

LIBRARY USER BEHAVIOR AND INFORMATION LITERACY TRANSFORMATION THROUGH AI IN THE POSTGRADUATE READING ROOM, UNIVERSITAS AIRLANGGA

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Abstract

University libraries play a vital role in supporting the implementation of the Tri Dharma of Higher Education, which encompasses education, research, and community service. The advancement of digital technology has transformed library users' behavior in accessing and utilizing information, particularly through the adoption of Artificial Intelligence (AI). This study aims to describe user behavior in the process of literacy transformation mediated by AI at the Reading Room of the Postgraduate School, Universitas Airlangga. The research employed a qualitative descriptive approach with data collected through interviews and observations involving five informants, consisting of master's and doctoral students. The findings indicate that the integration of AI enhances efficiency, effectiveness, and accuracy in information retrieval. Library users utilize AI not only as a technical tool but also as an analytical aid to develop comprehension and digital literacy skills. However, challenges remain, such as overreliance on AI systems and limited ability to evaluate the validity of information. The study concludes that strengthening AI literacy among the academic community is crucial to ensure that technology is used critically, ethically, and productively to support academic activities

Keywords: Literacy Transformation, User Behavior, Artificial Intelligence, Digital Literacy

INTRODUCTION

In today's digital era, artificial intelligence (AI) has been present in various aspects of people's lives, from voice assistants to automated recommendation systems. One of the widely used forms of AI application is ChatGPT, which was developed by OpenAI. This technology is able to produce text that resembles human writing based on the input received (Lund & Wang, 2023).

Higher education libraries play an important role in supporting the implementation of the Tri Dharma of Higher Education, namely education, research, and community service. Through libraries, the academic community gains access to relevant information sources to

support scientific activities. In this case, user behavior is an important factor in utilizing information sources effectively and on target (Buwana, 2020). The development of information technology has changed the way users search for and use information. If previously they relied on physical collections in libraries, now information search can be done quickly through digital media with the support of AI technology.

The process of searching for information starts from awareness of information needs to the stage of obtaining the needed data. The information is now available in various formats both print, electronic, and virtual, all of which are managed and provided by the library. The development of digital technology has a significant impact on user behavior, as they are no longer limited to direct access to libraries, but can also browse various online sources such as websites, databases, and scientific journals equipped with AI-based search systems. This online information source allows users to obtain data more quickly, extensively, and efficiently (Ummu Hoiriah Lubis, 2023).

According to Cahyono (2011), the information needs of users can be divided into three types, namely:

- a) Need for information, the need for general information.
- b) Need for materials and facilities, the need for library materials and supporting facilities for learning activities.
- c) Need for guidance and support, the need for guidance and guidance to obtain relevant information.

The transformation of literacy in the digital age marks a fundamental change in the way users read, understand, and search for information. These changes have a direct impact on the learning process and the improvement of academic quality. Education as the main foundation in facing global challenges requires adaptation to technological and social developments (Suci Frisnoiry, 2024). The presence of AI in literacy practices has also shifted the traditional literacy paradigm to a more complex and dynamic digital literacy.

This research is focused on user behavior in AI-based literacy transformation in the Reading Room of the Graduate School of Airlangga University. This focus was chosen to understand how users use AI technology in exploring information, as well as how these changes affect literacy search behavior and knowledge resource use.

Digitalization has changed people's patterns in reading and understanding texts (Ulin, 2020). The impact of digital media on literacy and reading behavior is getting stronger, so educators and librarians need to utilize technology to improve literacy skills among academics. Dyson (2016) emphasized that literacy is not only related to individual abilities, but also a tool for social empowerment in people's lives.

Digital literacy transformation through AI requires users to have the ability to think critically, analytically, and ethically in selecting and using information. According to Mukhlisa (2024), collaboration between educators, researchers, and policymakers is needed to develop literacy strategies that are adaptive to the development of the digital era. However, the use of AI also has challenges, such as decreased creativity and critical thinking skills due to dependence on technology (Rizky Drupadi, 2022). Therefore, literacy about AI, namely the ability to understand the principles, application, and social impact of artificial intelligence technology, is an important competency for users in dealing with the increasingly rapid flow of information.

Based on the description above, this study aims to describe and analyze user behavior in the face of AI-based literacy transformation, as well as to find out the extent to which AI can improve the efficiency and quality of information search in the academic environment.

Literature Review and Hypothesis Development

The use of Artificial Intelligence (AI) in the field of education has grown rapidly and expanded to various countries. Developed countries such as Australia have implemented Intelligent Tutoring Systems (ITS) to help address the imbalance between the number of educators and learners. The implementation of AI technology in education not only speeds up the learning process, but also improves learning personalization and overall educational effectiveness.

Advances in information technology are driving higher education institutions to adapt to global demands and digital developments. On the one hand, AI brings convenience and efficiency, but on the other hand poses new challenges in ethics, data privacy, and reliance on machines. Fulton (2019) emphasized that the debate on the pros and cons of the use of AI in education continues, as AI is capable of performing a variety of tasks that generally require human intelligence such as speaking, listening, analyzing, and solving problems (Littman et al., 2021).

If used appropriately, AI can have a significant positive impact in the world of education. Through a measured and ethical approach, AI can improve the quality of learning and prepare students to face an increasingly complex future. However, algorithm reliability, data security, and educator readiness are the main challenges in the application of AI in the academic environment (Saerang et al., 2023).

Research conducted by Gea et al. (2025) shows that the application of AI has great potential to improve the effectiveness and quality of learning. However, challenges such as system reliability, human resource readiness, and ethical and privacy issues remain obstacles that need to be overcome. Similar findings were put forward by Safari et al. (2016), who highlighted that digital technology affects the level of student engagement through changes in motivation, interests, and learning experiences (Henderson, Selwyn, & Aston, 2017).

Student engagement in learning includes three main aspects: behavioral, cognitive, and emotional (Katja et al., 2021). In this regard, the application of AI can be an innovation in higher learning, especially to encourage creativity and active participation of students (Rochmah, 2023). With the support of AI, the active learning approach can be applied in a more interactive and adaptive way to the needs of students.

Saputra's research (2024) shows that the presence of AI in modern libraries can support various aspects of service, such as collection processing, natural language analysis, conversation recognition, computer vision, and robotics systems. This implementation makes the library more dynamic and efficient. However, for the implementation to be successful, support is needed in the form of fund allocation, the availability of hardware and software, and the readiness of information technology networks.

Setiawan et al. (2023) added that the concept of artificial intelligence is closely related to efforts to describe and imitate human thinking skills through computer technology. In the field of libraries, the application of AI can improve the service and efficiency of collection management. Examples include the use of voice recognition, intelligent OPAC, expert systems, neural networks, virtual library tours, and intelligent assistants. This technology makes libraries more responsive to the needs of users and adaptive to the era of digital disruption.

According to Borko (1985), the application of AI in libraries can help automate various processes such as document creation, request formulation, and information retrieval strategies. Smith (1987) also highlighted that AI-based expert systems are able to support the activities of referencing, cataloging, and retrieving information, thus providing added value to modern library services.

Based on these research findings, it can be concluded that AI plays a strategic role in strengthening literacy transformation in libraries. The use of AI not only simplifies information retrieval but also broadens access and improves time efficiency for users. Consequently, user behavior has undergone a significant shift from manual searching to digital searching based on intelligent algorithms.

Hypothesis Development

Technological advances and literacy transformation through Artificial Intelligence (AI) are believed to make it easier for users to explore literacy and expand the range of information search. AI plays an important role in improving indexing, content discovery, and personalization of information services.

Research by Palos-Sanchez (2022) shows that AI has the potential to grow constantly and continuously in the field of information resource management. This is also reinforced by Setiawan et al. (2023), who prove that AI-based recommendation systems can speed up the classification process and enrich the user experience.

In addition, the implementation of a personalization recommendation system allows libraries to understand individual user preferences through the analysis of search patterns, reading history, and feedback provided (Atika & Sayekti, 2023). With this approach, libraries can offer recommendations for information that are more relevant, efficient, and adaptive to the needs of users.

Based on this study, the hypothesis of this research is formulated as follows:

H1: Artificial Intelligence (AI) has a positive effect on the ease and effectiveness of user behavior in exploring literacy and improving the efficiency of information search in the academic environment.

RESEARCH METHOD

This study uses a descriptive method with a qualitative approach. This approach was chosen because it is able to describe and understand the phenomenon of user behavior in depth in the literacy transformation mediated by Artificial Intelligence (AI). The qualitative descriptive method allows researchers to focus on the meaning, perception, and experience of the research subjects as they experience them directly. Thus, this approach is relevant to explain how AI technology affects user behavior in the process of searching and utilizing information.

This research was carried out in the Reading Room of the Graduate School of Airlangga University. The location was chosen purposively because it has the characteristics of an academic environment that actively utilizes information technology and digital literacy. The subject of the study includes students who use reading room facilities for academic and research activities. The selection of informants uses the purposive sampling technique, which is a sample determination technique based on certain considerations in accordance with the purpose of the research. The criteria for informants include students who have used AI technology, such as

information recommendation systems or AI-based search applications, in literature search activities and academic writing.

The number of informants in this study was five people, consisting of three master's program students and two doctoral program students within the Airlangga University Graduate School. Informants come from various study programs, details of the characteristics of informants are presented in Table 1 below:

Educational Level	Study program	Number of Informants
Master's Degree	Human Resource Development	1 person
Master's Degree	Police Science Study	1 person
Master's Degree	Disaster Management	1 person
Doctoral Degree	Human Resource Development	1 person
Doctoral Degree	Law and Development	1 person

This variety of informant backgrounds is expected to provide diverse views on user behavior in the face of artificial intelligence-based literacy transformation.

Data collection was carried out through in-depth interviews and direct observation. Interviews are conducted with semi-structured guidelines so that researchers can obtain information that is open but still focused on the research topic. Interview questions included information search patterns before and after using AI, informants' perceptions of the ease and constraints of using AI, and changes in literacy behavior due to the use of the technology. Meanwhile, observations were carried out in the reading room to record the activities of informants when interacting with the digital information search system. Researchers also create field notes to document the situations, behaviors, and interactions that occur during the data collection process.

The data analysis in this study uses the interactive analysis model of Miles and Huberman (1994) which includes three stages, namely data reduction, data presentation, and conclusion drawing and verification. At the data reduction stage, the researcher selects, groupings, and simplifies the data from interviews and observations. The data presentation stage was carried out by compiling the findings into thematic categories that described the behavior patterns of users. Furthermore, the conclusion and verification stage is carried out to find the meaning of the data and compare it with theories and previous research results. During the analysis process, validation is carried out through the member checking technique to informants to ensure the correctness and accuracy of the data obtained.

The validity of the data in this study is maintained by applying four validity criteria according to Lincoln and Guba (1985), namely credibility, transferability, dependability, and confirmability. Credibility is maintained through triangulation of data sources from interviews, observations, and documentation. Transferability is achieved by providing a detailed description of the research so that the findings can be applied to similar situations. Dependability is guaranteed by recording the entire research process systematically and transparently. Meanwhile, confirmability is carried out by ensuring that the research results come from data obtained in the field, not from the subjective view of the researcher. Through the application of these principles, this research is expected to produce findings that are valid, trustworthy, and relevant to the study of digital literacy in the university environment

RESULT AND DISCUSSION

This research produced findings regarding changes in user behavior in the process of Artificial Intelligence (AI)-based literacy transformation in the Reading Room of the Graduate School of Airlangga University. Based on the results of interviews and observations of five informants, it is known that all informants have utilized various forms of AI-based technology, such as academic search engines, reference recommendation systems, and scientific writing applications that utilize natural language analysis. The direct use of AI has changed the way users search, select, and evaluate information sources.

Before the use of AI, users usually searched for information manually through library catalogs and print journal indexes. The process takes a long time because you have to trace the sources one by one. However, with the advent of AI-based search systems, the process has become more efficient. Users can get relevant references in a short time and with broader search results. As one of the informants revealed, AI technology allows them to find sources that were previously difficult to reach with manual search methods.

From the results of observations, it was also found that graduate students have a tendency to utilize AI-based platforms not only in finding sources of information, but also in analyzing the structure of scientific writings, evaluating the quality of references, and developing research ideas. This shows that literacy transformation does not only include technical skills in seeking information, but also includes critical skills in selecting, understanding, and utilizing data ethically.

These findings are in line with research by Setiawan et al. (2023) who stated that the application of AI in education and libraries can help users navigate complex information more efficiently. AI not only serves as a search tool, but also as a cognitive partner that supports informed decision-making. In the Postgraduate Reading Room, the use of AI has been proven to help students save time and improve accuracy in finding sources that fit their research needs.

However, the results of the interview also revealed that there were obstacles experienced by some users. One of the main challenges is the lack of adequate digital literacy in understanding how AI works and the limitations. Some informants admitted that it was still difficult to distinguish between academically valid search results and speculative or unverified results. This condition shows that AI literacy still needs to be strengthened so that users are not only able to use technology, but also understand the ethical and methodological implications of its use.

In addition, the results of observations show that some students are starting to rely excessively on AI systems in academic activities, including in the preparation of literature reviews and the formulation of research ideas. This dependence can have an impact on declining critical thinking skills and originality of ideas. Therefore, libraries need to play an active role in providing digital literacy and AI literacy training that emphasizes the balance between human capabilities and technological support.

The discussion of the results of this study also shows that AI-based literacy transformation creates a paradigm shift in user behavior. The process of searching for information is now more collaborative between users and intelligent systems. Users no longer act as passive seekers, but as active users who can direct the system according to their specific needs. This change has positive implications for improving academic productivity and research quality.

In higher education, AI has been shown to be able to speed up the process of searching and validating information, but on the other hand it demands that users have higher academic ethics and information literacy. Therefore, the success of the application of AI in literacy transformation is determined not only by technological capabilities, but also by the readiness of users to adapt critically, reflectively, and responsibly.

The results of this study confirm that AI has great potential to support the development of digital literacy in the academic environment, especially in terms of information search efficiency and improving the quality of scientific literacy. However, in order for its use to be optimal, a systematic mentoring strategy is needed from the library and supervisors to avoid dependency and ensure academic authenticity and integrity in the learning and research process.

CONCLUSION

The results of this study show that the application of Artificial Intelligence (AI) has a significant effect on changes in user behavior in the literacy transformation process in the Reading Room of the Graduate School of Airlangga University. AI has helped users find, evaluate, and utilize information more efficiently and relevantly. Previously, information search was done manually through catalogs and print collections, but with the presence of AI-based systems, the search process has become faster, systematic, and more directed. This change marks a paradigm shift from traditional search behavior to digital literacy behavior that is more adaptive to technological advancements.

The use of AI also improves users' ability to develop digital literacy, especially in understanding the structure and credibility of information sources. With the help of technologies such as recommendation systems, natural language recognition, and analytical algorithms, users can navigate academic information more critically. However, the study also found challenges in the form of over-reliance on AI. Some users tend to use the system passively without considering aspects of academic validity and ethics. This condition shows the need to strengthen AI literacy so that users are not only able to use technology, but also understand their limits and responsibilities in science.

From an institutional perspective, libraries play an important role in supporting AI-based literacy transformation. Through the provision of training, guides, and integrated information systems, libraries can be the main facilitators in fostering digital literacy awareness among the academic community. In addition, collaboration between librarians, lecturers, and students needs to be improved so that the use of technology is not only oriented towards efficiency, but also on the development of critical thinking skills, information ethics, and academic integrity.

Conceptually, this research reinforces the view that AI functions as a cognitive partner that is able to expand human capacity to understand and manage information. However, technology cannot completely replace the intellectual, reflective, and analytical abilities of users. Therefore, the development of digital literacy and AI literacy must be balanced with strengthening academic and moral values in the world of higher education.

Based on the results of the research, it is recommended that educational institutions, especially university libraries, develop AI literacy policies and training programs on an ongoing basis. The program needs to emphasize critical thinking skills, the ability to evaluate information sources, and ethical awareness in using technology. The researcher also recommends that

further research examine the relationship between the intensity of AI use and improving the quality of academic outcomes more empirically, so that a more comprehensive understanding of the role of AI in literacy development in the digital era can be obtained.

SUGGESTION

Based on the results of the research that has been conducted, there are several suggestions that can be considered for the development of Artificial Intelligence (AI)-based literacy research and practice in the academic environment.

First, on behalf of university libraries, it is recommended to develop digital literacy and AI literacy programs on an ongoing basis. The program needs to be focused on improving the ability of the academic community to utilize information technology effectively, ethically, and critically. AI literacy training should not only emphasize the technical aspects of using digital tools, but also foster awareness of academic integrity and responsibility in information management.

Second, for librarians and teaching staff, it is necessary to collaborate in designing learning strategies that integrate AI technology without ignoring the role of humans as the main responders and decision-makers. This integration will strengthen students' ability to think critically and creatively, and prevent them from being dependent on automated systems.

Third, for further research, it is recommended to expand the study of the influence of AI on other dimensions of information literacy, such as data literacy, media literacy, and digital ethical literacy. Advanced research can also use a quantitative approach or mixed methods to gain a more comprehensive understanding of the impact of AI use on academic productivity and the quality of student research results.

Fourth, for policy makers in higher education, it is hoped that the results of this research can be used as a basis for formulating policies for the development of academic information systems that are integrated with AI. The policy needs to be accompanied by clear ethical guidelines for the use of technology so that its use remains in line with scientific values and the social responsibility of higher education

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