

The Long-Term Impact of ChatGPT on University Students' Academic Writing Skills

Davina Ladea Jusi

<mailto:tehoanas@gmail.com>

Tadris Bahasa Inggris, IAIN Curup, Bengkulu.

Wildatu Zakia Rahma

wildatuzakiahma12@gmail.com

Tadris Bahasa Inggris IAIN Curup, Indonesia

Dina Mariana

dnamarianaa@gmail.com

Tadris Bahasa Inggris IAIN Curup, Indonesia

Abstract: This research was conducted to investigate the long-term impact of using ChatGPT in students' writing ability in terms of critical thinking, originality, and academic integrity. A qualitative approach using a descriptive interpretive case study design was adopted. The participants in this research are 10 EFL learners who have been using ChatGPT for more than a year for writing. Data was collected by semi-structured interviews, documents (i.e., ChatGPT interaction screenshots, students' writings), and student writings. Data analysis was conducted based on Miles, Huberman, and Saldana's interactive model of data reduction, data display, and conclusion drawing. The findings suggest that ChatGPT produces an 'all or nothing' effect on writing ability. Efficiency of the students in completing the task, enhancement of the text structure, fluency of students' language, and generating ideas is developed; on the contrary, overreliance on the usage of the model led to students' diminished ability of critical thinking, originality, and self-reliance on writing tasks. Respondents' responses indicate students have a perception of ethical usage of AI; for instance, transparency, extensive proofreading, and that students are acknowledged as the actual authors. In the meantime, respondents' attitude towards ChatGPT also undergoes change with the change of AI advancement and institutional policy. Therefore, in order to benefit the learning and instruction processes more efficiently, students should be guided on using ChatGPT responsibly and critically rather than having students' writing standards decreased.

Keywords: ChatGPT, Artificial Intelligence, Academic Writing, Critical Thinking, Originality, Academic Integrity

Introduction

The development of Artificial Intelligence (AI) in recent couple of years has significantly altered the academic area, more precisely, students' writing processes. To date, the most widely used AI is ChatGPT, developed by OpenAI. The basic concept of ChatGPT is that it is an AI-based generative model capable of producing human-like text in response to users' instructions or questions. In an academic setting, students usually use ChatGPT to generate ideas, organize writing tasks, proofread texts, rephrase sentences, or quickly and effectively create academic papers (Amoush & Alhosban, 2025; Naznin et al., 2025). Therefore, the advent of ChatGPT has made it easier for students, especially EFL students, to complete English-language academic writing tasks.

Given that ChatGPT is a time-saving tool and improves the technical quality of writing, students have become accustomed to its use and expect it to help them better understand the

structure of academic writing, improve their English vocabulary, and build confidence in writing (Xu & Jumaat, 2024). In addition, AI is thought to be useful in assisting students who have difficulty with idea generation and the development of arguments in academic writing. In these terms, AI has now been incorporated into students' learning.

However, despite the various benefits that the continuous use of ChatGPT may provide to students, several potential challenges have also been raised for the academic fields. Long-term, consistent use of AI tools may cause students to become overdependent on technology for academic writing tasks. In this case, their critical thinking, originality, and independence in writing would presumably decline. Once AI tools are used in an uncritical, unthinking way, such dependence will result in the loss of one's own thinking. This trend has been described as 'cognitive offloading,' in which the human mind transfers its cognitive functions to a machine. (Gerlich, 2025)

Moreover, the use of ChatGPT would raise concerns about the originality and academic integrity of students' writing. If students extract substantial portions of their writing from AI with inadequate independent analysis and contribution to the original work, this may result in multiple violations of academic integrity, including plagiarism, a lack of transparency regarding AI use, and an unclear division between human- and machine-generated writing. As a result, the productive role of AI in writing is now under discussion by many educators and academic institutions (Sanz-Tejeda et al., 2026).

The rapidly evolving technology has also influenced views on the use of ChatGPT in an academic context. For certain students, it is an ideal way to study. Some educators worry that it can reduce students' critical thinking and damage their integrity. For other learning institutions, an AI policy will be implemented to keep up with technological advancements (Ross, 2024). Hence, there are mixed feelings about the use of ChatGPT for learning among students, teachers, and educational institutions.

In previous studies, some results indicate a positive relationship between ChatGPT usage and students' writing learning process, particularly in improving technical writing skills and efficiency in completing writing tasks. (Mahapatra, 2024) However, they did not cover the negative consequences of long-term AI use on students' originality and critical thinking; moreover, the focus on the effects of AI on academic writing skills was primarily short-term, while research on the long-term aspect remains scant, especially regarding EFL students.

Based on these conditions, this study aims to investigate the effects of long-term ChatGPT usage on EFL students' academic writing skills as well as on critical thinking, originality, and academic integrity. It also seeks to examine students' perceptions of the ethical issues surrounding the use of ChatGPT in academic writing and how changes in technology and institutions' policies may influence them. It is expected that this study will provide valuable insights to students, educators, and academic institutions regarding the ethical application of technology in education.

Methods

Qualitative research, specifically using a descriptive-interpretive design, was chosen for this study because the goal is to examine the long-term effects of using ChatGPT on EFL students' academic writing abilities, including critical thinking, originality, and academic integrity. A qualitative approach is appropriate here since the focus is on students' perspectives and their understanding of how they are using ChatGPT in their writing process. According to Creswell and Creswell (2009), qualitative research seeks to discover and understand the meaning that an individual or group has constructed about a phenomenon. Thus, this approach is most suitable for investigating long-term ChatGPT use.

A case study design was selected for this research because the phenomenon being studied, the use of ChatGPT in academic writing, is contemporary, real-world-based, and ever-changing. Yin (2014) stated that a case study is utilized when one does not control for the

phenomenon, which is complex and can best be studied in a natural setting. The use of ChatGPT by EFL students is complex since it is impacted by developing AI technology, institutional policy, and student habits.

The English Language Education Program at UIN Mataram, West Nusa Tenggara, Indonesia, was the location chosen for this study. Purposive sampling was used to select this site since students in the program are known to extensively use ChatGPT in their academic writing tasks. The study was carried out over 4 months during the even semester of academic year 2024/2025; the first month for instrument development and validation, the second and third months for data collection, and the last month for data analysis and report preparation.

Research subjects were selected through a purposive sampling method based on specific requirements: 10 EFL students in the fourth semester or above who have been using ChatGPT in academic writing for over a year, can communicate in both English and Indonesian languages, and are willing to give information open-handedly. The number of participants was adequate in the qualitative study for acquiring in-depth data and reached saturation.

A semi-structured interview was used as the main method to collect the data. The interview was conducted individually by the researcher, and it was audio recorded with the participant's consent. The length of the interview took about 45-60 minutes and was conducted in the Indonesian language in order for participants to feel more comfortable and open in sharing their experience and perspective. In addition to the interviews, this study also employed document analysis: screenshots of students' interaction with ChatGPT, transcripts of the interactions with AI, students' writing drafts, and reflection notes about their AI use. Observation was also conducted passively and recorded the students' use of ChatGPT in their learning practices.

Table 1. Research Blueprint: Mapping of Research Questions, Variables, Indicators, Techniques, and Instruments

No.	Research Question	Variable/Focus	Indicators	Data Collection Technique & Instrument	Sample Interview Questions
1.	RQ1	Long-term effects of ChatGPT	Critical thinking, originality, writing skills over time	Semi-structured interview; Documentation	How has long-term use of ChatGPT influenced your critical thinking and originality?
2.	RQ2	Ethical rules & academic integrity	Transparency, revision procedures, authorship	Semi-structured interview	What are the specific ethical rules for using ChatGPT in assignments?
3.	RQ3	Changing effects & perceptions	AI updates, school policies, user groups	Semi-structured interview	RQ3 How has your attitude towards ChatGPT evolved as its functions improved or due to school policies?

Data analysis was conducted using the interactive model of data condensation, data display, and drawing conclusions based on data, proposed by Miles, Huberman, and Saldana (2014). The data from interview transcriptions were condensed through coding to establish main themes; the data were displayed using tables and narrative; then, conclusions were drawn and confirmed through verification.

To ensure the validity and credibility of the data, triangulation source, method, member checking, audit trail, and peer debriefing were utilized as trustworthiness methods as described

by Lincoln and Guba (1994) to show that the collected data accurately represent students' experience.

Results and Discussion

Result

The purpose of this study is to explore the long-term impact of ChatGPT use on EFL students' academic writing skills in terms of critical thinking, originality, and academic integrity. The data were collected from the semistructured interviews of 10 EFL students using ChatGPT for more than one year in their academic writing activities. All data were analyzed by Miles, Huberman, and Saldana's interactive model, which comprises the data reduction, data presentation, and conclusion drawing processes. Based on the results of the data analysis, it was revealed that ChatGPT has a complex and paradoxical effect on students' academic writing skills.

Long-term effect of ChatGPT on critical thinking, originality, and writing skills

Table 2. Long-Term Impact of ChatGPT on Critical Thinking, Originality, and Writing Skills

Code	Aspect	Sub-category	Participants	Participant Statements	interpretation
LE1	Critical Thinking	Negative Impact of Dependency	WZR	"Long-term use of AI can improve writing efficiency, but it may reduce critical thinking skills and originality if students become overly critical thought dependent."	Students tend to offload critical thinking processes.
LE1	Critical Thinking	Negative Impact	JAP	"Long-term use of AI like ChatGPT can help students develop ideas... However, excessive reliance on AI can reduce critical thinking skills, originality, and independent writing skills."	The habit of independently developing one's ideas over time is diminished.
LE1	Critical Thinking.	Balanced Perspective	DM	"Long-term use can either enhance or weaken the term skills. Passive use, like copy-paste, edit, and submit to the teacher, can reduce the students' critical thinking and originality, whereas active use to improve writing skills and develop analytical skills will enhance the students' writing skills."	The long-term impact depends on whether cut-interacts with the tool.
LE1	Critical Thinking	Negative Impact	SA	"AI improves technical writing skills, but it also has the chance to reduce critical thinking and originality."	Even though technical writing skills might be enhanced through AI, but this could hurt one's critical thinking ability."

LE2	Originality	Decline Personal Voice	in LR	"AI can weaken the criticalAI will replace one's thinking skills and originalitypersonal voice. if the students become over-reliant on AI for idea development."
LE2	Originality	Decrease Personal Voice 	in NFP	"If excessive use, it willThis might lead to reduce students' criticaluniform writing and thinking skills, originality,the absence of one's and independent writingpersonal voice. skills because students will rely too much on AI."
LE2	Originality	Positive Controlled	if NN	"If one controls its use, for Students still example, uses it for Produce their outlining. Then AI can help a original work when lot, making the whole they have control process clearer and well- over how the tool organized." should be used.
LE3	Writing Skills	Technical Improvement	SDP	"If used strategically, AI likelt aids students' ChatGPT can help students inwriting structure generating ideas andand coherence over structure for writing." a long period of time.
LE3	Writing Skills	Technical Improvement	JPS	"Actually, over time, by usingStudents could AI long-term, it can helpimprove their students' writing ability influency in writing terms of fluency..." and develop self-confidence.

According to the results, there are positive and negative effects of long-term use of ChatGPT on students' critical thinking, originality, and writing skills. From the results, most of the participants stated that the use of ChatGPT can support them in improving their academic writing efficiency on idea development, writing structure, grammar, and writing fluency. The students feel that using AI could make drafting faster and better-organized. SDP said that when it is used wisely, they help students to come up with ideas and writing structure in a more systematic way. And it is supported by JPS's statement. She said that long-term use of AI does benefit students for their writing fluency and self-assurance in doing English academic writing. However, they also see negative effects when they use the tool excessively and passively.

WZR pointed out that while the long-term use of AI has been supported to improve writing efficiency, it does pose a potential threat to students' critical thinking skills and originality if they overly depend on AI. Furthermore, Janesha Permata reported that over-reliance on ChatGPT has already weakened students' ability to think critically, be creative, and develop independent writing skills. Moreover, DM distinguishes passive and active use of AI, in which she said that passive use of AI, like 'copy-edit-submit,' has been identified to weaken students' critical thinking skills and creativity, but active use of AI, like generating ideas, revising, critiquing, and developing the ideas, can enhance critical thinking skills and writing ability. Other findings suggest that long-term use of AI can lead to cognitive offloading, which refers to the situation when students outsource more and more cognitive effort to technology.

NFP commented that overuse of the tool could lead to the development of an over-reliance that diminishes the student's capability for critical thinking and independent writing

skills. Also, LR said that the "personal voice" of a student might be replaced if the student uses the AI carelessly. Nevertheless, some of the students still think that using ChatGPT with caution does make a difference. For instance, NN thinks that ChatGPT helps create an outline and writing structure more clearly if the student keeps control of their ideas. Thus, based on the result above, we conclude that the long-term effect of the use of ChatGPT on writing skills mainly depends on how students use it.

Ethical Rules and Academic Integrity of ChatGPT Use

Table 2. Clear Ethical Guidelines for Authorship and Academic Integrity.

Code	Aspect	Sub-category	Participants	Participant Statements	Interpretation
ER1	Transparency	Disclosure of AI Use	SA	"The use of AI should be disclosed, and students must claim what an AI generates as their own."	Students are aware of the need to be transparent and honest.
ER1	Transparency	Disclosure	LR	"The clear guidelines on the ethical side of it are the most important are that students have to acknowledge the use of AI..."	Transparency and honesty are the most important guidelines for the use of AI.
ER2	Authorship.	Substantial Revision	NFP	"AI should just be used as a support tool, not as a substitute where students provide their ideas, analysis, and critical editing."	The long-term impact depends on whether the students interact passively or actively. Clear boundaries should be set for AI to be a writing aid, not a replacement for human intellectual involvement. with the tool.
ER2	Authorship	Negative Impact	DM	"They must proofread, analyze, revise, and take responsibility."	The work produced must involve thorough editing, and the students themselves have to take ownership and accountability.
ER2	Authorship	Students as Primary Authors	NN	"Integrity is paramount; students must remain as the primary authors. AI can just play as an assistant to our writing process."	Students must maintain the authorship of their work.

ER3	Integrity	Follow Guidelines	JPS	"Students must reviseStudents must always any content generatedadhere to institutional by the AI, cite theirguidelines and ethical sources appropriately,practices. and ensure the work reflects their own understanding and adheres to academic standards."
-----	-----------	-------------------	-----	--

Based on the study, it is shown that students are aware of applying AI ethics for academic writing. Many of the students agree that ChatGPT should only function as a writing aid, not a replacement for their thinking process. Transparency is being described as one of the crucial ethics for academic writing. SA stated that the utilization of AI should be stated truthfully, and the text generated by AI could not be claimed as students' own writings. LR stressed that students must be honest and transparent whenever they use AI in their assignments. In addition to transparency, students claim that editing and personalizing AI-written texts are the main ethical issues of using AI.

NFP states that AI can function as writing support while the main ideas, analytical thinking, and discussion still come from oneself. DM agrees that they must edit, reinterpret, and are ultimately accountable for their final products. NN claims that students still take on the role of being a writer, while AI only supports them in processing writing. The same belief is reflected in the explanation of JPS, who claims that the writings must reflect students' own ideas and thinking in accordance with the regulations. It can be concluded that EFL students are conscious enough and have applied their own ethics toward using AI for their academic writing.

Change of Perception and Impact of ChatGPT Use

Table 4. Changes in Impacts and Perceptions of ChatGPT Use

Code	Aspect	Sub-category	Participants	Participant Statements	Interpretation
CP1	AI Updates	Technological Advancements	SDP	"As AI evolves and policiesNew advancements in AI change: AI becomes moreare more beneficial, but sophisticated, and at thealso pose an increased same time, also more risk of being used susceptible to misuse." wrongly...	
CP2	User Groups	L2 Learners vs. Instructors	NFP	"The effect felt differsA great disparity is based on whether we areobserved in L2 learners' L2 learners or instructors.and instructors' views of L2 learners feel the benefithow useful the tool can more regarding thebe. language part. Meanwhile, instructors perceive the benefit regarding ethics, originality, and so on."	
CP2	User Group.	Students vs. Instructors	WZR	"Lecturers seem toStudents generally criticize the students moreperceive the future than the students.impact, and the Lecturers are alwaysinstructors are thinking thinking long- about the immediate term, whereas studentsbenefits for the are learning.	

thinking short-term."				
CP3	Campus Policy	Attitude Change	NN	" It used to be taboo, andThere is an attitudinal then it evolved into shift from prohibition something acceptable,toward regulated and now something thatacceptance. must be accepted for the sake of student learning, and faculty perception, too, is changing along w i t h the way...".
CP3	Campus Policy	Institutional Adaptation	LA	"While some institutionsStudents' and teachers' have begun to implementperceptions about the open regulations on Aluse of AI have changed use, others continue toin line with changing have skepticalinstitutional policy, professors." which has begun to acknowledge the inevitable usage of the tool.

It can be seen from the research findings that the perception of ChatGPT has been evolving along with the quick growth of AI technology, individual differences, institutional differences, and contextual differences. According to SDP, rapid AI development enhances the utility of ChatGPT but increases the potential of its misuse at the same time. According to NFP, EFL students are more concerned about the language and writing help they will get from it, while instructors pay more attention to ethics issues, integrity, and originality of the work. Moreover, points out by WZR, instructors have more concerns about the influence on students' critical thinking skills, and students' interest goes to the efficiency aspect of their writing.

On the other hand, perception toward the issue regarding AI used in institution also has change. According to NN, AI was forbidden to be used in academic writing in the early times and has then become an inseparable part of educational technology advancement in a relatively short time. It is also suggested that institutions and universities start to create clear rules on using AI, while instructors are not totally welcomed to it. It can be summed up that the understanding of the perception of ChatGPT will have a transition in accordance with the advancement of the technology, and various factors of individuals, institutions, and contexts play a significant role in the process.

Discussion

In the Discussion, the results are explained and interpreted in relation to the research questions, prior literature, and theory. It goes beyond simply stating the findings and offers interpretations of their meaning, identifying patterns, trends, and discrepancies. In the Discussion, the results of this study are related to prior literature, with commentary on where the study agrees with, contradicts, or contributes new understanding to the existing literature.

This study reveals that integrating ChatGPT into the academic writing process for EFL (English as a Foreign Language) students yields a complex and contradictory impact, often

termed the "all or nothing" effect (Shi et al., 2025). On the one hand, this technology significantly improves students' efficiency in completing assignments, enhancing text structure, improving language fluency, and assisting in finding ideas (Amoush & Alhosban, 2025). However, continuous, uncritical use risks reducing students' critical-thinking skills, originality, and independence in writing (Melisa et al., 2025).

One of the key findings in the study is the increase in technical efficiency offered by AI. (Solak, 2024) Students feel that ChatGPT is very helpful in developing initial ideas and organizing writing structures more systematically and coherently (Khampusaen, 2025). Long-term use is considered beneficial for writing fluency and students' confidence when completing academic writing assignments in English (Amoush & Alhosban, 2025). This is especially crucial for EFL students who often face linguistic barriers in presenting their arguments in formal academic texts. With the help of AI, the drafting process becomes faster and more organized.

However, those technical benefits come with a risk of serious cognitive decline. Over-reliance on ChatGPT has reportedly weakened students' ability to think independently, critically, and creatively (Georgiou, 2025). This phenomenon is referred to as "cognitive offloading," in which the human mind transfers its thinking functions to the machine. When college students rely too much on AI to develop ideas or arguments, the habit of thinking deeply and independently slowly fades (Yavich, 2025). If this is left unchecked, the irrational use of AI can lead to the loss of original thinking from the authors themselves (Werdiningsih et al., 2024).

Interestingly, the long-term impact of using ChatGPT is largely determined by how students interact with the technology, i.e., whether they use it passively or actively. Passive use, characterized by the "copy-edit-submit" approach or simply copying AI results without in-depth analysis, is clearly identified as undermining originality and critical-thinking ability. On the other hand, the active use of AI as a discussion partner for brainstorming, revising, criticizing, and developing ideas has the potential to improve students' analytical skills and writing quality (Song & Song, 2023). Therefore, AI should be seen as a learning support tool, not a substitute for human intellectual processes.

Regarding academic integrity, this study shows a fairly high level of awareness among EFL students regarding the ethics of using AI. Students generally agree that transparency is key: the use of AI must be honestly acknowledged, and AI-generated text should not be claimed as purely student-owned original work. There is a strong understanding that students should remain the primary authors, fully responsible for the critical analysis and editing of AI-generated drafts (Peterson, 2025). Nonetheless, the challenge of establishing clear boundaries between human and machine contributions remains a subject of debate that requires firmer institutional guidance.

Perceptions of ChatGPT continue to evolve with technological advances and institutional policies (Al-khresheh, 2024). In the early days, the use of AI may have been considered taboo or forbidden in academic environments, but now it is increasingly seen as something that must be accepted and regulated to advance learning. There is a striking difference in perspective between students and teachers: students tend to focus on short-term benefits such as efficiency and language assistance, while teachers are more concerned about the long-term impact on students' originality, ethics, and critical-thinking abilities.

In conclusion, it is important for educational institutions not only to prohibit the use of AI but also to provide guidance to students on using ChatGPT responsibly, critically, and actively. The focus of education should shift to improving writing standards that involve deeper human intellectual engagement, so that AI technology can be leveraged to strengthen, not weaken, the quality of thinking and writing of future EFL students. Without the right direction, the risk of declining academic standards due to technological dependence will pose a real threat to higher education (Marshall et al., 2024).

Conclusion

In conclusion, long-term usage of ChatGPT presents mixed effects on the EFL students' academic writing skills. The use of ChatGPT in one aspect leads EFL students to enhance writing speed, fluency, structure, idea development, and self-confidence in writing academic tasks in English. Active use of AI (e.g., brainstorming, revision, evaluation) can also help the students' learning and writing skills development. In another aspect, passive use and overuse of ChatGPT can lead EFL students to weaken their skills in critical thinking, individuality, originality, and autonomy in writing, since students shift a part of the thinking process to the technology and become less active in thoughtful thinking and idea generation. Besides, the use of AI has a problematic concern related to academic integrity and transparency in academic writing.

It seems that students are aware of the significant value of using AI ethically while humans remain as authors. Consequently, students should be coached to utilize AI in a critical, active, and responsible manner so that AI serves as a learning support tool without impacting the students' thinking and writing quality.

References

- Al-khresheh, M. H. (2024). The Future of Artificial Intelligence in English Language Teaching: Pros and Cons of ChatGPT Implementation through a Systematic Review. *Language Teaching Research Quarterly*, 43, 54-80. <https://doi.org/10.32038/ltrq.2024.43.04>
- Amoush, K. H., & Alhosban, A. A. (2025). Mastering EFL writing with ChatGPT: A systematic review of benefits, challenges, and best practices. *Theory and Practice in Language Studies*, 15(8), 2576-2583. <https://doi.org/10.17507/tpls.1508.14>
- Creswell, J. W., & Creswell, J. D. (2009). Research designs: Qualitative, quantitative, and mixed methods approaches. *California: Sage*.
- Gerlich, M. (2025). AI tools in society: Impacts on cognitive offloading and the future of critical thinking. *Societies*, 15(1), 6. <https://doi.org/10.3390/soc15010006>
- Georgiou, G. P. (2025). ChatGPT produces more "lazy" thinkers: Evidence of cognitive engagement decline. *arXiv preprint arXiv:2507.00181*.
- Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. *Handbook of qualitative research*, 2(163-194), 105.
- Khampusaen, D. (2025). The Impact of ChatGPT on Academic Writing Skills and Knowledge: An Investigation of Its Use in Argumentative Essays. *LEARN Journal: Language Education and Acquisition Research Network*, 18(1), 963-988. <https://doi.org/10.70730/PGCQ9242>
- Mahapatra, S. (2024). Impact of ChatGPT on ESL students' academic writing skills: A mixed-methods intervention study. *Smart Learning Environments*, 11(1), 9. <https://doi.org/10.1186/s40561-024-00295-9>
- Marshall, S., Blaj-Ward, L., Dreamson, N., Nyanjom, J., & Bertuol, M. T. (2024). The reshaping of higher education: Technological impacts, pedagogical change, and future projections. *Higher Education Research & Development*, 43(3), 521-541. <https://doi.org/10.1080/07294360.2024.2329393>
- Melisa, R., Ashadi, A., Triastuti, A., Hidayati, S., Salido, A., Ero, P. E. L., ... & Al Fuad, Z. (2025). Critical Thinking in the Age of AI: A Systematic Review of AI's Effects on Higher Education. *Educational Process: International Journal*, 14, e2025031. <https://doi.org/10.22521/edupij.2025.14.31>
- Miles, M. B., Huberman, A. M., & Saldana, J. (2014). *Qualitative data analysis*. sage.
- Naznin, K., Al Mahmud, A., Nguyen, M. T., & Chua, C. (2025). ChatGPT integration in higher education for personalized learning, academic writing, and coding tasks: A systematic review. *Computers*, 14(2), 53. <https://doi.org/10.3390/computers14020053>
- Peterson, S. (2025, November). Addressing student use of generative AI in schools and universities through academic integrity reporting. In *Frontiers in Education* (Vol. 10, p. 1610836). Frontiers Media SA. <https://doi.org/10.3389/feduc.2025.1610836>

- Ross, J. (2024). Guidance for Developing Policies to Govern the Adoption and Use of Artificial Intelligence in K-12 Schools. *Region 8 Comprehensive Center*.
- Sanz-Tejeda, A., Domínguez-Oller, J. C., Baldaquí-Escandell, J. M., Gómez-Díaz, R., & García-Rodríguez, A. (2025). The impact of generative AI on academic reading and writing: a synthesis of recent evidence (2023–2025). In *Frontiers in Education* (Vol. 10, p. 1711718). Frontiers Media SA. <https://doi.org/10.3389/feduc.2025.1711718>
- Solak, E. (2024). Exploring the Efficiency of ChatGPT and Artificial Intelligence in Advancing Academic Writing Pedagogy. *International Journal of Education in Mathematics, Science and Technology*, 12(6), 1525-1537. <https://doi.org/10.46328/ijemst.4373>
- Song, C., & Song, Y. (2023). Enhancing academic writing skills and motivation: assessing the efficacy of ChatGPT in AI-assisted language learning for EFL students. *Frontiers in psychology*, 14, 1260843. <https://doi.org/10.3389/fpsyg.2023.1260843>
- Shi, H., Chai, C. S., Zhou, S., & Aubrey, S. (2026). Comparing the effects of ChatGPT and automated writing evaluation on students' writing and ideal L2 writing self. *Computer Assisted Language Learning*, 39(4), 1148-1175. <https://doi.org/10.1080/09588221.2025.2454541>
- Werdiningsih, I., Marzuki, & Rusdin, D. (2024). Balancing AI and authenticity: EFL students' experiences with ChatGPT in academic writing. *Cogent Arts & Humanities*, 11(1), 2392388. <https://doi.org/10.1080/23311983.2024.2392388>
- Yavich, R. (2025). Will the use of AI undermine students independent thinking?. *Education Sciences*, 15(6), 669. <https://doi.org/10.3390/educsci15060669>
- Yin, R. K. (2014). Case study research: Design and methods (applied social research methods).
- Xu, T., & Jumaat, N. F. (2024). ChatGPT-Empowered Writing Strategies in EFL Students' Academic Writing: Calibre, Challenges and Chances. *International Journal of Interactive Mobile Technologies*, 18(15). <https://doi.org/10.3991/ijim.v18i15.49219>

Empty Page