education, and communication. It also encompasses a wide range of topics, methodologies, and theoretical frameworks including include information behaviour (Domi et al., 2020), information retrieval and access (Akuffo & Budu, 2019), digital libraries and repositories (Bilson & Markwei, 2019); (Serrano-Vicente et al., 2018), information literacy (Bankston et al., 2021), scholarly

communication (Collister et al., 2017), archival studies (Treat & Judkins, 2018), library management and administration (Nisha, 2018), and the social, cultural, and ethical aspects of information (Babich & Hilary, 2019).

It is important to emphasize that LIS research plays a vital role in advancing societal goals, such as information literacy, digital inclusion, and preservation of cultural heritage. Research in LIS plays a crucial role in advancing the field, developing theory, best practices, and evidence-based decision-making in the field, informing professional practice and addressing the challenges posed by the evolving information landscape (Bauder, 2019), (Ocas-Online, 2017), (Olum et al., 2020). Research in LIS helps librarians, information professionals, and researchers gain a deeper understanding of information behaviour, user needs, and the impact of information services (Zungu, 2020).

### **Focus and State of Research in Library and Information Science Discipline**

The main scope of research in library and information where upcoming scholars can specialize are:

**Information Behavior:** Studies in information behaviour investigate how individuals seek, evaluate, and use information. In this area of research, intellectuals explore various aspects, including information needs, information-seeking strategies, information sources and channels, and the impact of technology on information behaviour (Faraj et al., 2011). According to the literature, understanding information behaviour enables the design of user-centred information services and the development of effective information literacy programs (Domi et al., 2020).

**Information Retrieval and Access:** Research in information retrieval focuses on the development of techniques, algorithms, and systems for efficient and effective access to information (Akuffo & Budu, 2019). Researchers explore topics such as search engine optimization, relevance ranking, query expansion, and user interfaces.

**Digital Libraries and Repositories:** With the digitization of information resources, research in digital libraries and repositories examines the design, management, and preservation of digital collections (Bilson & Markwei, 2019), (Serrano-Vicente et al., 2018). Scholars in this area explore topics such as metadata standards, interoperability, digital preservation, and user interfaces (Masseroli et al., 2019). Researchers here also investigate issues related to copyright, intellectual property, and open access in the digital environment.

**Information Literacy:** Information literacy research explores the skills, competencies, and behaviours needed to effectively find, evaluate, and use information (Pelemo et al., 2020). Researchers investigate information literacy instruction, assessment methods, and the impact of information literacy programs on learners (Bankston et al., 2021). They also explore the role of libraries in promoting lifelong learning and information literacy in diverse settings, such as academic, public, and school libraries.

**Scholarly Communication:** Research in scholarly communication examines the changing landscape of scholarly publishing, open access, and the dissemination of research findings. Scholars investigate topics such as alternative metrics, citation analysis, authorship patterns, and the impact of open access on research visibility and impact. They also explore new models of publishing, collaborative research practices, and the ethical considerations of scholarly communication (Oberiri, 2019).

**Archival Studies:** Archival research focuses on the management, preservation, and access to records and archival materials. Scholars explore topics such as appraisal and selection, arrangement and description, digital preservation, and access policies (Treat & Judkins, 2018). Intellectuals also investigate the social and cultural dimensions of archives, including issues of representation, memory, and identity.

### **Challenges of conducting research in LIS**

One of the primary challenges faced by researchers in LIS is the limited availability of funding. Literature has shown that compared to other scientific fields, LIS research often receives modest funding

opportunities, which can restrict the scope and scale of research projects (Boté & Térmens, 2019); (Sambo et al., 2017); (Dawuda & Ibrahim, 2021).

In addition, the rapid advancement of technology presents both opportunities and challenges for LIS research (Mawere & Sai, 2018), (Sadoughi et al., 2019). On one hand, emerging technologies such as artificial intelligence, big data analytics, and machine learning offer new avenues for research and exploration (Alexopoulos et al., 2019), (Manser Payne et al., 2021).

On the other hand, researchers face the challenge of staying up-to-date with evolving technologies and understanding their implications for information management and user behaviour. Keeping pace with technological advancements requires continuous learning and adaptation, which can pose a challenge for researchers (Harisanty et al., 2022).

Similarly, obtaining access to comprehensive and diverse datasets can be challenging. Researchers may face difficulties in acquiring data from libraries, archives, or information systems due to issues related to privacy, copyright restrictions, or limited data-sharing policies (Farsi et al., 2022). According to the literature, the lack of standardized data formats and interoperability further complicates data collection and analysis, making it difficult to compare and replicate research findings (Onifade et al., 2015). Additionally, research in LIS often involves human subjects, such as library users or information professionals.

Furthermore, researchers in this field often face limited opportunities for collaboration due to factors such as geographic dispersion, lack of networking platforms, or limited interdisciplinary collaboration.

Disseminating research findings is a crucial step in the research process. However, researchers in LIS may face challenges in publishing their work. Another critical problem in the field involves limited

dedicated journals or conferences, resulting in a competitive publishing landscape (Pagel & Hudetz, 2011), (Anglaret, 2020).

Additionally, researchers may encounter difficulties in reaching their target audience or gaining visibility due to restricted access to scholarly publications or unfamiliarity with open-access publishing models (Kodua-Ntim & Fombad, 2020).

### **Enhancement strategies to mitigate the highlighted challenges**

To meet these challenges, researchers in LIS need to adapt their approaches and embrace innovative methodologies including access to high-quality and relevant data which is crucial for conducting robust research in LIS. Other strategies include:

**Evolving Information Landscape:** The digital revolution has transformed the way information is created, disseminated, and accessed (Mogaka, 2019). Besides, Researchers must navigate a complex information ecosystem that includes online databases, digital libraries, social media platforms, and other digital resources (Ahmad et al., 2020). Understanding and harnessing these technologies is essential for conducting comprehensive and up-to-date research.

**Information Overload:** The vast amount of information available today can be overwhelming. It has been suggested that researchers in this area need to develop effective strategies for managing and filtering information to ensure the quality and relevance of their studies (Soroya et al., 2021). This may involve using advanced search techniques, employing data mining and text analysis tools, and leveraging artificial intelligence and machine learning algorithms to extract insights from large datasets.

**Data Management and Curation:** Researchers in LIS often work with large datasets, including bibliographic records, user behaviour data, and digital collections (Pallast et al., 2018); (Pallast et al., 2018). Hence, proper data management and curation practices are crucial to ensure data integrity, interoperability, and long-term preservation (Reviglio & Agosti, 2020). Researchers should adhere to

established standards and best practices for data documentation, metadata creation, and data sharing to enhance the reproducibility and transparency of their work.

**User-Centered Research:** The 21st century has witnessed a shift towards user-centered approaches in LIS research. As shown in the literature, user-centered design principles are applied to improve the usability and effectiveness of library services, interfaces, and information systems (Grainger et al., 2020). Hence, researchers in the LIS discipline need to engage with diverse user communities and understand their information needs, behaviours, and preferences (Grainger et al., 2020).

**Interdisciplinary Collaboration:** LIS research increasingly intersects with other disciplines, such as computer science, psychology, sociology, and data science. Therefore, collaborating with researchers from these fields can enrich research outcomes and foster innovation (Sonkar et al., 2021). Interdisciplinary collaboration enables the application of emerging methodologies, theories, and technologies to address complex research questions in LIS. Researchers should actively seek out opportunities for cross-disciplinary partnerships and knowledge exchange.

**Ethical Considerations:** As with any research field, ethical considerations are paramount. In the digital age, issues related to privacy, information security, intellectual property, and algorithmic bias require careful attention (Jungwirth & Haluza, 2019). Researchers need to stay informed about legal and ethical guidelines, obtain necessary permissions and consent from participants, and ensure the responsible use of data. Ethical awareness and practices contribute to the credibility and integrity of research in LIS. Researchers must navigate ethical considerations, including informed consent, privacy protection, and data anonymization, to ensure the rights and well-being of participants. Balancing the need for rigorous research with ethical guidelines can be complex, particularly in studies involving sensitive data or vulnerable populations (Farsi et al., 2022).

**Lifelong Learning and Continuous Professional Development:** To keep pace with rapidly evolving technologies and research methodologies, researchers in LIS must embrace lifelong learning and continuous professional development (Papagiannis & Sipitanou, 2018). They should actively participate in conferences, workshops, and online forums to stay updated on the latest trends, tools, and research findings.

**Digital Preservation:** With the abundance of digital content, ensuring its long-term preservation is a significant challenge. Researchers in LIS need to explore strategies and technologies for preserving digital materials, including websites, digital archives, and multimedia resources (Netshakhuma, 2020). This involves addressing issues of format obsolescence, metadata preservation, and the development of sustainable preservation practices to safeguard valuable digital assets for future generations.

**Information Literacy:** The proliferation of information sources and the rise of misinformation and fake news present challenges in promoting information literacy (Shimie et al., 2022). Researchers in LIS can contribute to this area by investigating effective methods for teaching information literacy skills, evaluating the impact of interventions, and designing information literacy programs that address the needs of diverse user groups.

### **General Recommendations**

From the foregoing, this paper suggested the following key recommendations:

1. **Develop and enhance digital literacy skills:** Researchers in Library and Information Science should prioritize developing strong digital literacy skills to effectively navigate the vast amount of digital information available. This includes mastering advanced search techniques, information retrieval tools, and data analysis methods. Continuous learning and staying updated with evolving technologies are essential.

2. Foster interdisciplinary collaborations: Given the complex nature of research challenges in the 21st century, fostering interdisciplinary collaborations is crucial. Researchers should actively seek partnerships with experts from diverse fields such as computer science, data science, sociology, or psychology. Collaborations can bring fresh perspectives, and innovative approaches, and facilitate the exchange of knowledge and resources.
3. Embrace emerging technologies: Researchers should embrace emerging technologies such as artificial intelligence, machine learning, data mining, and data visualization tools. These technologies can enhance research outcomes, provide valuable insights, and help manage the vast amount of digital information. Staying updated with technological advancements and actively incorporating them into research practices is vital.
4. Promote ethical practices: Ethical considerations are paramount in conducting research in Library and Information Science. Researchers should adhere to ethical guidelines, ensuring proper attribution, and citation practices, and respecting intellectual property rights.
5. Embrace open access and open science principles: Researchers should actively contribute to the open access and open science movements. Embracing these principles contributes to advancing the field and democratizing information.

## **Conclusion**

This paper concludes that research in library and information science is essential for advancing the field, improving professional practice, and addressing the challenges of the information age. research in library and information science covers a diverse range of topics, methodologies, and theoretical frameworks as well as areas such as information behavior, information retrieval, digital libraries, information literacy, scholarly communication, and archival studies are central to LIS research. Hence, by conducting rigorous and innovative research, scholars in LIS contribute to the development of knowledge,



inform practice, and promote the effective use of information in diverse contexts. Hence, by incorporating and implementing the highlighted recommendations, researchers can effectively manage the challenges of conducting research in Library and Information Science in the 21st century. These strategies promote skill development, collaboration, technological integration, ethical practices, and open knowledge dissemination, ultimately advancing the field and addressing the complex research challenges of the modern era.

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