Khizanah al-Hikmah : Jurnal Ilmu Perpustakaan, Informasi, & Kearsipan
p-ISSN: 2354-9629
e-ISSN: 2549-1334
Volume 14 Issue 2, June, 2026

Understanding Higher Education Students' Perceptions and Behaviors in Using Gen-AI: Strategic Insights for Academic Librarians

Chandra Pratama Setiawan[1] & Samuel Kenley Worang[2]

[1,2]Petra Christian University, Indonesia
Correspondence email: chandra.pratama@peter.petra.ac.id

Notes

Submitted: 17-04-2026
Revised: 22-06-2026
Accepted: 23-06-2026

How to cite: Setiawan, C. P., & Worang, S. K. (2026). Understanding Higher Education Students' Perceptions and Behaviors in Using Gen-AI: Strategic Insights for Academic Librarians. Khizanah Al-Hikmah : Jurnal Ilmu Perpustakaan, Informasi, Dan Kearsipan, 14(2). https://doi.org/10.24252/kah.v14i2a8

DOI: 10.24252/v14i2a8

Copyright 2026 © the Author(s)

This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License.

ABSTRACT

Background: The rapid development and use of generative AI (Gen-AI) in recent years are closely related to college libraries. However, the swift adoption of Gen-AI technology by users has not been matched by appropriate college library services.
Purpose: The study examines user perceptions of Gen-AI, how Gen-AI is used, and the support expected from college libraries in relation to it.
Methods: A descriptive study was conducted involving 112 students from Petra Christian University using convenience sampling. The questionnaire was distributed and processed descriptively using the Qualtrics program.
Findings: Students have a positive perception of Gen-AI, both for academic and non-academic purposes, though it is not their sole primary reference in solving problems. Most students frequently use Gen-AI to generate ideas, draft texts, understand reading materials, replace search engines, perform simple calculations, plan trips, and even share personal stories or seek consultations. The most widely used Gen-AI tools are ChatGPT, Gemini, and Perplexity, without subscriptions. Gen-AI outputs are thoroughly checked and modified before task submission, whether produced with technological assistance or independently. Students expect their college library to be the unit most responsible for providing training on how to use Gen-AI correctly, particularly in creating good and effective prompts.
Originality/Value: This study offers insight into the gap between student adoption of Gen-AI and the readiness of college library services to support it, highlighting the strategic role libraries can play in prompt-literacy training and positioning libraries as key facilitators in responsible Gen-AI use within academic settings.

Keywords: Information seeking behavior; Gen-AI; Artificial intelligence

1. INTRODUCTION

The rapid development of Artificial Intelligence (AI) in recent years has changed the way of learning and teaching in the world of education, including higher education. In addition to its development, the use of Gen-AI is also becoming increasingly popular among students and educators. A significant increase in AI users has been recorded since 2020, from 150,000 users to 1.18 million users in 2025, and it is projected to reach 3.24 million by 2030 (Statista, 2025).

Beside the increasing number of users, which is predicted to continue growing, the number of publications about AI also shows the same upward trend. Approximately 3,460 publications in 2020 increased to 5,700 in 2024 (Statista, 2025). The trend of increasing publication numbers is also reflected in their utilization within the library world. Several studies were conducted before the year 2000 on the exploration and experimentation of AI in the library world, which showed the potential use of AI in metadata production, information retrieval systems, classification and indexing systems, enhancement of digital video library interfaces, and improvement of search effectiveness through various languages, whether through speech recognition, natural language processing, image analysis, preference logic, and multi-agent systems (Ferguson, 1997; Hauptmann et al., 1997; Michos et al., 1999).

Throughout the years 2000 to 2019, research on AI and libraries continued to evolve. The exploration of AI usage has begun to penetrate library services, including the use of avatars or graphical displays to facilitate interactions with library users, the utilization of RFID for more effective service management, digital library search engine, the enhancement of user experience through library websites, and user tracking, generating statistical reports and usage guides. In addition, the use of Virtual Reality (VR) is also starting to be utilized. Along with the rapid development of AI technology, Generative AI (Gen-AI) emerged, which is a part of AI focused on the ability to automatically generate new content, including text, images, videos, audio, and three-dimensional (3D) images (Chiu, 2024). The use of Gen-AI has a significant impact on libraries because it affects users in terms of research, reading habits, information retrieval, and decision-making (Balleste, 2002, 2007; Johnson, 2018; Massis, 2018; R-Moreno et al., 2014; Wu et al., 2015).

Entering the year 2020, research on the utilization of Gen-AI in libraries has been growing increasingly massive, with a focus not only on the application of technology but also on the perspective of its acceptance. The study includes librarians' awareness of Gen-AI, adoption issues, and concerns about the replacement of the librarian profession by Gen-AI, as well as the use of Gen-AI and big data to create intelligent libraries. The research also highlights librarians' positive attitudes toward the use of Gen-AI and emphasizes the importance of training for librarians in using Gen-AI. Additionally, Gen-AI is used for chatbots that support 24/7 virtual library services, digital reading promotion, and the use of chatGPT in university libraries, which has proven beneficial but requires attention to accuracy and ethics (Abayomi et al., 2020; Adetayo, 2023; Bi et al., 2022; Chen et al., 2021; Lin et al., 2023; Panda & Chakravarty, 2022; Yoon et al., 2022).

Meakin (2024) argues that Gen-AI is beneficial for students when applied in university libraries within the research process workflow, such as enhancing information retrieval services, summarizing articles, translating texts, and improving language structure. To support this, university libraries can facilitate training to enhance students' digital literacy and critical thinking skills so they can use Gen-AI ethically and effectively.

A simple bibliometric analysis was conducted by taking data from Scopus using the keywords (Gen-AI AND Usage) AND ((Academic AND Library OR Libraries), resulting in the discovery of 35 documents. These documents indicate that research specifically on the behavior of Gen-AI usage by users and how academic libraries respond to this as a strategy to improve their services is still limited, and there is a gap between the rapid adoption of Gen-AI by users and the adoption of library services.

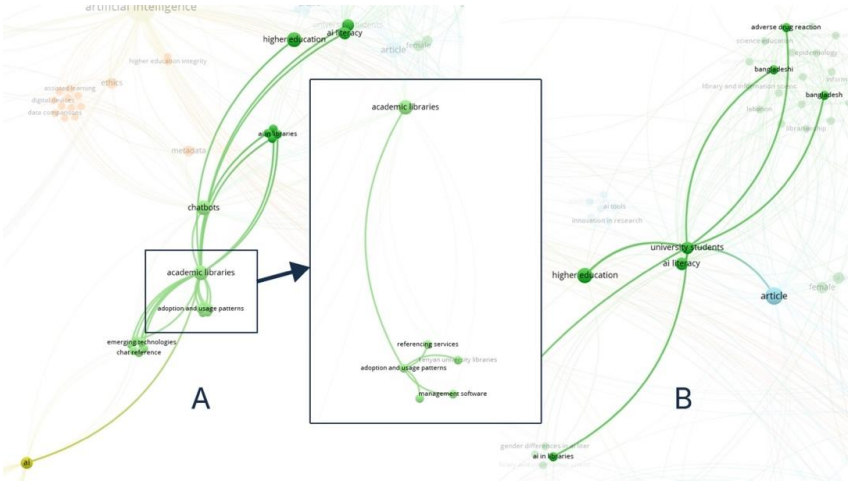


Figure 1. Bibliometric visualization

Therefore, this study aimed to examine students' perceptions and patterns of Gen-AI use and to identify the implications of these practices for academic librarianship. Specifically, the study sought to explore how students perceive Gen-AI, how they integrate it into their academic activities, and how academic librarians can support its responsible and ethical use. By addressing these questions, the study contributes to a better understanding of students' interactions with Gen-AI while providing insights to inform the development of library services, information literacy programs, and institutional strategies for responsible AI adoption in higher education.

2. METHODS

This research is a descriptive study using survey methods to obtain an overview of students' perceptions and behaviors in using Gen-AI, particularly in relation to the role of university libraries. Convenience sampling was used in data collection from students at Petra Christian University, Surabaya. No statistical measurements were used to assess the representation of study programs at the University, but respondents were recorded from various programs and years of study. Within a span of 2 weeks from 1-14 September 2025, 112 respondents have participated in this survey.

A total of 27 questions were compiled and distributed online through the Qualtrics platform, consisting of 2 open-ended and 25 close-ended items. The questions were organized into several themes, including 2 demographic questions, 16 questions related to behavior, and 9 questions related to perception. The close-ended questions were formulated using a four-point Likert scale, namely strongly disagree, disagree, disagree, agree, and strongly agree, with the middle option removed to encourage more decisive choices. Meanwhile, some questions related to usage behavior use three response categories, namely

never, rarely, and always. In addition, open-ended questions were also included in this survey to provide a more comprehensive picture.

To maintain the quality and integrity of the survey, the survey data is processed through Qualtrics with screening and descriptive analysis stages. Screening is conducted by evaluating the completion duration, so two responses completed in less than 60 seconds are not included in the calculation. Next, descriptive statistical analysis in the form of frequency and percentage is conducted using the Qualtrics program to illustrate the demographics of students, perceptions, and usage behavior.

3. RESULTS AND DISCUSSION

a) Demographics of Respondents

The respondents of this survey include students from various levels of undergraduate studies (S1), ranging from the first year to the fourth year of college. Most of the students are in their third year of study, accounting for 42%. Second-year and fourth-year students each make up 23%. Meanwhile, the fields of study of the participating students are very diverse. The three most dominant fields of study are STEM (Science, Technology, Engineering, Mathematics) at 32%, followed by Humanities (History, Languages, Literature, Philosophy, and Culture) at 19%, and Business, Economics, Accounting, Management at 17%.

b) Perception

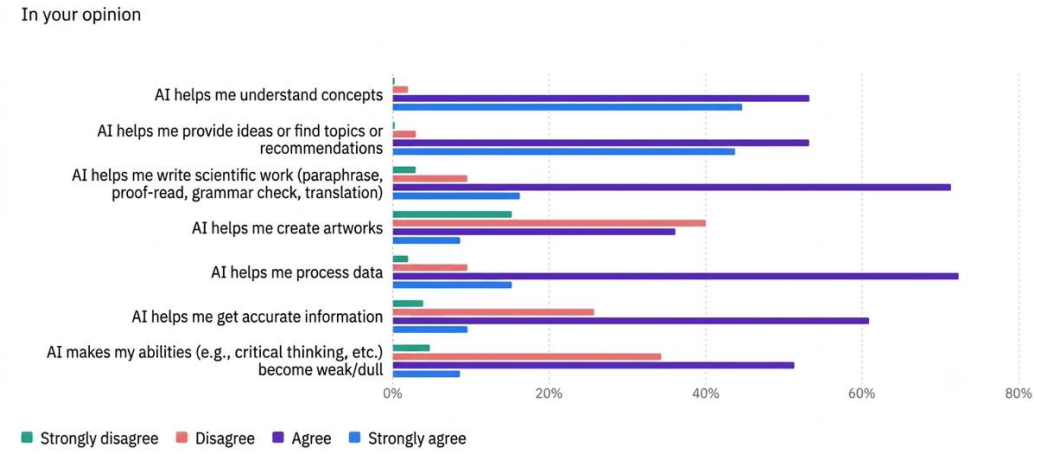


Figure 2. Graph of perception toward Gen-AI

Based on the survey results, the majority of students show a positive perception of the use of Gen-AI in academic activities. The majority of respondents, 98%, believe that Gen-AI is very helpful in understanding concepts, while 97% state that Gen-AI is very useful in providing ideas or finding topics/recommendations. In addition, 88% of students find Gen-AI beneficial for data processing, and 87% of students believe that Gen-AI supports them in writing scientific papers. These results indicate that students' perceptions of Gen-AI align with the survey findings regarding the purpose of using Gen-AI in an academic context, which is to obtain ideas or concepts for completing academic assignments. Nevertheless, interestingly, more than 50% of students stated that they do not consider Gen-AI as a reference or primary solution in solving various problems.

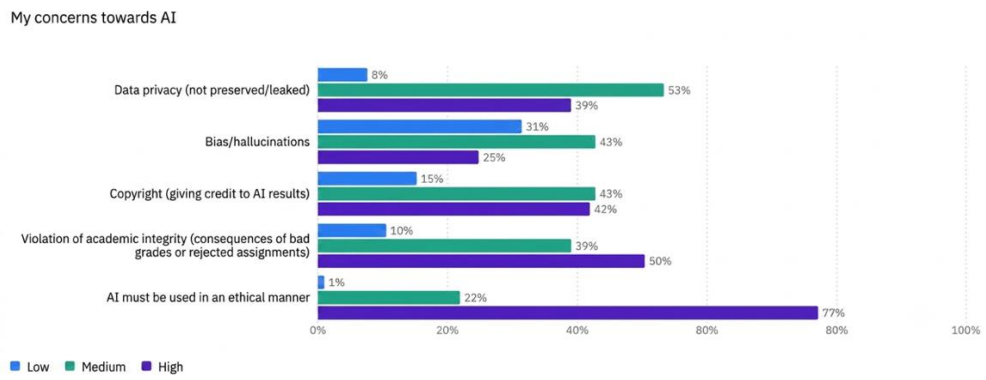


Figure 3. Graph of concern toward Gen-AI

If we look at the high level of student attention toward the use of Gen-AI, the most highlighted aspect is ethics, where 77% of students emphasize that Gen-AI should be used ethically. Additionally, 50% of students also pay significant attention to the potential violation of academic integrity, such as the risk of poor grades or task rejection due to the misuse of Gen-AI. Copyright issues are also a focus, with 43% of students giving high attention to the issue of crediting Gen-AI results.

c) Usage Behavior

Almost all students, 99%, have used Gen-AI, while only 1% of students stated that they have never utilized Gen-AI. The reasons students do not use Gen-AI include feeling more comfortable completing tasks manually for a deeper understanding, as well as concerns that excessive use may diminish critical thinking skills.

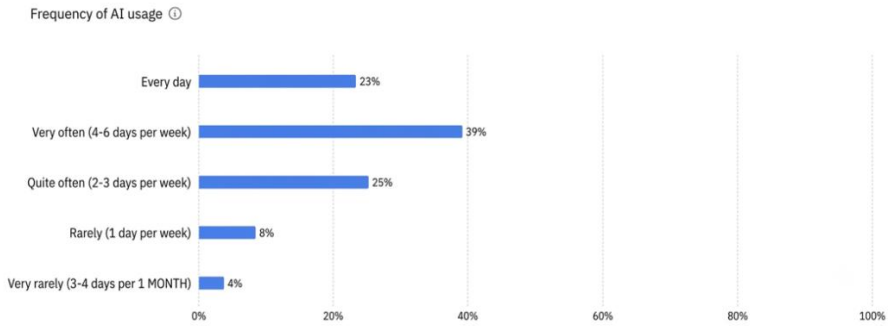


Figure 4. Graph of Gen-AI usage frequency

In terms of the frequency of Gen-AI usage, the majority of students, 39%, stated that they use Gen-AI very frequently, 4-6 days a week. About 25% of students use Gen-AI quite frequently, 2-3 days a week. Then, 23% of students use Gen-AI every day. These findings indicate that Gen-AI has become a significant part of students' academic activities.

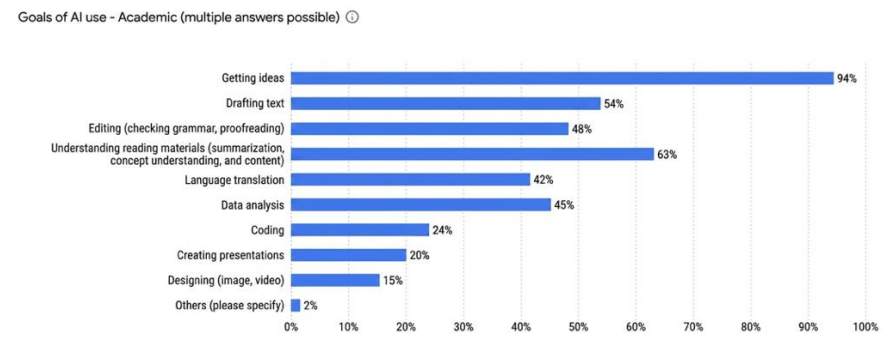


Figure 5. Graph of Gen-AI usage goals in academic contexts

In academic contexts, Gen-AI is mainly used for concept generation or brainstorming, with a usage rate of 94%. Furthermore, around 63% of users utilize it to enhance comprehension of reading content, while more than half (53%) implement this technology to assist in text writing.

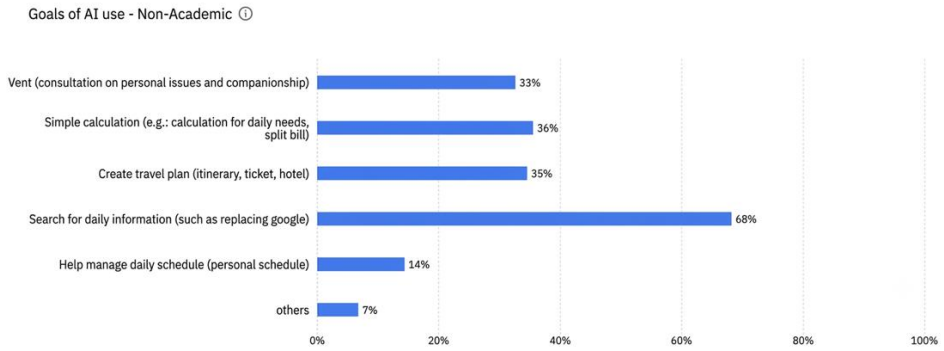


Figure 6. Graph of Gen-AI usage goals in non-academic contexts

Not only used for academic purposes, students also use Gen-AI for non-academic purposes. The majority of students, 68%, use Gen-AI to search for general information, replacing searches through search engines like Google. Additionally, 36% of students also utilize Gen-AI for simple calculations, such as splitting costs or other practical needs. On the other hand, 35% of students also use Gen-AI to plan travel itineraries, tickets, or hotels. Interestingly, in fourth place, 33% use Gen-AI for more personal purposes, such as a medium for sharing personal stories or consultations. This figure is not far from the use of Gen-AI for travel calculations and planning.

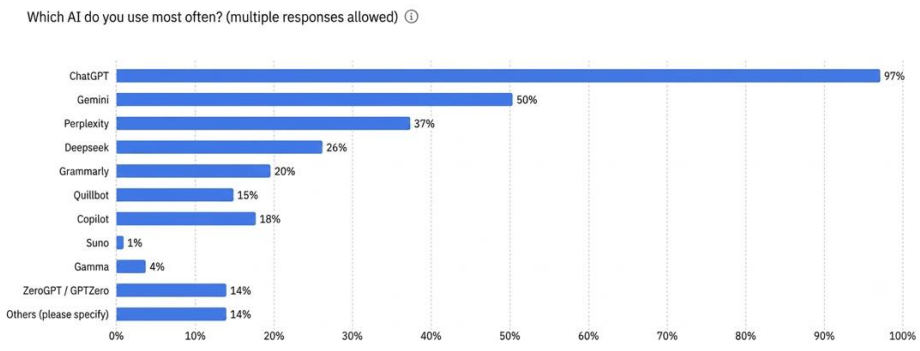


Figure 7. Frequently used Gen-AI graphics

Based on its popularity, the top 3 most used Gen-AI are ChatGPT, at 97%, followed by Gemini at 50% and Perplexity at 37%. Additionally, there are other Gen-AI like Deepseek, Copilot, and Grammarly that are also used by students. Although the majority of students use various types of Gen-AI, not all of them subscribe to premium services. Only 14% of students are recorded as paid users, and from that group, most subscribe to ChatGPT, Gemini, and CoPilot. This indicates that most students prefer to use the free version, even with certain feature limitations.

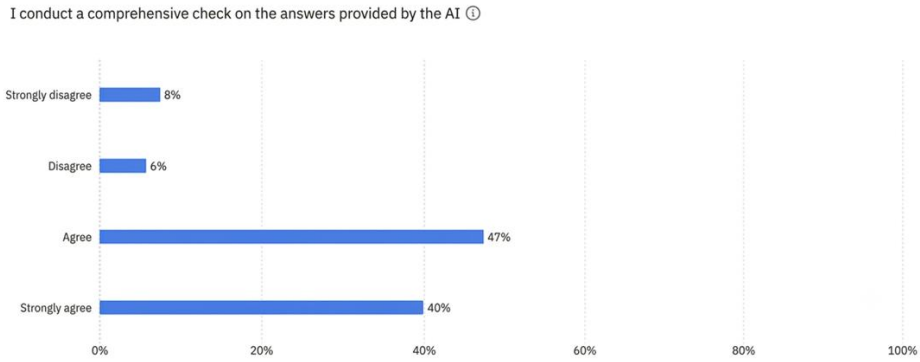


Figure 8. Graph of a comprehensive check of Gen-AI results

Regarding the results provided by Gen-AI, 87% of students stated that they conducted a comprehensive review. These findings are further reinforced by the fact that the majority of students (62%) admitted to finding hallucinations in the Gen-AI results, which serves as concrete evidence that the verification was indeed carried out. The tendency of students to conduct checks and critical verifications is also demonstrated by the finding that 58% of students affirmed that they have never used Gen-AI results that are considered unreliable. This data shows the consistency of students' attitudes in maintaining the quality and reliability of information by consciously rejecting unreliable Gen-AI results.

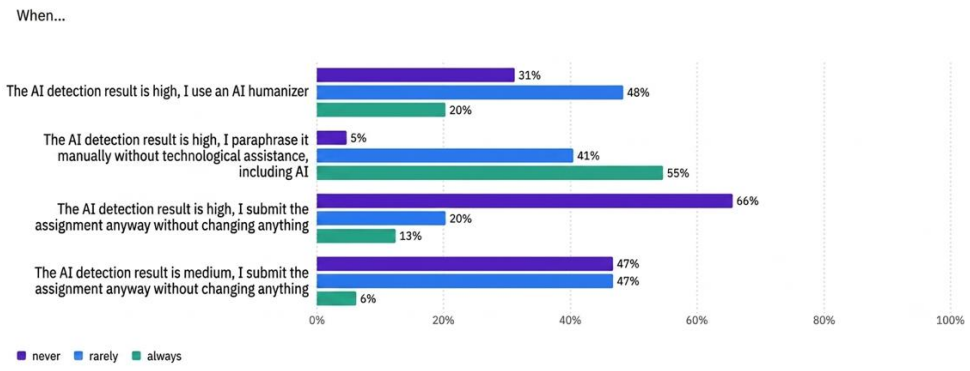


Figure 9. The actions of students when receiving Gen-AI detection results

In terms of using Gen-AI detection, the majority of students, specifically 64%, do so before submitting their assignments. When the Gen-AI detection results show a high score, 55% of students choose to paraphrase independently without technological assistance, and 20% of students use an AI humanizer. Interestingly, the proportion of students who stated that they never submit assignments directly without modifications, whether the Gen-AI detection results are high or medium, is quite dominant. This reinforces the finding that the majority of students demonstrate academic awareness by not using Gen-AI results as their assignments without first making modifications or verifications, so that the submitted work better reflects the expected originality and quality. However, with its usage, many students still rarely (54%) or never (26%) include a disclosure of the extent to which Gen-AI was used in their work. Despite the use of Gen-AI detection tools, more than half of the students surveyed (58%) were unaware of the generative AI guidelines issued by the Indonesian ministry of education. Among those who were aware, 33% had not yet read the guidelines, while only 10% of the total respondents had actually read them.

d) Expectations of University Libraries

The findings show that 84% of students have never participated in training related to the use of Gen-AI, while only 16% have undergone such training. Among the students who have received training in the use of Gen-AI, most attended training sessions organized by general entities (companies, institutions, courses, or experts). This condition shows the potential for organizing Gen-AI training.

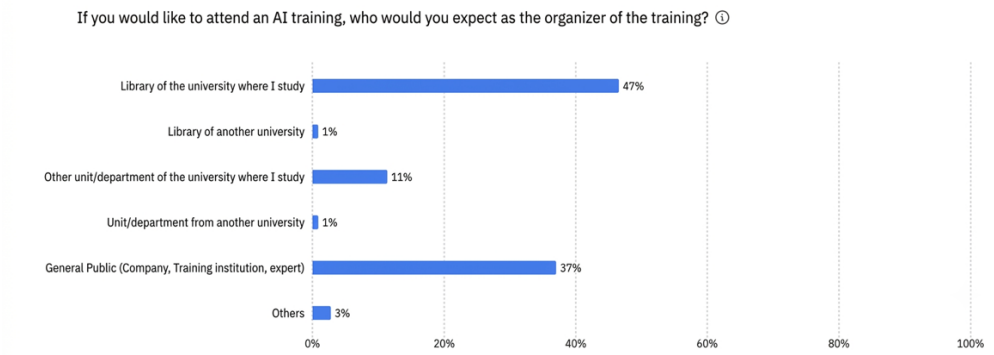


Figure 10. Graph of the parties expected to organize the Gen-AI usage training

Interestingly, when students were asked about the party they most hoped would organize Gen-AI training, nearly half of the students, specifically 47%, chose the university library where they study. This finding underscores the high expectations regarding the role of university libraries in providing Gen-AI literacy to students.

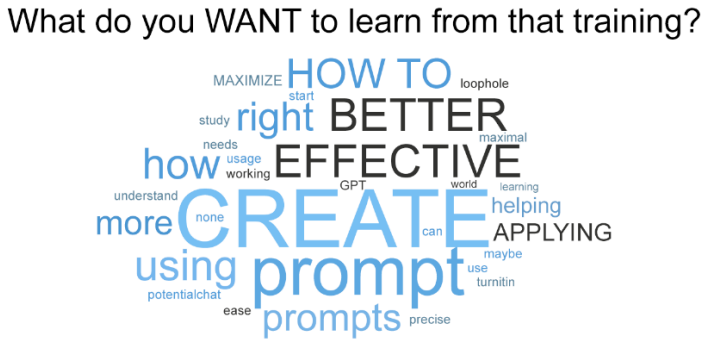


Figure 11. Word cloud of things to learn in the Gen-AI usage training

Furthermore, when students were asked about the material they most wanted to learn from the Gen-AI usage training, the word cloud results showed that the majority of students emphasized the need to understand how to use Gen-AI correctly, particularly in terms of creating good and effective prompts. Words like method, good, correct, and prompt appeared prominently, indicating the students' focus on improving their technical and practical skills in using Gen-AI.

DISCUSSION

a) Student's Perception and Behavior in Using Gen-AI

In the academic context, this study shows that students primarily use Gen-AI to generate ideas, brainstorming, and to support their understanding of readings. This finding aligns with Zhou (2024), who highlights the positive impact of Gen-AI on idea generation, particularly in overcoming creative blocks when ideas are scarce. Furthermore, Zhou notes that Gen-AI contributes to personalized learning by assisting with summarizing readings, drafting academic essays, and providing explanations of concepts as well as feedback on learning in a flexible manner, available anytime (24/7).

In the non-academic context, this study reveals that students predominantly use Gen-AI for information seeking, increasingly substituting traditional search engines such as Google. This finding is particularly noteworthy, as Google remains the initial choice at the information search planning stage. However, during the execution phase, students tend to shift toward Gen-AI as their primary source. This contrasts with Perruso's findings, which indicate that students begin their research-related information searches through Google (2016). This discrepancy may be attributed to differences in research context, as the present study situates the use of Google within a non-academic context, whereas Perruso focuses on academic settings. Nevertheless, this finding remains significant, given that more than half of the respondents (53%) in this study also reported using AI to assist in academic writing. This shift suggests that Gen-AI has begun to reshape students' information-seeking behaviors across both academic and non-academic domains.

Furthermore, the most widely used Gen-AI tool among students is ChatGPT. Its dominance is consistent with previous studies, including Mohtashami (2025), Balabdaoui

(2024), and Zhou (2024), all of which identify ChatGPT as the most popular Gen-AI platform among students.

In terms of usage practices, students demonstrate a relatively high level of awareness that Gen-AI should be used critically and in accordance with ethical principles to avoid issues related to academic integrity. To maintain this integrity, students tend to utilize AI detection tools prior to submitting their assignments. When similarity levels or indications of AI use are considered high, they prefer to paraphrase independently without relying on technological assistance. Additionally, students do not directly submit Gen-AI generated outputs without first revising or adapting them.

This awareness of academic integrity is further supported by students' understanding of Gen-AI limitations, including the potential for hallucinations and the risk of generating non-credible sources. Similar concerns were reported by students in the study of Chan and Hu (2023), These concerns are well-founded, as previous study have stated that Gen-AI can produce hallucinated content, misattribution and unreliable information (Cheng et al., 2025; Peres et al., 2023; Spinellis, 2025; Van Dis et al., 2023). Interestingly, the high-level awareness of academic integrity contrasts with the students' use of disclosure statements, as many students are still unfamiliar with or do not apply such practices. The limitations of AI use in the context of academic integrity have also been identified in studies by Balabdaoui (2024), Salyer (2024), and Zhou (2024), which highlight boundaries in the appropriate use of AI in academic settings. These findings imply the need for more structured training for students, particularly in relation to the ethical, critical, and responsible use of Gen-AI in academic contexts.

This study also indicates that many students have not yet participated in formal training on AI usage. Despite this, they express a clear need to develop practical skills, such as crafting effective prompts and optimizing the use of Gen-AI to support academic tasks. Notably, students expect university libraries to play a role in facilitating such training within their learning environment.

This finding suggests a shift in learning preferences regarding AI. While Mohtashami (2025) reports that students tend to learn AI usage independently through social media and online videos, the present study shows a preference for more structured and direct learning experiences, particularly through training programs organized by libraries. This underscores the strategic role of academic libraries in supporting the development of students' AI literacy in a more systematic and contextualized manner.

b) Academic librarians' support for the responsible use of Gen-AI

The findings of this study can be interpreted through the PAIGE framework proposed by Shanto et al. (2023), particularly regarding educating students about responsible AI use, utilizing Gen-AI tools for learning support, establishing a culture of academic integrity, and employing AI detection tools. In the present study, students demonstrated relatively positive and critical attitudes toward the use of Gen-AI. They generally understood that AI-generated outputs should not be used without evaluation and revision, particularly in academic contexts. Students also showed awareness of the risks of hallucinations, inaccurate information, and non-credible references produced by Gen-AI systems. These findings align with the PAIGE framework, which emphasizes the importance of ethical and responsible AI integration in higher education settings. The findings suggest that students are not merely passive users of Gen-AI technologies, but rather active users attempting to balance the benefits of AI assistance with the need to maintain academic integrity.

However, despite this awareness, the findings also reveal important gaps in students' AI literacy. Many students still lack familiarity with disclosure statements and formal ethical guidelines regarding AI usage in academic work, such as guidelines from Indonesian ministry of education. Their current practices are largely based on self-learning, experimentation, or peer influence rather than systematic instruction. This condition reflects one of the central concerns addressed by the PAIGE framework, namely the need to educate students and faculty about how to use Gen-AI responsibly and reasonably. In this context, academic librarians may play a significant role in bridging this gap by providing structured AI literacy programs that move beyond technical usage toward critical and ethical understanding. Librarians can assist students in understanding how AI systems generate information, how to evaluate AI-generated content critically, and how to identify limitations such as hallucinations, misinformation, fabricated references, and algorithmic bias.

The findings further demonstrate that students primarily use Gen-AI for brainstorming, generating ideas, summarizing readings, and understanding academic materials. This indicates that Gen-AI is increasingly positioned as a learning support tool rather than merely a shortcut for completing assignments. Such findings strongly correspond with one of the key components of the PAIGE framework, namely utilizing Gen-AI tools for learning support. In this regard, academic librarians can contribute by facilitating students' ability to use Gen-AI productively within academic learning processes. Beyond conventional information literacy instruction, librarians may support students in developing effective prompting strategies, integrating AI tools into research and writing workflows, and understanding how Gen-AI can assist learning without replacing independent thinking and analytical skills. This expanding role positions of academic librarians as learning partners who help students engage with Gen-AI critically, responsibly, and productively within academic contexts.

The role of academic librarians also becomes increasingly important because students in this study expressed a strong expectation that university libraries should organize AI-related training and workshops. Students specifically highlighted the need for practical guidance in developing effective prompts and maximizing Gen-AI use for academic purposes. This finding suggests that librarians are perceived not only as information providers but also as trusted educational partners capable of supporting emerging digital competencies. Within the PAIGE framework, educating users about responsible AI practices is considered essential for preserving assignment integrity. Academic librarians are strategically positioned to fulfil this objective because they already possess experience in delivering information literacy instruction, research support services, and academic integrity education. Therefore, academic librarians can expand their roles from these services into AI literacy initiatives, including workshops on ethical AI use, prompt engineering, disclosure statement practices, AI citation guidance, and responsible academic writing with AI assistance.

Moreover, the findings reveal that students tend to use AI detection tools before submitting assignments and often revise AI-generated content independently when detection results are considered high. This demonstrates that students are attempting to maintain academic integrity while simultaneously benefiting from AI assistance. Such practices align with another major element of the PAIGE framework, namely using Gen-AI detection tools to preserve assignment integrity. Nevertheless, the framework also emphasizes that detection tools alone are insufficient without the support of educational approaches that foster ethical awareness and responsible behavior. In this regard, academic librarians may contribute by educating students about the limitations of AI detection systems,

including the possibility of false positives and inaccuracies, while also encouraging reflective and transparent AI usage practices. Rather than focusing solely on surveillance or punishment, academic librarians can promote a supportive learning environment that encourages responsible experimentation with Gen-AI technologies.

Another important aspect highlighted in the PAIGE framework is the establishment of a conducive environment for fostering academic integrity. The findings of this study suggest that students generally do not intend to replace their own work entirely with AI-generated outputs. Instead, Gen-AI is commonly used as a supplementary tool to support understanding, generate ideas, and improve productivity. This indicates opportunities for higher education institutions, including libraries, to cultivate a balanced and ethical AI culture rather than adopting restrictive approaches. Academic librarians can collaborate with faculty members to design educational programs that encourage critical engagement with AI technologies, emphasize originality and reflective thinking, and develop policies that clearly define acceptable and unacceptable AI practices. Such collaboration is important because students require consistent guidance across academic environments regarding how AI can be used responsibly in coursework and research activities.

Furthermore, the increasing tendency of students to use Gen-AI for non-academic information seeking as a substitute for traditional search engines also has important implications for academic librarianship. Students are beginning to shift from conventional search behavior toward conversational AI-based information retrieval. This transformation may influence how students assess credibility, interpret authority, and verify information in digital environments. Consequently, academic librarians need to adapt information literacy instruction to address these emerging AI-mediated information-seeking behaviors. In addition to teaching database searching and source evaluation, librarians may need to educate students about how Gen-AI systems retrieve and generate information, the risks of hallucinations and fabricated references, and the importance of cross-checking AI-generated responses using credible scholarly sources. In this context, academic librarians play an important role in fostering critical evaluation skills and promoting informed engagement with AI-generated information.

Overall, the findings indicate that academic librarians have the potential to become key actors in supporting the responsible and effective use of Gen-AI in higher education. Through the perspective of the PAIGE framework, academic librarians are not merely service providers but also educators, facilitators, and ethical guides in the evolving AI-driven learning environment. The increasing use of Gen-AI among students creates opportunities for librarians to redefine and strengthen their educational roles by developing AI literacy initiatives that promote critical thinking, ethical awareness, responsible information practices, and academic integrity. As Gen-AI technologies continue to evolve, the involvement of academic librarians will become increasingly important in ensuring that students are equipped not only with technical AI skills but also with the critical and ethical competencies necessary for responsible participation in digital academic environments.

4. CONCLUSION

Students demonstrated positive perceptions of Gen-AI and integrated it extensively into both academic and non-academic activities, particularly for idea generation, drafting, and information seeking. Although Gen-AI has become a routine learning tool, students generally recognized the importance of academic integrity and critically reviewed AI-generated content

before using it. Nevertheless, notable gaps remained in AI literacy, especially regarding disclosure practices, ethical considerations, and formal training, as many students developed their AI competencies through self-directed learning rather than structured educational support.

Viewed through the PAIGE framework, these findings underscore the strategic role of academic librarians in promoting the responsible and ethical use of Gen-AI. Beyond providing access to information, academic librarians can foster AI literacy by supporting critical evaluation of AI-generated content, responsible prompting, disclosure and citation practices, and awareness of AI limitations, including hallucinations, misinformation, fabricated references, and algorithmic bias. The findings also suggest that students increasingly expect university libraries to serve as active partners in AI education, reinforcing the evolving role of academic libraries as facilitators of digital and AI literacy in higher education.

This study was limited by its use of convenience sampling and a relatively small sample, which may restrict the generalizability of the findings. Future research should include larger and more diverse samples across academic disciplines and examine the effectiveness of library-led AI literacy initiatives in fostering responsible Gen-AI use.

AUTHORS' CONTRIBUTIONS

Chandra Pratama Setiawan: Conceptualization, developing research framework, theoretical framework, overall research design.
Samuel Kenley Worang: Developing survey instruments, data collection, drafting the manuscript

CONFLICT OF INTERESTS

We state that there are no known conflicts of interest linked with this publication, and that there has been no significant financial assistance for this work that could have influenced its outcome.

REFERENCES

Abayomi, O. K., Adenekan, F. N., Abayomi, A., Olateju, Ajayi, T. A., & Aderonke, A. O. (2020). Awareness and perception of the artificial intelligence in the management of University Libraries in Nigeria. Journal of Interlibrary Loan, Document Delivery & Electronic Reserve, 29(1–2), 13–28. https://doi.org/10.1080/1072303X.2021.1918602

Adetayo, A. J. (2023). Artificial intelligence chatbots in academic libraries: The rise of ChatGPT. Library Hi Tech News, 40(3), 18–21. https://doi.org/10.1108/LHTN-01-2023-0007

Balabdaoui, F., Dittmann-Domenichini, N., Grosse, H., Schlienger, C., & Kortemeyer, G. (2024). A survey on students' use of AI at a technical university. Discover Education, 3(1), 51. https://doi.org/10.1007/s44217-024-00136-4

Balleste, R. (2002). The future of artificial intelligence in your virtual libraries. Computers in Libraries, 22(9), 10–15.

Balleste, R. (2007). A hypothetical case study: Creating AI assistants in the law library. Legal Reference Services Quarterly, 26(1–2), 47–56. https://doi.org/10.1300/J113v26n01_04

Bi, S., Wang, C., Zhang, J., Huang, W., Wu, B., Gong, Y., & Ni, W. (2022). A survey on artificial intelligence aided internet-of-things technologies in emerging smart libraries. Sensors, 22(8), 2991. https://doi.org/10.3390/s22082991

Chan, C. K. Y., & Hu, W. (2023). Students' voices on generative AI: Perceptions, benefits, and challenges in higher education (arXiv:2305.00290). arXiv. https://doi.org/10.48550/arXiv.2305.00290

Chen, Z., Zhou, M., & Feng, L. (2021). Analysis of the smart library construction in colleges based big data and artificial intelligence. Journal of Physics: Conference Series, 1955(1), 012017. https://doi.org/10.1088/1742-6596/1955/1/012017

Cheng, A., Nagesh, V., Eller, S., Grant, V., & Lin, Y. (2025). Exploring AI hallucinations of ChatGPT: Reference accuracy and citation relevance of ChatGPT models and training conditions. Simulation in Healthcare: The Journal of the Society for Simulation in Healthcare, 20(6), 413–418. https://doi.org/10.1097/SIH.0000000000000877

Chiu, T. K. F. (2024). Future research recommendations for transforming higher education with generative AI. Computers and Education: Artificial Intelligence, 6, 100197. https://doi.org/https://doi.org/10.1016/j.caeai.2023.100197

Ferguson, I. A. (1997). IJCAI-97 workshop on AI in digital libraries. D-Lib Magazine. https://www.dlib.org/dlib/september97/09clips.html

Hauptmann, A. G., Witbrock, M. J., & Christel, M. G. (1997). Artificial intelligence techniques in the interface to a Digital Video Library. CHI '97 Extended Abstracts on Human Factors in Computing Systems Looking to the Future - CHI '97, 2. https://doi.org/10.1145/1120212.1120214

Johnson, B. (2018). Libraries in the age of artificial intelligence. Computers in Libraries, 38(1). https://www.infotoday.com/cilmag/jan18/Johnson--Libraries-in-the-Age-of-Artificial-Intelligence.shtml

Lin, X., Sun, Y., Zhang, Y., & R, K. M. (2023). Application of AI in library digital reading promotion service. 2023 IEEE International Conference on Integrated Circuits and Communication Systems (ICICACS), 1–6. https://doi.org/10.1109/ICICACS57338.2023.10100096

Massis, B. (2018). Artificial intelligence arrives in the library. Information and Learning Science, 119(7/8), 456–459. https://doi.org/10.1108/ILS-02-2018-0011

Meakin, L. (2024). Exploring the impact of generative artificial intelligence on higher education students' utilization of library resources: A critical examination. Information Technology and Libraries, 43(3). https://doi.org/10.5860/ital.v43i3.17246

Michos, S., Stamatatos, E., & Fakotakis, N. (1999). Supporting multilinguality in library automation systems using ai tools. Applied Artificial Intelligence, 13(7), 679–703. https://doi.org/10.1080/088395199117243

Mohtashami, F., Ghasemtabar, S. A., & Nasab, Y. M. (2025). Exploring students' attitudes and usage of artificial intelligence in the learning process. 2025 12th International and the 18th National Conference on E-Learning and E-Teaching (ICeLeT), 1–6. https://doi.org/10.1109/ICeLeT66022.2025.11025227

Panda, S., & Chakravarty, R. (2022). Adapting intelligent information services in libraries: A case of smart AI chatbots. Library Hi Tech News, 39(1), 12–15. https://doi.org/10.1108/LHTN-11-2021-0081

Peres, R., Schreier, M., Schweidel, D., & Sorescu, A. (2023). On ChatGPT and beyond: How generative artificial intelligence may affect research, teaching, and practice. International Journal of Research in Marketing, 40(2), 269–275. https://doi.org/10.1016/j.ijresmar.2023.03.001

Perruso, C. (2016). Undergraduates' use of Google vs. library resources: A four-year cohort study. College & Research Libraries, 77(5), 614–630. https://doi.org/10.5860/crl.77.5.614

R-Moreno, M. D., Castaño, B., Barrero, D. F., & Hellín, A. M. (2014). Efficient services management in libraries using AI and wireless techniques. Expert Systems with Applications, 41(17), 7904–7913. https://doi.org/10.1016/j.eswa.2014.06.047

Salyer, C. P. (2024). Artificial intelligence through young eyes: A study of students' perspectives and experiences with artificial intelligence in education [Dissertation, Lincoln Memorial University]. https://eric.ed.gov/?id=ED676522

Shanto, S. S., Ahmed, Z., & Jony, A. I. (2023). PAIGE: A generative AI-based framework for promoting assignment integrity in higher education. STEM Education, 3(4), 288–305. https://doi.org/10.3934/steme.2023018

Spinellis, D. (2025). False authorship: An explorative case study around an AI-generated article published under my name. Research Integrity and Peer Review, 10(1), 8. https://doi.org/10.1186/s41073-025-00165-z

Statista. (2025). Artificial intelligence - Indonesia. Statista. https://www.statista.com/outlook/tmo/artificial-intelligence/indonesia

Van Dis, E. A. M., Bollen, J., Zuidema, W., Van Rooij, R., & Bockting, C. L. (2023). ChatGPT: Five priorities for research. Nature, 614(7947), 224–226. https://doi.org/10.1038/d41586-023-00288-7

Wu, J., William, K., Chen, H., Khabsa, M., Caragea, C., Tuarob, S., Ororbia, A., Jordan, D., Mitra, P., & Giles, C. L. (2015). CiteSeerX: AI in a digital library search engine. AI Magazine, 36(3), 35–48. https://doi.org/10.1609/aimag.v36i3.2601

Yoon, J., Andrews, J. E., & Ward, H. L. (2022). Perceptions on adopting artificial intelligence and related technologies in libraries: Public and academic librarians in North America. Library Hi Tech, 40(6), 1893–1915. https://doi.org/10.1108/LHT-07-2021-0229

Zhou, X., Zhang, J., & Chan, C. (2024). Unveiling students' experiences and perceptions of artificial intelligence usage in higher education. Journal of University Teaching and Learning Practice, 21(06). https://doi.org/10.53761/xzjprb23