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The Utilization of ChatGPT as a Learning Media in Improving Students' Literacy and Critical Thinking Skills

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ABSTRACT

This study aims to analyze the use of ChatGPT as a learning medium in supporting the improvement of students' literacy and critical thinking skills. The research uses a literature review approach by analyzing 20 scientific journal articles relevant to the use of ChatGPT and generative artificial intelligence in education. The analysis is carried out through identification, selection, grouping, comparison, and synthesis of previous research findings. The results of the study show that ChatGPT has the potential to support reading and writing literacy, digital literacy, information literacy, idea development, feedback, and analysis and evaluation capabilities. ChatGPT can also be used as a virtual tutor, discussion partner, alternative source of information, and a reflection tool. However, these benefits do not appear automatically because they are greatly influenced by learning design, students' digital literacy skills, teacher mentoring, and technology usage patterns. Use that is only oriented towards finding answers can increase dependency and reduce students' opportunities to think independently. Therefore, ChatGPT needs to be used as a tool that strengthens the thinking process, not replaces it. Teachers have an important role in designing activities that demand information verification, analysis, argumentation, evaluation, and reflection. With its directed, critical, and ethical use, ChatGPT has the potential to become a learning medium that supports the development of students' literacy and critical thinking skills.

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1. INTRODUCTION

The development of digital technology has brought about increasingly widespread changes in the world of education. Technology is no longer only used as a tool to deliver learning materials, but has developed to be part of the process of information search, communication, collaboration, evaluation, and knowledge creation. These changes are even stronger after the development of generative artificial intelligence that is able to generate text, images, code, and various forms of information based on user commands. In the context of education, these developments open up opportunities while presenting new challenges for teachers and students. One of the technologies that has received the most attention is ChatGPT because of its ability to provide interactive responses and use language that is relatively easy to understand (Baig & Yadegaridehkordi, 2024).

ChatGPT is a form of *large language model* technology designed to understand and produce human language. In educational activities, the technology can be used to help explain concepts, provide examples, conduct conversation simulations, help with writing preparation, provide feedback, and provide alternative problem-solving. Research developments show that the use of ChatGPT in education has grown in various fields and

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for various purposes, including learning, academic writing, providing feedback, and personalizing learning (Baig & Yadegaridehkordi, 2024).

The presence of ChatGPT has changed the way learners obtain information. Before the development of generative AI, learners generally searched for information through books, search engines, scientific articles, learning videos, and other digital sources. ChatGPT allows learners to interact with information through conversation. Students can ask follow-up questions, ask for explanations in simpler language, ask for examples, or ask for a concept to be explained from a specific point of view. These interaction patterns have the potential to provide a more flexible and personalized learning experience (Lee & Huang, 2025).

However, ChatGPT's ability to generate answers quickly also presents new problems. The answers produced can look convincing even though they are not always accurate. Students who do not have good information literacy skills can receive the information without conducting further examination. This condition is an important problem because education not only aims to enable students to get information, but also so that they are able to determine whether the information is true, relevant, trustworthy, and in accordance with the context being studied (Albadarin et al., 2024).

These problems have a strong relationship with critical thinking skills. Critical thinking is the ability to understand information, analyze a problem, evaluate evidence, consider various perspectives, formulate arguments, and make decisions based on reasonable. In a digital environment filled with information, this ability is increasingly important because students are not only dealing with a lack of information, but also with an excess of information. The use of AI technology without critical thinking skills can make it easier for students to receive information without an evaluation process.

ChatGPT can basically provide two different possibilities for critical thinking skills. In the first use, ChatGPT can make learners passive because answers are available quickly. Learners can have the AI complete tasks without understanding the process of obtaining the answers. In the second use, ChatGPT can be used as a discussion partner that provides alternative opinions so that learners are encouraged to compare, evaluate, and criticize the information obtained. These differences show that the impact of ChatGPT is greatly influenced by the way the technology is placed in the learning design (Deng et al., 2025).

Experimental research that has been compiled in a meta-analysis shows that ChatGPT interventions can have a positive influence on academic performance, affective-motivational conditions, and students' high-level thinking tendencies. However, these results also need to be read carefully because some studies still have limitations in research design, sample size, measurement of learning outcomes, and observation of long-term impacts (Deng et al., 2025).

Literacy skills are also an important aspect in the discussion of the use of ChatGPT. Literacy in the digital era is not only related to the ability to read and write, but also the ability to search, understand, evaluate, process, and use information responsibly. Students need to understand that every information obtained from the internet and AI needs to be assessed for credibility. In this context, ChatGPT can be a medium that supports literacy if students are trained to examine and compare the information generated by AI.

ChatGPT can also help with the writing process. Students can use the technology to get initial ideas, check writing structure, find language errors, ask for sentence alternatives, or get feedback. Research on the use of ChatGPT in academic writing shows that the technology can help students get feedback and improve the writing revision process

(Mahapatra, 2024). However, the use must still be directed so that students understand the reason for the change and not just copy the results provided by AI.

In the context of language education, the use of ChatGPT can also support the learning process through dialogical interactions. Students can have conversations, develop vocabulary, ask for corrections to writing, and explore different forms of language use. However, the quality of learning still depends on how teachers design activities and how students use AI-provided responses (Kong et al., 2024).

Research on the use of ChatGPT in education shows that the technology has been applied for various learning needs, but research developments are still dominated by the context of higher education. There is relatively less research at the primary and secondary education levels, so attention is needed to the different characteristics of students at each level of education (Zhang & Tur, 2024).

Empirical studies also show that ChatGPT can be used in a variety of learning environments and produce different benefits. Some studies have found increased engagement, comprehension, and academic ability, while others have shown concerns about reliance on AI and a decrease in certain cognitive activities (Lo et al., 2024).

Learner engagement with ChatGPT cannot automatically be considered evidence that critical thinking has improved. Learners can interact with AI in high numbers but remain passive if they only ask for final answers. In contrast, fewer interactions can have higher pedagogical value when used to compare arguments, evaluate evidence, and develop ideas independently.

Therefore, the use of ChatGPT in education needs to be directed at the formation of learning experiences that demand cognitive activity. Teachers can ask students to formulate initial answers before using AI, then compare their answers with ChatGPT's responses. Students can be asked to identify the similarities, differences, errors, and shortcomings of the two answers. Activities like this can encourage the process of analysis and evaluation which is an important part of critical thinking.

In addition, students can be asked to verify ChatGPT's answers using books, journal articles, government websites, or other academic sources. The verification process provides an opportunity for students to develop information literacy while understanding that AI is not a source of unquestionable truth. Research on ChatGPT in education shows that the ability to evaluate the quality of information is one of the important aspects of the use of this technology (Oates & Johnson, 2025).

The use of ChatGPT is also related to changes in the role of teachers. Teachers no longer only act as conveyors of information, but also as designers of learning experiences and guides in the use of technology. Teachers need to determine the purpose of using ChatGPT, provide clear instructions, establish evaluation activities, and ensure that students continue to carry out the process of thinking independently.

A systematic review of empirical research shows that ChatGPT research in education still needs further development, especially related to long-term impacts, learning design, evaluation methods, and conditions that make the use of AI provide optimal benefits (Albadarin et al., 2024). Thus, the use of ChatGPT should not only be seen from its technological capabilities, but must be studied based on the quality of the learning process built around the technology.

Other research shows that ChatGPT has been used in education for a variety of purposes, such as tutoring, material explanations, essay writing, providing feedback, and personalized learning support. This shows that ChatGPT has considerable flexibility as a learning medium (Abdallah et al., 2025).

However, this flexibility can also be a weakness if it is not accompanied by AI literacy capabilities. Students need to understand how to use AI effectively, know its limitations, understand possible misinformation, and know the boundary between AI assistance and academic job replacement. AI literacy is becoming increasingly important because the ability to use technology technically does not necessarily mean the ability to use it critically and responsibly.

Based on this description, there is a need to examine the relationship between the use of ChatGPT, literacy skills, and critical thinking in learning. This study is important because AI technology will continue to evolve, while the goal of education remains to place human abilities in understanding, evaluating, creating, and making decisions as an important part of the educational process. This article aims to analyze the potential of ChatGPT as a learning medium in improving students' literacy and critical thinking skills, identify the benefits and risks of its use, and formulate principles for using ChatGPT that can support effective and responsible learning.

2. RESEARCH METHODS

This study uses a *literature review* method with a descriptive-qualitative approach. The method is used to identify, review, compare, and synthesize the results of previous research on the use of ChatGPT in education, especially those related to literacy and critical thinking skills.

The source of research data is in the form of scientific journal articles that are relevant to the research topic. Literature search was conducted using keywords such as "ChatGPT in education", "ChatGPT and critical thinking", "ChatGPT and literacy", "generative AI in education", "ChatGPT academic writing", and other keyword combinations related to the research objectives. The literature was selected based on relevance to the use of ChatGPT in learning activities.

The source criteria used include scientific journal articles that can be clearly identified, discuss the use of ChatGPT or generative AI in education, and are related to literacy skills, writing, critical thinking, learning engagement, learning outcomes, or learning design. Articles that do not have a direct relationship to the focus of the research are not used as primary sources.

Each article was analyzed based on the focus of the research, the educational context, the methods used, the purpose of using ChatGPT, and the results of research related to the learning process. The findings of each article were then grouped into several main themes, namely the function of ChatGPT in learning, literacy and writing skills, critical thinking, student engagement, learning personalization, risk of use, academic integrity, and the role of teachers.

The analysis was carried out through the stages of information identification, reduction of relevant information, grouping of findings, comparison of results between studies, and synthesis. The results of the synthesis were used to build an understanding of the opportunities and limitations of the use of ChatGPT in supporting students' literacy and critical thinking skills.

This study does not use primary data from respondents so it does not produce statistical generalizations regarding the influence of ChatGPT on all students. The conclusions produced are a synthesis of previous research and are used to explain the trends, opportunities, challenges, and principles of using ChatGPT in learning.

3. RESULTS AND DISCUSSION

The results of the study show that ChatGPT has a wide enough potential to be used as a learning medium. The technology can function as a source of information, virtual tutors, feedback givers, discussion partners, writing aids, and a means of exploring ideas. Research on ChatGPT in education shows that its use continues to grow and covers various needs of students and educators (Baig & Yadegaridehkordi, 2024).

One of the key characteristics of ChatGPT that is relevant to learning is its ability to provide interactive responses. Students can ask questions and get answers in a short amount of time. If the answers are not understood, they can ask for explanations in simpler language or ask for additional examples. Interactions like these can help students get learning support according to their needs.

The use of ChatGPT as a virtual tutor has potential, especially for students who need additional explanations outside of learning time. Learners can use AI to repeat a concept without having to wait for the next meeting with the teacher. However, AI responses still need to be placed as an initial aid because technology can generate information that is inaccurate or inappropriate to the learning context (Albadarin et al., 2024).

ChatGPT also has the potential to support more personalized learning. Students can provide context about ununderstood material and ask for explanations based on certain skill levels. Systematic studies show that learning personalization is a form of ChatGPT utilization that is developing in education (Lee & Huang, 2025).

In the aspect of reading literacy, ChatGPT can be used to help students understand difficult texts. Students can ask for explanations of terms, main ideas, relationships between ideas, and certain contexts. These activities can help students build an initial understanding of the text. However, if students always ask AI to summarize the entire text, there is a risk of reducing reading activities independently.

Therefore, the use of ChatGPT in reading literacy should not be directed to replace reading activities. Teachers can ask students to read the text first and then use ChatGPT to test their comprehension. Students can provide answers about the main ideas and ask the AI to provide follow-up questions. This strategy keeps students involved in the process of reading and understanding the text.

In writing literacy, ChatGPT can help learners find ideas, draft outlines, improve grammar, and get feedback. Mahapatra's research shows that ChatGPT can be used as a formative feedback tool in academic writing learning and can help the writing development process (Mahapatra, 2024). These benefits show that AI can be used as a tool as long as learners remain responsible for the content and quality of writing.

The use of ChatGPT for writing needs to be distinguished between process assistance and job replacement. If students ask ChatGPT to produce all their writing and then submit it as their own work, the learning process becomes reduced. On the other hand, if students generate their own ideas and then use ChatGPT to get input on structure and language, technology can support the learning process.

In this context, teachers can ask students to save the writing process. Students can show initial ideas, the results of discussions with AI, revisions, and final writing. Assessment is not only based on the quality of the final product, but also on the writing development process. Such an approach can reduce the tendency to use AI only to produce final answers.

ChatGPT can also support information literacy through verification activities. Teachers can provide an answer generated by ChatGPT to students and ask them to look for sources to check the truth. Students can then determine which parts are correct,

inaccurate, or need additional evidence. These activities can build a habit of not receiving digital information directly.

The ability to evaluate information is becoming increasingly important because AI can generate information that is linguistically convincing. Research on the use of ChatGPT in the classroom shows that the technology can be used to support critical evaluation skills if students are given activities that require them to examine and assess AI responses (Oates & Johnson, 2025).

The use of ChatGPT to develop information literacy can also be combined with problem-based learning. Teachers can provide a real problem and then ask students to get several alternative solutions from ChatGPT. After that, students look for supporting sources and compare each alternative based on the available evidence. This process allows students to not only get information, but also learn to use the information to make decisions.

From a critical thinking perspective, ChatGPT can be an interesting tool because it is able to generate various perspectives on a problem. Students can ask AI to present arguments in favor of and reject an opinion. Furthermore, students can assess the strength of each argument based on the evidence and reasons given. Activities like this can practice analysis and evaluation.

However, the use of ChatGPT does not automatically result in critical thinking. A meta-analysis of experimental research shows a positive tendency towards high-level thinking skills, but its effectiveness is influenced by the design of the intervention and the characteristics of the task given (Deng et al., 2025). The findings show the importance of distinguishing between the use of ChatGPT as a tool and the use of ChatGPT as a substitute for cognitive activities.

Students can use ChatGPT critically by questioning the responses given. For example, after obtaining an answer, students can ask for supporting sources, look for possible weaknesses in the argument, and compare it with information from other sources. This process can create more immersive interactions than simply asking for answers.

Dialogue-based learning is one strategy that can be used. Teachers can direct students to have a dialogue with ChatGPT about a problem, then write down the parts they agree with and disagree with. Students can also be asked to explain the reasons why they accept or reject an answer. These activities can practice the ability to give reasons and evaluate opinions.

Research on ChatGPT-assisted collaborative learning also shows that the use of AI can support critical thinking understanding and processes when placed in structured collaborative activities. AI cannot ensure the emergence of critical thinking on its own because interactions, tasks, and learning processes still determine the quality of outcomes (2025).

In group learning, ChatGPT can be placed as an alternative source that needs to be assessed by the group. Students can compare the AI answers with the results of the group discussion. If there are discrepancies, the group needs to look for evidence to determine the most appropriate answer. This strategy can increase students' chances of discussing and accounting for decisions.

Another aspect found is student engagement. Systematic studies show that the use of ChatGPT can affect behavioral, cognitive, and emotional engagement in learning, but the impact can differ depending on the context and how it is used (Lo et al., 2024). Interaction with AI can increase interest because learners get responses directly, but these interactions can also become passive if they are only used to get answers.

Therefore, engagement should not be measured based on the number of questions asked to ChatGPT. More meaningful engagement can be seen from students' ability to explain, compare, criticize, and develop responses. Learning needs to provide space for students to use AI as part of cognitive activities, not just as a source of answers.

The results of broader experimental research show that the use of ChatGPT can have a positive impact on academic performance and some aspects of high-level learning (Deng et al., 2025). However, these results do not mean that ChatGPT should be used in all learning activities. Teachers still need to determine when the use of AI provides added value and when activities without AI are more appropriate for developing basic skills.

For example, in writing learning, students can first compose paragraphs independently before using ChatGPT. After receiving feedback, students improve their writing and explain the changes made. In this way, technology supports the revision process without eliminating the opportunity for students to write on their own.

In reading learning, students can first make their own conclusions and then compare them with the summary provided by AI. If there are differences, students look for reasons for the difference. This strategy allows ChatGPT to be used as a comparison tool to develop the ability to understand and evaluate text.

In science learning, ChatGPT can be used to generate hypotheses or possible explanations. Students then test the hypotheses based on scientific concepts and evidence. Thus, AI becomes a starting point for investigation, not a source of final conclusions.

In social learning, ChatGPT can be used to present various points of view on a particular issue. Students then compare these perspectives with available historical sources, data, or documents. This activity can help students understand that a problem can have various perspectives that need to be evaluated based on evidence.

Another potential lies in the use of ChatGPT as a reflection tool. After completing the lesson, students can ask the AI to provide reflective questions about what has been learned. Students then answer the questions using their own understanding. Reflective activities can help students become aware of the learning process and the difficulties they are experiencing.

Although it has various benefits, the risk of dependence on AI is an issue that must be considered. If students are used to asking AI to complete tasks, the ability to find information and solve problems independently can be reduced. Studies on student engagement show that the undirected use of ChatGPT can be related to dependence and reduced certain cognitive activities (Lo et al., 2024).

This risk is related to the concept of *cognitive offloading*, which is the transfer of part of cognitive processes to external tools. The use of technology to help remember or organize information is actually not something that is always negative. Problems arise when the entire thought process is transferred to technology so that students no longer have the opportunity to develop these skills.

To reduce these risks, teachers can apply the "think first, ask later" rule. Students are required to make an initial answer before using ChatGPT. After using AI, students must explain which parts help and which parts they don't. These simple rules can maintain the position of students as the main actors in learning.

The issue of academic integrity is also an important part of the use of ChatGPT. Students can use technology to generate overall assignments without declaring the use of AI. This condition can reduce the validity of assessments because the results of assignments no longer fully reflect students' abilities. Studies on ChatGPT in education show that

academic integrity is one of the main challenges in the implementation of this technology (Abdallah et al., 2025).

Changing the form of assessment is one of the responses that can be done. Tasks that only ask for written answers can be easier to do using AI. Teachers can add presentations, discussions, demonstrations, reflections, case studies, or follow-up questions that require students to explain the reason behind the answer. This approach makes the thinking process more visible.

Experimental studies on ChatGPT also show the importance of developing assessments that are able to measure skills directly, not just the quality of the products produced (Deng et al., 2025). Therefore, ChatGPT integration needs to be followed by changes in the way teachers design learning evaluations.

Teachers' ability to understand AI is also an important factor. Teachers need to understand the benefits, limitations, and risks of technology in order to be able to provide the right direction. Teachers do not have to be technologists, but need to have basic skills to determine the use of AI that suits learning goals.

Students' AI literacy also needs to be developed gradually. This literacy includes the ability to understand how AI works, compile instructions, evaluate responses, examine sources, recognize possible biases, and use AI ethically. These abilities are increasingly relevant as AI will become part of various areas of life and work.

Studies on the use of ChatGPT in education show that there is currently a lot of research being done in higher education. Research in primary and secondary education is still more limited, so further research is needed on how the use of AI can be adapted to the age and characteristics of students (Zhang & Tur, 2024).

This shows that not all strategies for using ChatGPT in college can be directly applied to school students. Younger students need stronger assistance in understanding information and using technology. Teachers also need to pay attention to the development of students' reading skills, language skills, and thinking maturity.

Additionally, the use of ChatGPT needs to consider the learning objectives. Not all materials require the help of AI. For materials aimed at developing basic abilities of reading, writing, arithmetic, or remembering concepts, the use of AI needs to be selective. AI is more beneficial when used to expand activities after basic abilities have been built.

In project-based learning, ChatGPT can be used to help students develop initial ideas, seek out possible approaches, and acquire alternative solutions. However, decisions regarding projects should still be made by students based on real needs and context. The use of AI in projects can aid exploration without taking over the decision-making process.

ChatGPT can also be used in differentiated learning. Students can ask for explanations based on a specific level of difficulty or ask for additional examples. However, teachers still need to determine competency targets and ensure that AI assistance does not keep students at too low a difficulty level.

The results of the study show that the benefits of ChatGPT are strongest when the technology is integrated with learning strategies that already have a clear pedagogical goal. The use of AI without a clear goal tends to only produce additional activities without significantly improving the quality of learning (Jin & Sercu, 2025).

Research on ChatGPT interventions also shows that most of the research is still conducted in the context of higher education and uses diverse intervention designs. This condition shows the need for stronger and longer research to determine the impact of using ChatGPT on the sustainable development of students' abilities (Jin & Sercu, 2025).

ChatGPT thus cannot be seen as a medium that automatically improves the quality of education. The technology is a tool whose potential depends on the humans who use it. If used without direction, AI can speed up the completion of tasks but not necessarily speed up the learning process. If used critically and in a structured manner, AI can expand students' opportunities to ask questions, explore, compare, and reflect on information.

The most appropriate usage pattern based on the research synthesis is the use of ChatGPT as a thinking tool. Students still need to read, write, analyze, evaluate, and make their own decisions. ChatGPT is used to provide alternatives, feedback, questions, or explanations that are then examined by students.

The implementation of this pattern can start from the stage before using AI. Students first identify problems, make conjectures, or compile initial answers. The next stage is the use of ChatGPT to gain additional perspectives. After that, students verify the information. Next, students evaluate the results of the comparison and compile the final answer using their own understanding.

The model directly links the use of ChatGPT to literacy and critical thinking. Literacy develops when students seek and evaluate information, while critical thinking develops when students compare information, find weaknesses, weigh evidence, and make decisions.

Teachers can use assessment rubrics that include the ability to verify sources, the quality of argumentation, the ability to explain the thought process, and the ability to reflect. Thus, students understand that the success of an assignment is not determined by the ability to produce a good-looking answer, but by the ability to account for the answer.

The use of ChatGPT also needs to pay attention to ethics. Students need to understand that the use of AI must be done honestly and according to academic rules. If AI is used in an assignment, students can be directed to state how the technology is used. This transparency can help build a more responsible academic culture.

Overall, studies show that ChatGPT has the potential to be a learning medium that supports literacy and critical thinking, but its potential is not automatic. The success of ChatGPT's use is determined by the relationship between technology, teachers, students, materials, learning activities, and assessment systems. An overly liberal approach can increase the risk of dependence, while a total ban can eliminate students' opportunities to learn using increasingly evolving technology.

Therefore, education needs to move towards a more balanced approach. It is not enough for students to be banned from using AI, but it is necessary to be taught how to use AI critically. It is also not enough for teachers to just check if assignments are created using AI, but it is necessary to design learning that keeps students' thinking processes a central part of learning activities.

The study's findings show that the use of ChatGPT is most promising when it is geared towards reinforcing interactions, providing feedback, providing alternative perspectives, and encouraging reflection. In contrast, uses that are only oriented towards automating task completion have greater risks to academic independence and integrity (Albadarin et al., 2024; Abdallah et al., 2025).

Thus, ChatGPT should not be positioned as a substitute for teachers or a substitute for students' thinking skills. ChatGPT is more appropriately positioned as one of the learning media that can expand learning resources and provide interactive experiences. Teachers remain the ones who determine the objectives, context, strategies, and evaluation of learning, while students remain the main actors in the process of understanding and generating knowledge.

4. CONCLUSION

Based on the results of studies on previous research, ChatGPT has the potential to be used as a learning medium in supporting students' literacy and critical thinking skills. ChatGPT can help the process of understanding material, developing ideas, improving writing, obtaining feedback, exploring various perspectives, and reflecting on the learning process. This potential makes ChatGPT one of the relevant technologies in the development of digital-based learning.

However, the use of ChatGPT does not automatically improve literacy and critical thinking skills. The benefits of technology are greatly influenced by learning design, digital literacy capabilities, teacher mentoring, and the way students interact with AI. Use that only aims to get answers quickly can lead to dependence, reduce independent thinking, and increase the risk of receiving unverified information.

A more effective use of ChatGPT is one that places students as the main actors of the thinking process. Students need to be encouraged to make initial answers, use ChatGPT as an alternative source, examine information through reliable sources, compare various answers, evaluate arguments, and draw conclusions based on their own understanding. This pattern allows the use of AI to contribute to literacy as well as critical thinking skills.

Teachers have an important role in directing the use of this technology. Teachers need to design activities that require analysis, evaluation, argumentation, verification, and reflection. Assessment systems also need to be developed to not only assess the final product, but also the students' thought process.

Thus, ChatGPT should be seen as a learning tool, not as a substitute for teachers or substitutes for students' thinking skills. Directed, critical, ethical, and teacher-accompanied use can make ChatGPT a medium that supports learning transformation and student competency development in the digital era.

REFERENCES

Abdallah, N., Katmah, R., Khalaf, K., & Jelinek, H. F. (2025). Systematic review of ChatGPT in higher education: Navigating impact on learning, wellbeing, and collaboration. *Social Sciences & Humanities Open, 12*, 101866. https://doi.org/10.1016/j.ssaho.2025.101866

Albadarin, Y., Saqr, M., Pope, N., & Tukiainen, M. (2024). A systematic literature review of empirical research on ChatGPT in education. *Discover Education, 3*, 60. https://doi.org/10.1007/s44217-024-00138-2

Apata, T., et al. (2026). The impact of ChatGPT on higher education: A systematic review of global opportunities, perceptions, and challenges. *Journal of Computer Assisted Learning, 42*, e70309. https://doi.org/10.1002/jcal.70309

Baig, M. I., & Yadegaridehkordi, E. (2024). ChatGPT in higher education: A systematic literature review and research challenges. *International Journal of Educational Research, 127*, 102411. https://doi.org/10.1016/j.ijer.2024.102411

Deng, R., et al. (2025). Does ChatGPT-enhanced collaborative learning foster critical thinking in education? A Bloom's Taxonomy perspective. *Computers and Education Open, 9*, 100316. https://doi.org/10.1016/j.caeo.2025.100316

Deng, R., Jiang, M., Yu, X., Lu, Y., & Liu, S. (2025). Does ChatGPT enhance student learning? A systematic review and meta-analysis of experimental studies. *Computers & Education, 227*, 105224. https://doi.org/10.1016/j.compedu.2024.105224

Essel, H. B., Vlachopoulos, D., Essuman, A. B., & Amankwa, J. O. (2024). ChatGPT effects on cognitive skills of undergraduate students: Receiving instant responses

from AI-based conversational large language models (LLMs). *Computers and Education: Artificial Intelligence, 6*, 100198. https://doi.org/10.1016/j.caeai.2023.100198

Islami, A. P. (2026). ChatGPT as facilitator or hindrance in academic writing: A systematic review and practical recommendations. *Journal of Educational Sciences, 10*(6), 679–697. https://doi.org/10.31258/jes.10.6.p.679-697

Jin, Y., & Sercu, L. (2025). ChatGPT interventions in higher education: A systematic review of experimental studies. *Journal of Computer Assisted Learning, 41*, e70072. https://doi.org/10.1111/jcal.70072

Kong, S.-C., et al. (2024). Exploring the use of ChatGPT to foster EFL learners' critical thinking skills from a post-humanist perspective. *Thinking Skills and Creativity, 54*, 101645. https://doi.org/10.1016/j.tsc.2024.101645

Lee, H.-Y., & Huang, Y.-M. (2025). ChatGPT in education: A systematic review of current landscape, limitations and future directions through general system theory lens. *European Journal of Education*. https://doi.org/10.1111/ejed.70262

Lee, H.-Y., & Huang, Y.-M. (2026). ChatGPT in education: A systematic review of its impact on critical thinking skills and dispositions. *Thinking Skills and Creativity, 60*, 102106. https://doi.org/10.1016/j.tsc.2025.102106

Lo, C. K., Hew, K. F., & Jong, M. S.-Y. (2024). The influence of ChatGPT on student engagement: A systematic review and future research agenda. *Computers & Education, 219*, 105100. https://doi.org/10.1016/j.compedu.2024.105100

Mahapatra, S. (2024). Impact of ChatGPT on ESL students' academic writing skills: A mixed methods intervention study. *Smart Learning Environments, 11*, 9. https://doi.org/10.1186/s40561-024-00295-9

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

Oates, A., & Johnson, D. (2025). ChatGPT in the classroom: Evaluating its role in fostering critical evaluation skills. *International Journal of Artificial Intelligence in Education, 35*, 1793–1824. https://doi.org/10.1007/s40593-024-00452-8

Zhang, D., Wang, N., Shu, J., & Wang, R. (2025). The impact of using ChatGPT on academic writing among medical undergraduates. *Annals of Medicine, 57*. https://doi.org/10.1080/07853890.2024.2426760

Zhang, P., & Tur, G. (2024). A systematic review of ChatGPT use in K-12 education. *European Journal of Education, 59*, e12599. https://doi.org/10.1111/ejed.12599