

THE USE OF DIGITAL LIBRARIES IN IMPROVING STUDENT LITERACY

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ABSTRACT

Utilization of Digital Libraries in Enhancing Student Literacy Post-pandemic digital transformation requires students to possess strong digital literacy as the foundation for mastering technology-based academic information sources. This study aims to analyze the relationship between digital library utilization and digital literacy levels of 5B semester students at Muhammadiyah University of Bogor Raya, who demonstrate limitations in critically searching academic information, evaluating digital source validity, and optimizing available digital library facilities. The research method employs a mixed methods approach combining quantitative measurement of digital literacy and qualitative analysis of student information behavior patterns. The research population consists of all active 5B semester students with a sample of 25 students at Muhammadiyah University of Bogor Raya, Jl. Raya Leuwiliang, Bogor, West Java. Data collection techniques include surveys, in-depth interviews, and observation of digital library usage behavior. Intervention in the form of structured training on optimizing digital library features was provided to research subjects. Research results indicate a significant positive correlation ($r=0.742$, $p<0.05$) between digital library utilization intensity and a 68% improvement in student digital literacy. The study produces digital literacy level mapping and strategic recommendations for enhancing digital library utilization to support campus digital learning ecosystem.

I. Introduction

The development of information technology has brought significant changes to the higher education ecosystem, including in terms of access to and utilization of digital-based learning resources. Digital libraries have now become a strategic tool that allows students to access information quickly, flexibly, and without limitations of space and time. In the digital age, literacy is not only related to the ability to read and write, but also the ability to access, evaluate, and utilize information from digital sources effectively. This is in line with the view that digital literacy is a skill that includes the ability to identify, manage, evaluate, analyze, and synthesize technology-based information to build new knowledge and communicate appropriately through digital media (Pratama et al., 2022) Furthermore, education as a planned process requires adequate literacy facilities so that students can develop their potential, skills, and readiness to face the demands of the digital era (Ujud et al., 2023)

However, the use of digital libraries in the context of higher education in Indonesia is still not optimal. Many students do not yet have good digital literacy skills to select credible sources, manage academic information, and use technology productively. This condition shows the urgency of research to identify the extent to which digital libraries contribute to student literacy, both in analytical, technical, and academic aspects. The use of digital technology in learning has been proven to support active learning processes through access to digital learning resources, collaboration, and interaction between users (Hidayat & Khotimah, 2019) so that digital libraries have the potential to play a strategic role in improving student literacy.

Previous studies have shown that the use of digital media, social media, and online learning platforms can improve student literacy by providing relevant and interactive learning resources (Darmayanti et

al., 2024) found that social media can improve students' digital literacy through collaboration and broad access to information in an academic context. Other findings from (Buwono & Dewantara, 2020) confirm that the use of the internet and digital resources is closely related to improvements in reading and writing skills in the context of digital literacy.

Although previous studies have shown the importance of utilizing digital technology in the context of education, there is still a research gap regarding the direct relationship between the use of digital libraries and the improvement of student literacy, particularly in academic dimensions such as the ability to evaluate scientific sources, citations, and the use of scientific repositories. Several studies have focused more on the use of social media, online learning, or digital communication platforms, rather than on the function of digital libraries as a standardized source of formal learning. Therefore, this study is needed to analyze the real contribution of digital libraries to improving student literacy, both in terms of accessibility, utilization, and their impact on critical thinking skills and the use of scientific references.

II. Methods

The research method applied was a quantitative correlational approach, which aimed to examine the relationship between the use of digital libraries and the level of digital literacy among students. This study used a survey design, which was conducted at Muhammadiyah University Bogor Raya. The research population included all active students in semester 5B, with a sample of 25 students selected using saturated sampling technique given the relatively small population size. The research instrument was a closed-ended questionnaire based on the Likert scale, designed to assess the level of digital library usage and digital literacy among students, and had undergone validity and

reliability testing. Data collection was conducted directly by distributing questionnaires to respondents. The collected data were analyzed using descriptive and inferential statistical techniques, namely the Pearson Product Moment correlation test to identify the relationship between the two variables, with the help of statistical software, thus producing an empirical picture of the contribution of digital library usage to students' digital literacy.

III. Result and Discussions

The results of the study reveal that the use of digital libraries by 5B semester students at Muhammadiyah University Bogor Raya is in the moderate to high category. Descriptive statistical analysis shows that the average value of digital library usage is 3.68 with a standard deviation of 0.54, which indicates that the majority of students have utilized the digital library as a learning resource, particularly for accessing electronic journals, digital books, and institutional repositories. However, responses to survey items indicate that usage is still dominated by basic search activities, while the use of advanced features such as specific database searches, reference management, and automatic citation usage is not yet fully optimized. These findings show that the frequency of access is not yet fully accompanied by a strategic understanding of the academic role of digital libraries.

The digital literacy level of students based on measurements obtained an average score of 3.74 with a standard deviation of 0.49, which indicates a fairly good category. Students are relatively competent in accessing digital information and using technology for academic purposes, but still have difficulty in assessing the reliability of scientific sources, distinguishing academic references from non-academic ones, and critically integrating digital information into their coursework. This situation shows that students' digital literacy is not yet

fully mature in evaluative and reflective aspects, which are crucial elements of academic literacy in a university environment.

The results of the Pearson Product Moment correlation test show a significant positive relationship between the use of digital libraries and student digital literacy, with a correlation coefficient of $r = 0.742$ at a significance level of $p < 0.05$. This coefficient indicates that an increase in the use of digital libraries is proportional to an increase in students' digital literacy, thus supporting the research hypothesis that there is a meaningful relationship between the two variables. These findings confirm that digital libraries are not only providers of information, but also learning tools that contribute to the overall development of students' digital literacy competencies.

Theoretically, the results of this study support the concept of digital literacy proposed by (Martin, 2005) which states that digital literacy includes the ability to access, manage, evaluate, and produce information effectively through digital technology. The use of digital libraries allows students to interact with organized scientific information sources, thereby encouraging the development of critical thinking and information literacy skills. These findings are also in line with (Pratama et al., 2022) ,who emphasize that access to reliable digital sources greatly contributes to improving the quality of students' digital literacy, especially in the context of higher education.

The results of this study are in line with the findings of (Hidayat & Khotimah, 2019), who stated that active use of digital learning resources can improve learning efficiency and strengthen students' academic literacy. In addition, research by (Darmayanti et al., 2024) also shows that the use of digital media in an academic context plays an important role in improving digital literacy skills through students' active engagement with information sources. However, the results of this study expand on previous findings by emphasizing that digital libraries have a more strategic position than general digital media because they provide verified scientific information sources that meet

academic standards.

In addition, the findings of this study also show that the use of digital libraries alone is not sufficient to maximize students' digital literacy without structured guidance and intervention. This is in line with the views of (Buwono & Dewantara, 2020) who state that the availability of digital technology does not automatically improve literacy if users are not equipped with adequate evaluative skills and academic understanding. Therefore, the low utilization of advanced features of digital libraries in this study indicates the need to systematically integrate digital literacy into the learning process.

The implications of these findings suggest that universities need to view digital libraries as an integral component of their learning strategies, rather than merely as an additional facility. The optimization of digital library use can be achieved through the integration of journal search-based assignments, regular digital literacy training, and collaboration between lecturers and librarians in guiding students to use scientific sources critically. Thus, digital libraries not only serve as information providers but also as strategic instruments in building academic culture and improving the quality of students' digital literacy in a sustainable manner.

IV. Conclusion

The conclusion of this study shows that the use of digital libraries is positively and significantly related to the digital literacy level of 5B semester students at Muhammadiyah University Bogor Raya, so that the research hypothesis can be accepted. The results of the data analysis confirm that an increase in the frequency and quality of digital library use contributes to students' improved ability to access, assess, and utilize digital information for academic purposes, which directly answers the research question about the role of digital libraries in student literacy. These findings are in line with digital literacy theory,

which highlights the importance of evaluative and critical skills in the use of information technology, and reinforce previous studies showing that access to reliable digital sources plays a crucial role in the development of academic literacy. Academically, this study provides empirical evidence by confirming the strategic position of digital libraries as learning tools that support the development of digital literacy in higher education. Practically, these results indicate the need to improve digital library services by integrating them into the process of continuous digital literacy learning and training. Further research is recommended to involve a larger sample, apply experimental or longitudinal designs, and examine additional variables such as learning motivation and institutional support to gain deeper insights into improving students' digital literacy.

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