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The Relationship between Digital Literacy and the Effectiveness of ChatGPT Utilization in Academic Information Retrieval

Shafira Callista Nabilah & Marlini
Padang State University, Indonesia
shafiracallista19@gmail.com; marlini@fbs.unp.ac.id

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Abstract

The increasing integration of ChatGPT into higher education has underscored its potential to support academic information retrieval; however, its effective use depends on students' digital literacy, particularly their ability to critically understand, evaluate, and apply information. This study aimed to examine students' digital literacy levels, the effectiveness of ChatGPT use in academic information retrieval, and the relationship between these variables among 2022 cohort Library and Information Science students at Universitas Negeri Padang. A quantitative correlational design was employed, involving 100 students selected through total sampling. Data were collected using a Likert-scale questionnaire and analyzed using validity, reliability, normality, descriptive, and Pearson Product Moment correlation tests with IBM SPSS Statistics. The findings showed that students' digital literacy was categorized as high, with a grand mean score of 3.14, while the effectiveness of ChatGPT use was also categorized as high, with a grand mean score of 3.04. The correlation analysis revealed a strong and significant relationship between digital literacy and the effectiveness of ChatGPT use, as indicated by a correlation coefficient of 0.660

and a significance value of 0.000 (< 0.05). These findings indicate that higher levels of digital literacy are associated with more effective ChatGPT utilization in academic information retrieval. This study contributes to the growing literature on artificial intelligence use in higher education and highlights the importance of strengthening students' digital literacy and information evaluation skills to promote ethical, critical, and responsible ChatGPT-assisted academic practices.

Keywords: Academic Information Retrieval; Artificial Intelligence; ChatGPT; Digital Literacy; Higher Education

INTRODUCTION

The integration of ChatGPT into higher education has generated contrasting perspectives regarding its contribution to academic activities. On one hand, ChatGPT provides substantial opportunities to enhance learning efficiency by supporting information searching, concept clarification, summarization, and academic writing assistance in a rapid and interactive manner (Rice et al., 2024). Educational practices increasingly recognize that conversational artificial intelligence can assist students in obtaining preliminary explanations, organizing ideas, and exploring unfamiliar concepts more effectively than traditional keyword-based searches because of its contextual and adaptive nature (Goar et al., 2023). Furthermore, the implementation of ChatGPT in educational contexts has demonstrated its potential to strengthen critical engagement and support active learning processes when utilized appropriately as a cognitive support system rather than a substitute for intellectual effort (Zesmita & Suryadi, 2025). On the other hand, the increasing dependency on generative AI raises concerns regarding academic integrity, information validity, and students' critical thinking abilities. Previous findings suggest that students frequently encounter difficulties distinguishing accurate information from misleading outputs because AI-generated responses may not always contain transparent references or verifiable evidence (Pallivathukal et al., 2024). Excessive reliance on ChatGPT may encourage passive learning habits in which students prioritize efficiency over reflection and critical analysis during academic tasks (Uppal & Hajian, 2025). Similar concerns also indicate that uncritical use of AI technologies may reduce students' motivation to independently verify information or engage deeply with scholarly materials, thereby weakening academic autonomy and evaluative thinking skills (Alshamy et al., 2025).

These conditions position digital literacy as a fundamental competency required for the responsible and effective use of ChatGPT in academic information retrieval. Digital literacy enables students to critically evaluate the relevance, credibility, and validity of information acquired from digital environments while simultaneously strengthening their awareness of ethical and responsible technology usage (Judijanto et al., 2024). As digital technologies continue to evolve, students are increasingly expected to possess the cognitive ability to interpret algorithmically generated content rather than merely consume information passively (Fernández-Otoya et al., 2024). Therefore, digital literacy is not solely associated with technical proficiency in operating digital devices but also with reflective and evaluative competencies necessary to navigate increasingly complex information ecosystems (Nikou et al., 2023). The importance of digital literacy becomes even more pronounced in the era of artificial intelligence because students frequently interact with systems capable of producing persuasive yet potentially inaccurate information. Research demonstrates that adequate digital literacy competencies strengthen students' ability to evaluate online content critically and reduce risks associated with misinformation or inappropriate technology dependence (Nguyen & Habók, 2024). In addition, contemporary discussions emphasize that digital literacy in AI-supported learning environments increasingly requires awareness regarding algorithmic limitations, ethical concerns, and critical interpretation of generated outputs to ensure responsible academic engagement (Hwang et al., 2023). Accordingly, students who possess higher levels of digital literacy are more likely to employ ChatGPT as an analytical tool that complements scholarly inquiry rather than as an unquestioned authority for academic answers (Tiernan et al., 2023).

From the researcher's perspective, the growing utilization of ChatGPT in academic settings should not be interpreted merely as technological advancement but also as an educational challenge requiring stronger digital literacy competencies among university students. Although ChatGPT provides convenience, speed, and accessibility in obtaining information, its effectiveness remains dependent upon students' ability to critically interpret, evaluate, and contextualize generated information according to academic standards (Hariati, 2021). The researcher argues that effective academic information retrieval using ChatGPT requires an active interaction between technological affordances and human evaluative capabilities because students who lack sufficient digital literacy may become vulnerable to inaccurate information, superficial understanding, and overdependence on AI-generated outputs (Dempere et al., 2023). Previous studies have

investigated the relationship between ChatGPT utilization and literacy-related outcomes in educational environments. One study conducted by Amidana Hikmatal Fadliyah and Galuh Indah Zatadini examined the influence of ChatGPT utilization on students' digital literacy and found that the technology significantly contributed to literacy improvement among university students (Fadliyah & Zatadini, 2024). However, the study positioned digital literacy as an outcome variable influenced by ChatGPT utilization, thereby emphasizing technology adoption effects rather than students' competencies in determining effective academic use. Another investigation explored the influence of ChatGPT on students' literacy interests and concluded that although generative AI positively supported learning engagement, students still required stronger literacy guidance and supervision to maintain independent learning behavior (Elfayetti et al., 2025).

Similarly, research examining the effectiveness of ChatGPT in supporting students' creativity and digital literacy suggested that AI technologies may positively contribute to educational outcomes when integrated into learning activities appropriately (Bahy & Majid, 2025). Nevertheless, previous studies primarily concentrated on literacy development, creativity enhancement, or educational engagement while paying limited attention to the effectiveness of ChatGPT specifically in academic information retrieval contexts. Furthermore, earlier investigations frequently focused on technology acceptance or pedagogical impacts rather than examining how students' digital literacy competencies influence effective utilization of ChatGPT in obtaining academic information critically and responsibly (Börekci & Çelik, 2024). Based on the review of previous studies, a substantial research gap can be identified. Existing literature largely emphasizes the effects of ChatGPT on digital literacy, learning motivation, creativity, or technology acceptance, while limited scholarly attention has been directed toward understanding the relationship between students' digital literacy and the effectiveness of ChatGPT use in academic information retrieval activities (Fadliyah & Zatadini, 2024). Moreover, previous studies rarely focus on university students in the context of information retrieval practices that involve evaluating relevance, accuracy, and usability of AI-generated information for academic purposes (Elfayetti et al., 2025). Consequently, empirical evidence explaining whether stronger digital literacy contributes to more effective academic use of ChatGPT remains insufficient.

Novelty of the Study. The novelty of this study lies in its attempt to examine the relationship between students' digital literacy and the effectiveness of ChatGPT utilization

specifically within academic information retrieval contexts. Unlike prior studies that mainly assessed ChatGPT as an independent factor affecting literacy or learning behavior, this study positions digital literacy as a competency associated with effective ChatGPT utilization in searching, evaluating, understanding, and employing academic information critically and responsibly (Bahy & Majid, 2025). Furthermore, the study introduces a contextual perspective within higher education, particularly among Library and Information Science students, where information retrieval competencies are highly relevant to academic success (Sabna, 2021). The theoretical foundation of this study is grounded in two major conceptual frameworks, namely digital literacy theory and the Task-Technology Fit model. Digital literacy theory proposed by David Bawden conceptualizes digital literacy as a multidimensional competency encompassing technical abilities, information understanding, critical evaluation, and ethical attitudes toward digital information usage (Syafrial, 2023). This theoretical framework explains that effective engagement with digital systems requires not only access to information but also cognitive and evaluative capacities necessary for assessing credibility, comparing sources, and making responsible academic decisions (Hariati, 2021).

Complementing this perspective, the Task-Technology Fit model explains that technology becomes effective when technological characteristics correspond to users' task requirements (Goodhue & Thompson, 1995). Within this framework, effectiveness is reflected through indicators such as information quality, compatibility, ease of use, production timeliness, and task support that collectively explain how technology contributes to successful task completion (Subhani et al., 2023). In the context of ChatGPT utilization, the model provides an analytical basis for understanding how students perceive the relevance and effectiveness of AI technologies in facilitating academic information retrieval. Accordingly, this study focuses on examining the relationship between digital literacy and the effectiveness of ChatGPT use in academic information retrieval among students of the Library and Information Science Program, cohort 2022. Specifically, the study aims to identify students' digital literacy levels, evaluate the effectiveness of ChatGPT utilization in academic information retrieval, and determine whether a relationship exists between both variables within higher education contexts (Aswidani, 2025). Through this investigation, the study is expected to contribute empirical insights regarding responsible AI integration in education and provide recommendations for strengthening digital literacy competencies to ensure more effective and ethical academic utilization of ChatGPT.

METHODS

This study employed a quantitative approach with a correlational design to examine the relationship between students' digital literacy and the effectiveness of ChatGPT use in academic information retrieval. A quantitative correlational method was selected because the study aimed to measure the association between variables objectively through numerical data without manipulating research conditions or establishing causal relationships. The study focused on determining whether students with different levels of digital literacy demonstrated differences in the effectiveness of ChatGPT utilization for academic purposes. The research examined two variables, namely digital literacy as the independent variable and the effectiveness of ChatGPT use as the dependent variable. Digital literacy was measured using four indicators: basic digital literacy skills, background knowledge, core digital literacy competencies, and attitudes and perspectives. These indicators were used to assess students' abilities to access, evaluate, and utilize digital information effectively and responsibly. Meanwhile, the effectiveness of ChatGPT use was measured through five indicators, namely data quality, compatibility, ease of use/training, production timeliness, and relationship with users/task support, reflecting how effectively ChatGPT supports academic information retrieval activities.

The study population consisted of undergraduate students in the Library and Information Science Program at Universitas Negeri Padang, specifically those admitted in 2022, totaling 100 students. Since the population size was relatively manageable and accessible, this study applied a saturated sampling technique (total sampling), in which all population members were included as research participants. This approach ensured comprehensive representation of students who had relevant experiences with digital technology and ChatGPT use in academic contexts. Primary data were collected using a structured questionnaire designed based on the indicators of digital literacy and ChatGPT effectiveness. Before questionnaire development, an instrument blueprint was prepared to ensure that each indicator was adequately represented. The digital literacy variable consisted of twelve items, while the ChatGPT effectiveness variable included fifteen items. Responses were measured using a four-point Likert scale ranging from strongly disagree to strongly agree. The questionnaire was distributed online through Google Forms and shared with respondents via WhatsApp. Additionally, a literature review was conducted to strengthen the theoretical foundation of the study by examining relevant books, journal articles, and previous research related to digital literacy and ChatGPT in academic settings.

Instrument quality was assessed through validity and reliability testing. Content validity involved language and subject-matter experts to evaluate linguistic clarity and conceptual relevance. Construct validity was tested using Pearson Product Moment correlation with a significance level of 5%, assisted by IBM SPSS Statistics, and results indicated that all questionnaire items were valid. Reliability testing was conducted using Cronbach's Alpha, with coefficients of 0.632 for digital literacy and 0.730 for ChatGPT effectiveness, indicating acceptable reliability. Data analysis was conducted systematically through data verification, tabulation, normality testing, descriptive analysis, and correlation testing. The Kolmogorov–Smirnov test was applied to determine data normality, while descriptive analysis using mean scores described general trends in respondents' answers. Finally, Pearson Product Moment correlation analysis was employed to identify the relationship between digital literacy and the effectiveness of ChatGPT use in academic information retrieval.

RESULTS

1. Descriptive Analysis of Variable X (Digital Literacy)

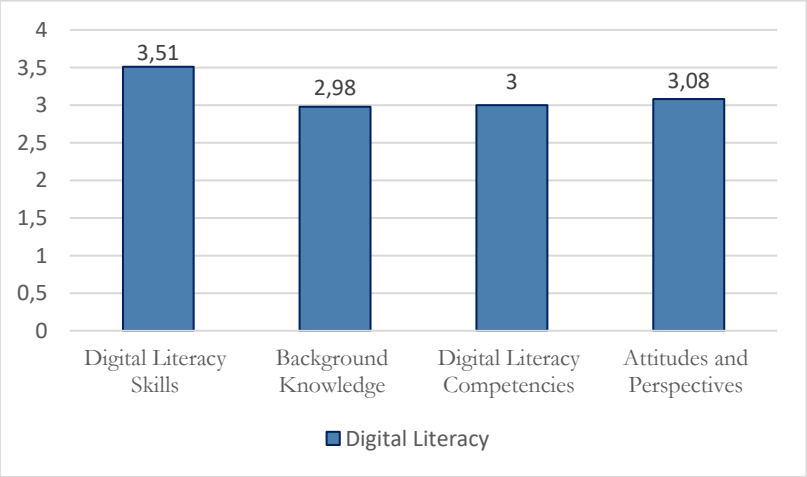

Figure 1. Variable X (Digital Literacy) Scores

Figure 1. Variable X (Digital Literacy) Scores Shows that all indicators are categorized as high, with a grand mean of 3.14. The highest score was found in basic digital literacy skills (3.51), followed by attitudes and perspectives (3.08), core digital literacy competencies (3.00), and background knowledge (2.98), indicating a good level of digital literacy in using ChatGPT for academic information retrieval.

2. Descriptive Analysis of Variable Y (ChatGPT Use Effectiveness)

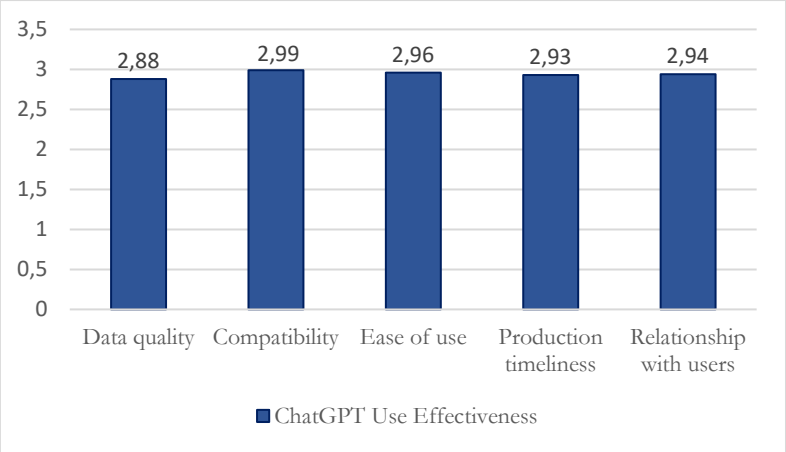

Figure 2. Variable Y (ChatGPT Use Effectiveness) Scores

Figure 2. Variable Y (ChatGPT Use Effectiveness) Scores Shows that all indicators are categorized as high, with a grand mean of 3.04. The highest average was found in compatibility (2.99), followed by ease of use/training (2.96), relationship with users/task support (2.94), production timeliness (2.93), and data quality (2.88), indicating that respondents perceived ChatGPT as effective in supporting academic information retrieval.

3. Normality Test

Table 1. Normality Test Results

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		100
Normal Parameters [a,b]	Mean	.0000000
	Standard Deviation	3.80781245
Most Extreme Differences	Absolute	.085
	Positive	.085
	Negative	-.073
Test Statistics		.085
Asymp. Sig. (2-tailed)		.073 [c]
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		

source: Compiled by the researcher (2026)

Table 1. Normality Test Results Show that the data are normally distributed based on the One-Sample Kolmogorov–Smirnov Test. The Asymp. Sig. (2-tailed) value of 0.073 (> 0.05) indicates that the residual data for digital literacy (X) and the effectiveness of ChatGPT use (Y) meet the normality assumption. The Test Statistic value of 0.085 also shows a relatively small deviation from normal distribution.

4. Pearson Correlation Test

Table 2. Correlation Test Results

Correlation			
		Digital Literacy	ChatGPT
Digital Literacy	Pearson Correlation	1	.660 **
	Sig. (1-tailed)		.000
	N	100	100
ChatGPT	Pearson Correlation	.660 **	1
	Sig. (1-tailed)	.000	
	N	100	100
**. *Correlation is significant at the 0.01 level (1-tailed).*			

source: Compiled by the researcher (2026)

Table 2. Correlation Test Results Show that the Pearson Product Moment correlation test produced a correlation coefficient of 0.660 with a significance value of 0.000 (< 0.05), indicating a significant and strong relationship between digital literacy and the effectiveness of ChatGPT use. The positive coefficient shows a unidirectional relationship, meaning that higher digital literacy is associated with greater effectiveness in using ChatGPT. Thus, the research hypothesis is accepted.

DISCUSSION

The findings of this study indicate that digital literacy plays a substantial role in shaping the effectiveness of ChatGPT utilization in academic information retrieval among Library and Information Science students enrolled in 2022. The overall results demonstrate that respondents possessed a relatively high level of digital literacy, reflected by a grand mean score of 3.14, while the effectiveness of ChatGPT usage in academic information retrieval was also categorized as high, with a grand mean of 3.04. Furthermore, the statistical test revealed a significant and strong positive relationship between digital literacy and the effectiveness of ChatGPT use, with a correlation coefficient of 0.660 and a significance level below 0.05. These findings suggest that students who exhibit higher

competencies in digital literacy tend to employ ChatGPT more effectively in searching, interpreting, evaluating, and utilizing academic information.

The high level of digital literacy observed in this study indicates that students have generally developed sufficient capabilities to interact with digital technologies and information environments. Among the four indicators examined, basic digital literacy skills obtained the highest mean score (3.51), suggesting that students possess adequate technical competencies to operate digital devices, access online platforms, and utilize artificial intelligence tools such as ChatGPT for academic purposes. This finding implies that respondents have become accustomed to technology-mediated learning environments and possess the technical readiness required to benefit from generative artificial intelligence in educational contexts. The ability to formulate prompts, navigate digital systems, and comprehend text-based responses provided by ChatGPT demonstrates that students are no longer passive technology users but active participants in digital academic ecosystems.

The findings may be interpreted through the perspective of digital literacy theory proposed by David Bawden, which emphasizes that digital literacy encompasses not only operational skills but also cognitive competencies involving information access, interpretation, and evaluation. Within this framework, digital literacy is considered multidimensional, integrating technical competence, critical reasoning, and reflective information use. Therefore, the high mean score in basic digital literacy indicates more than technical familiarity; it reflects students' readiness to navigate increasingly digital academic environments where artificial intelligence systems contribute to knowledge discovery and information retrieval. Similar arguments have been emphasized in studies discussing digital literacy in higher education, which suggest that students with stronger digital literacy skills tend to exhibit better adaptation to evolving technological systems and more effective academic information practices (Hariati, 2021; Julien et al., 2021; Tiernan et al., 2023). Although digital literacy levels were categorized as high overall, the findings also reveal important nuances. The background knowledge indicator obtained the lowest average among the digital literacy components (mean = 2.98). This finding suggests that some respondents still encounter limitations in understanding how to critically formulate information needs and evaluate the academic appropriateness of information obtained through ChatGPT. Several respondents indicated uncertainty regarding information verification practices, implying that although ChatGPT may facilitate information retrieval, students still require stronger evaluative competencies to ensure academic reliability. Such

findings demonstrate that convenience in accessing information does not automatically guarantee information credibility or responsible academic use. Instead, users must possess adequate critical literacy to assess whether information generated by AI systems aligns with academic standards.

Similarly, the competency indicator of digital literacy revealed that respondents generally possessed adequate skills in evaluating, comparing, and applying information retrieved from ChatGPT, particularly through practices such as cross-checking information against journals or books before academic use. This finding is particularly important because it highlights students' awareness of the limitations of generative AI technologies. Rather than accepting information passively, students demonstrated efforts to verify outputs using scholarly sources. Such behavior reinforces the argument that effective AI adoption in education requires a combination of technical competence and critical information literacy. In this regard, digital literacy functions as a protective mechanism against misinformation, superficial understanding, and overdependence on automated responses (Nikou et al., 2023; Hwang et al., 2023). Regarding the effectiveness of ChatGPT use, the findings demonstrate that respondents perceived ChatGPT as an effective academic support tool. The data quality indicator showed that respondents generally considered ChatGPT-generated information relevant and sufficiently useful for academic needs, despite acknowledging occasional concerns regarding completeness and accuracy. Students perceived ChatGPT as capable of providing quick conceptual explanations, supporting topic exploration, and assisting in preliminary academic understanding. However, the relatively moderate score within this dimension suggests that respondents still recognized the necessity of validating information through authoritative academic references, reflecting a critical stance toward AI-generated outputs rather than unconditional trust.

The compatibility indicator further demonstrates that ChatGPT aligns reasonably well with academic tasks. Respondents reported that ChatGPT supported assignment completion, improved understanding of learning materials, and assisted in organizing academic work. These findings support the notion that technology effectiveness depends largely on its alignment with task requirements. When students perceive that ChatGPT contributes meaningfully to their academic responsibilities, technology adoption becomes more beneficial and sustainable. This aligns closely with the Task-Technology Fit (TTF) model proposed by Goodhue and Thompson (1995), which argues that technological

systems produce optimal outcomes when technological capabilities correspond to users' task demands. In the context of this study, ChatGPT became more effective because students perceived it as relevant to their academic information retrieval needs. Another important finding concerns ease of use and production timeliness. Respondents generally disagreed with statements suggesting that ChatGPT was difficult to use, indicating that students considered the platform intuitive, accessible, and relatively uncomplicated. Furthermore, respondents acknowledged that ChatGPT facilitated faster access to information and accelerated academic task completion. These findings highlight the significance of efficiency in academic information retrieval, where rapid access to information contributes substantially to learning effectiveness. Since higher education increasingly requires immediate access to information, AI-based conversational systems may become valuable tools in supporting educational productivity (Dempere et al., 2023; Devi & Maruthuperumal, 2024).

The present findings are consistent with prior research emphasizing the importance of digital literacy in educational technology adoption. Previous studies indicate that digital literacy contributes positively to individuals' capacity to utilize digital tools critically and effectively. For example, studies on digital literacy in academic environments suggest that students with stronger literacy skills tend to demonstrate higher levels of confidence, information evaluation ability, and technological adaptation (Hariati, 2021; Yamin & Fakhrunnisaa, 2022). In this study, respondents' high literacy levels appear to explain why ChatGPT usage effectiveness was also categorized as high. Students who possess stronger digital competencies are more likely to formulate effective prompts, recognize information relevance, and critically evaluate AI-generated responses. Moreover, these findings support contemporary research regarding artificial intelligence integration in higher education. Dempere et al. (2023) argue that ChatGPT can positively influence academic productivity by assisting students in accessing explanations, generating ideas, and improving learning efficiency. Similarly, Nuris et al. (2024) explain that ChatGPT functions as a socially transformative educational technology capable of reshaping learning behavior and information-seeking practices. However, these studies also emphasize risks associated with overdependence and insufficient critical evaluation, reinforcing the current study's observation that students still require strong evaluative literacy to ensure responsible use. The study also strengthens the relevance of the TTF framework in explaining educational technology effectiveness. Previous studies applying the TTF perspective found that

technology effectiveness emerges when users possess adequate competence to match technological capabilities with task requirements (Sala & Subriadi, 2022; Justino et al., 2022). In the present study, digital literacy appears to function as an enabling factor that strengthens task-technology alignment. Students with higher digital literacy can optimize ChatGPT for academic tasks, whereas students with weaker literacy may struggle to critically interpret and verify outputs. Thus, digital literacy not only predicts technology usage but also enhances technology effectiveness.

Theoretically, this study contributes to digital literacy and educational technology literature by demonstrating that digital literacy functions as a critical determinant of AI-assisted academic information retrieval effectiveness. The findings strengthen Bawden's conceptualization of digital literacy by empirically illustrating that technological competence alone is insufficient; critical reasoning, evaluative ability, and ethical awareness are equally important dimensions in AI-supported learning environments. Additionally, the findings extend the application of TTF theory into generative artificial intelligence contexts, showing that technological effectiveness depends not only on system characteristics but also on users' digital readiness. Practically, the findings suggest that universities and academic institutions should strengthen digital literacy education beyond technical training. Students require structured guidance concerning prompt formulation, source validation, information credibility assessment, ethical AI use, and responsible academic writing practices. For librarians and information professionals, these findings indicate opportunities to integrate AI literacy training into information literacy instruction, ensuring that students develop balanced competencies between technological convenience and scholarly rigor. Universities may also consider designing institutional policies promoting responsible AI-assisted learning to minimize plagiarism risks and misinformation. Methodologically, this study demonstrates that quantitative descriptive approaches combined with correlational analysis can effectively identify relationships between digital literacy and educational technology effectiveness. However, future studies could complement quantitative findings through qualitative methods such as interviews or focus groups to understand students' experiences, challenges, and ethical concerns in greater depth. Mixed-method approaches may provide richer insights into behavioral and contextual dimensions of ChatGPT use in academic settings.

Despite its contributions, this study contains several limitations that should be acknowledged objectively. First, respondents were limited to Library and Information

Science students from a single academic cohort and faculty, restricting the generalizability of findings across broader educational populations. Students from other disciplines may demonstrate different levels of digital literacy and patterns of ChatGPT use. Second, data collection relied on self-reported questionnaires, which may be influenced by subjective bias, social desirability, or inaccurate self-assessment. Third, the study focused primarily on correlational relationships and therefore cannot establish causal explanations between digital literacy and ChatGPT effectiveness. Fourth, the rapidly evolving nature of artificial intelligence technologies means that user experiences and perceptions may shift significantly over time as ChatGPT capabilities continue to develop. Therefore, longitudinal research is necessary to capture changing patterns of AI adoption and digital literacy development. Overall, the findings emphasize that ChatGPT may function as an effective academic information retrieval tool when accompanied by strong digital literacy competencies. The study highlights that technological effectiveness is not solely determined by technological sophistication but also by users' critical capacity to evaluate, interpret, and responsibly apply information. Consequently, strengthening students' digital literacy should be considered an essential priority for higher education institutions seeking to maximize the educational potential of generative artificial intelligence while minimizing its associated academic risks.

CONCLUSION

The findings of this study indicate that the level of digital literacy among students of the Library and Information Science Program at Universitas Negeri Padang, cohort 2022, falls within a high category, with a mean score of 3.14. This finding suggests that students possess adequate competencies in utilizing digital technologies, understanding and evaluating information, and employing digital media to support academic activities. Among the measured indicators, basic digital literacy skills demonstrated the highest achievement, indicating that students are familiar with digital devices and capable of utilizing ChatGPT in academic information retrieval processes. Nevertheless, the findings also reveal that information verification and critical evaluation of ChatGPT-generated responses remain areas requiring further improvement to reduce the risk of misinformation and overreliance on technology. In addition, the effectiveness of ChatGPT use in academic information retrieval was also categorized as high, with a mean score of 3.04, indicating that ChatGPT is perceived as useful in facilitating faster information access, improving understanding of

academic materials, supporting task completion, and assisting students in preliminary academic information searches. Furthermore, statistical analysis demonstrated a strong and significant relationship between digital literacy and the effectiveness of ChatGPT use in academic information retrieval, with a correlation coefficient of 0.660 and a significance value of 0.000. This finding confirms that higher levels of digital literacy are associated with more effective utilization of ChatGPT in supporting academic activities.

In terms of scientific contribution, this study contributes to the advancement of library and information science, particularly in understanding the relationship between digital literacy, artificial intelligence utilization, and the effectiveness of academic information retrieval. The study also reinforces the relevance of digital literacy theory and the Task-Technology Fit approach in explaining the effectiveness of artificial intelligence technologies in higher education settings. More importantly, it provides empirical evidence that effective use of AI technologies is influenced not only by technological capability but also by users' competencies in critically and responsibly evaluating digital information. Based on these findings, future studies are recommended to involve broader participant groups, incorporate more diverse institutional contexts, and examine additional relevant variables to provide a more comprehensive understanding of ChatGPT and artificial intelligence utilization in academic environments. Furthermore, the application of alternative research approaches may offer deeper insights into students' digital behavior in academic information retrieval practices.

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