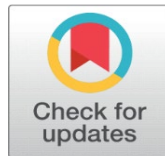
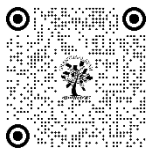


INFORMATION LITERACY IN THE ERA OF ARTIFICIAL INTELLIGENCE

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ABSTRACT

The concepts of information literacy and digital literacy have been intrinsically linked since the advent of digital information technologies. With the increasing abundance of digital channels, access to information has become more seamless and widespread. The rise of Generative Artificial Intelligence (AI) has further amplified this reality, heightening the need for enhanced information literacy skills, particularly those related to digital environments. As AI continues to influence how individuals access, assess, and generate content, its impact on the meaning and scope of information and media literacy becomes increasingly profound. This study explores the pivotal role of AI-powered research tools in enhancing Information and Communication Technology (ICT) skills and digital literacy among academic professionals and students. Through sophisticated search algorithms, predictive analytics, and automated data processing, AI tools are streamlining the research process, improving both efficiency and precision in academic inquiry. The paper also addresses the ethical challenges posed by AI, such as data privacy, user autonomy, and algorithmic biases. It critically examines recent developments in AI and their potential consequences, particularly in terms of information practices. A central theme of this analysis is how AI's growing autonomy and adaptability challenge traditional notions of human agency in the information ecosystem.

In addition, the article reviews existing digital literacy frameworks, evaluating their definitions of information and media literacy in light of AI's evolving capabilities. The analysis reveals that these frameworks have been slow to incorporate the rapid advancements in AI technology and the wide-reaching consequences it entails. As academic libraries stand at the forefront of this technological transformation, understanding and leveraging AI's potential to reshape scholarly discourse and education is essential. This paper aims to guide librarians in navigating the digitalization of information creation, retrieval, and use. Librarians are increasingly called upon to provide clear guidelines for the ethical and effective use of generative AI within their institutions. The implications of AI-driven digital information sources are discussed in the context of librarians' roles, emphasizing the need for proactive leadership in this new digital age

Keywords: Information Literacy, Media Literacy, Digital Literacy, Artificial Intelligence, Academic Libraries, Chatgpt

1. INTRODUCTION

The success of any development, in any field, fundamentally relies on making the right decisions at key moments. The quality of those decisions is directly tied to having access to the right information at the right time. As a result, timely and accurate information becomes an invaluable resource in any development process. In today's rapidly evolving landscape, students now have access to numerous platforms for research, writing, and even cheating, particularly in light of advances in Artificial Intelligence (AI). Artificial intelligence (AI) is used to simulate human intelligence via machines,

which are programmed to think and learn like humans and to perform tasks that normally require human intelligence (Chiu et al., 2023).

As AI systems become increasingly embedded in our everyday lives, the ability to understand, assess, and engage with AI-generated information has become critical. This requires a skillset that helps individuals navigate the vast amount of information available, ultimately making informed decisions. Information literacy now encompasses the abilities and competencies necessary to effectively interact with AI-generated content, which includes not only text, but also images, audio, and videos produced by AI models like ChatGPT, DALL-E, and deep fake generators. In this context, information literacy now extends beyond traditional boundaries, addressing the unique challenges posed by AI. These challenges include recognizing manipulated media, understanding the ethical implications of AI-generated content, and distinguishing between human and AI-authored material. As AI continues to influence industries, media, and communication, it is vital for individuals to adapt to this new reality. Information literacy empowers people to critically evaluate the credibility and reliability of AI-generated content while fostering awareness of the ethical concerns tied to AI technology. It is crucial for educators, policymakers, and society at large to promote AI information literacy to mitigate the risks of misinformation, encourage responsible AI use, and harness the transformative potential of this technology. The following outlines the development of information literacy instruction that incorporates AI.

The accuracy of AI-generated information can be ensured through the application of robust validation methods.

Best practices for documenting AI use in academic and professional work require transparent and precise citation of AI sources.

Rather than replacing critical thinking skills, AI can enhance them by supporting analysis and decision-making, all while preserving human judgment.

AI plays a pivotal role in information gathering and analysis, streamlining data collection and offering valuable insights to inform well-rounded decisions.

2. REVIEW OF LITERATURE

Heck et al. (2021) suggest that AI has the potential to shed light on the complexities of the learning process, offering valuable insights into both experiences and the learning journey. Generative AI tools can assist educators in implementing effective teaching strategies, helping learners cultivate essential skills like problem-solving and critical thinking. Intelligent agents, such as robots or virtual assistants, can guide learners throughout their educational experiences. Lo (2024) notes that AI can help learners by identifying potential challenges during information-seeking tasks. To accomplish this, it is vital to establish reliable indicators of skill development and effective teaching methods, making it essential for librarians to reach a consensus on how to assess information literacy for automated evaluations. James & Filgo (2023) offers an insightful reflection on how the ACRL Framework for Information Literacy for Higher Education can be applied to the teaching and use of generative AI tools like ChatGPT. The review highlights the open-ended nature of the Framework, which allows for experimentation with new tools and methods in teaching, and acknowledges both the potential benefits and challenges these technologies present. It serves as a useful starting point for librarians who are navigating the intersection of information literacy and emerging AI tools, while providing a clear rationale for why these discussions should be integrated into higher education curricula. Tiernan et al. (2023) explores the intersection of AI and digital literacy, emphasizing how AI challenges traditional information and media literacy. It highlights gaps in current digital literacy frameworks' response to AI and advocates for more agile, participatory, and inclusive approaches to framework development. While offering a strategic direction, the paper could benefit from concrete examples and further clarification of "crowd-maintained" frameworks. Overall, it provides valuable insights into adapting digital literacy to the evolving AI landscape. Chatikoboa & Pasipamire (2024) evaluates the readiness of Bindura University of Science Education Library (BUSEL) to integrate AI into information literacy instruction. It finds that while staff has basic AI knowledge, there is insufficient infrastructure, institutional support, and leadership to effectively implement AI. The study highlights gaps in AI-related content, outdated curriculum, and the lack of policies for AI integration. Recommendations include investing in infrastructure, providing staff training, and developing a strategic plan for AI adoption. The study aligns with similar findings from other regions, emphasizing the need for comprehensive preparation before AI can be effectively integrated into instruction. Thornley & Rosenberg emphasizes the value of facilitating student dialogues about Artificial Intelligence (AI) to enhance media and information literacy. Instead of imposing restrictive policies, it proposes a method for instructors to guide conversations that help students

critically analyze, evaluate, and interact with generative language models. This approach encourages students to think critically about AI's capabilities and limitations, fostering a habit of inquiry that enables them to make informed choices about how emerging technologies impact their research and writing. Additionally, it provides instructors with insights into how students engage with AI, which can refine teaching strategies. The chapter introduces a framework for these dialogues, along with an adaptable lesson plan, while also highlighting the importance of integrating AI tools into education, particularly after the rise of ChatGPT in 2022. Ultimately, the goal is to empower students with the adaptability and critical thinking necessary for success in the digital era.

2.1. ACRL FRAMEWORK FOR INFORMATION LITERACY

The Association of College and Research Libraries (ACRL) has been at the forefront of defining and advancing information literacy standards. Initially introduced in 2000, these standards provided guidance for curricula across various academic disciplines. However, the ever-changing nature of information creation and access led to a revised definition in 2015, emphasizing the reflective discovery of information, understanding its production, and using it ethically in the creation of new knowledge. This shift redefined traditional concepts of information literacy, focusing on a more flexible, holistic approach to the development of research skills. This new framework is based on interconnected core concepts, offering flexible options for implementation. The following frames outline this approach:

Authority is constructed and contextual

Information creation as a process

Information has value

Research as inquiry

Scholarship as conversation

Searching as strategic exploration

When we look at these concepts in the context of Artificial Intelligence (AI), several important intersections arise:

Authority Is Constructed and Contextual

AI tools, such as machine learning algorithms and natural language models, generate and curate information in ways that can seem authoritative but may also be influenced by biases in the data or algorithms. In the context of information literacy, students need to critically assess the sources of information generated by AI, understanding that what appears to be authoritative might not always be objective or valid. For example, a recommendation algorithm (e.g., for movies or news) may prioritize certain kinds of content, and students must understand how these algorithms shape their views and knowledge, not just the content itself. They need to evaluate the context in which an AI system was designed and how it might influence what information is presented to them.

Information Creation as a Process

With AI systems like generative models (e.g., ChatGPT or DALL-E), information is being created rapidly and at scale by machines. Students need to understand that AI-generated content is created through processes that involve both human and machine input, and that it can be subject to error or manipulation. They should recognize how AI might create "new" information that doesn't always align with traditional scholarly or authoritative standards, requiring students to develop the ability to evaluate the quality and validity of AI-created outputs.

Information Has Value

AI systems play a significant role in determining how information is valued, accessed, and shared. For example, AI-powered search engines and databases prioritize certain types of information over others. Information created or filtered by AI can have different values depending on the context in which it is used (e.g., in business, education, or politics). Students should recognize that AI has a strong influence on what is considered valuable information, which might affect academic research, news consumption, and even personal decision-making.

Research as Inquiry

AI systems often assist in research by processing and analyzing large datasets, creating new insights, or offering novel approaches to problem-solving. Students can leverage AI to generate hypotheses or sift through large volumes of data. However, students also need to understand that AI is not infallible and that the research process using AI tools still

requires critical thinking and human oversight. AI can assist with pattern recognition and synthesizing information, but it cannot replace the nuances of human inquiry, especially when ethical considerations are involved.

Scholarship as Conversation

AI can contribute to the scholarly conversation by offering new methods of publishing and communicating research, such as using AI-driven tools to conduct literature reviews, summarize research articles, or even co-author papers. However, students need to recognize that AI doesn't replace the necessity for engaging with the scholarly community and understanding the broader context of academic discourse. The "conversation" in scholarship still involves human interpretation and dialogue, and AI should be seen as a tool for enhancing, not replacing, these interactions.

Searching as Strategic Exploration

AI is integral to the way we search for information today. Search engines, recommendation systems, and virtual assistants all leverage AI to refine and prioritize search results. Students should recognize that AI shapes how information is presented to them, and as a result, they need to adopt more strategic searching techniques. It is important for students to understand how algorithms rank search results and what biases might be embedded in these processes. They must also understand the limitations of AI-powered search and seek out diverse sources of information to ensure a comprehensive and unbiased perspective.

Ethical and Critical Considerations

Beyond these threshold concepts, students must also learn about the ethical implications of AI in information literacy. This includes being aware of issues such as:

Bias in AI models: AI is only as unbiased as the data it's trained on, so understanding and recognizing potential biases in AI outputs is crucial.

Data privacy and security: AI systems often require large amounts of personal or sensitive data, raising concerns about data privacy.

Responsibility and accountability: When AI tools are used to generate or manage information, which is responsible for ensuring accuracy and ethical use?

The Framework for Information Literacy provides a foundation for students to understand how to navigate, evaluate, and use information effectively. In the context of AI, students must develop a critical awareness of the ways in which AI impacts information creation, access, and interpretation. They need to balance the opportunities AI offers with a critical understanding of its limitations, biases, and ethical implications.

3. AI LITERACY: KEY CONSIDERATIONS FOR LIBRARIANS

As you plan to integrate AI literacy and competency into information literacy instruction, it is essential to address several core components. Below are key areas to consider in fostering a deeper understanding of AI and its impact:

1) Understanding How AI Interacts with Information

Large Language Models: Explaining how these models generate human-like text based on vast datasets.

Neural Networks: Outlining the foundational structures that enable AI to process and learn from data.

Predictive Text: Exploring how AI predicts and generates text to facilitate communication.

2) Discussing the Societal Impacts of AI

Copyright and Intellectual Property: Understanding the challenges AI poses to traditional intellectual property laws and copyright regulations.

Ethical Implications: Highlighting how AI is reshaping social dynamics and ethical considerations.

3) Ethical Use of AI

Citing AI Outputs: Addressing the importance of proper attribution when using AI-generated content.

Adhering to Journal Requirements: Discussing the growing need to acknowledge AI tools in research publications, in line with evolving journal guidelines.

4) Communicating and Collaborating with AI

Prompt Engineering: Teaching how to craft effective prompts to maximize AI's capabilities.

Evaluating AI Outputs: Encouraging critical thinking in assessing AI-generated information.

Verifying Sources and Fact-checking: Promoting reliable methods to validate AI outputs and ensure factual accuracy.

4. CONCLUSION

Recent advancements in AI hold the potential to profoundly transform the very concept of information literacy, influencing every phase of the information retrieval and generation process like from accessing and searching to filtering, evaluating, and creating content. The ACRL Framework for Information Literacy in Higher Education offers a flexible foundation that encourages innovation in teaching, enabling educators to explore new tools and methods for helping students navigate and comprehend the vast information landscape around them. When viewed through the lens of this framework, AI tools present both immense promise and significant challenges. As such, there is a critical need for instruction on AI tools as such covering their development, ethical considerations, and the specific ways in which they can both benefit and potentially hinder students. Ultimately, it is expected that instruction librarians will design lesson plans focused on teaching or integrating tools like ChatGPT into library instruction. These plans will be shared with colleagues through platforms such as the Framework for Information Literacy Sandbox and other lesson plan repositories, fostering collaboration and further exploration.

CONFLICT OF INTERESTS

None.

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BIOGRAPHY

Sharndip Kaur is a dedicated research scholar in the Department of Library and Information Science at Punjabi University, Patiala. In addition to her academic pursuits, Sharndip works as a Library Assistant at the Punjab University Regional Centre, Muktsar, where she actively contributes to enhancing library services and supporting the academic community. Her academic journey and professional experience reflect a commitment to advancing knowledge in the library and information science field.