Understanding University Students' Learning Engagement in AI-Supported Learning Environments: An Empirical Study

Teguh Dwi Putranto*, Diah Sofiah, Hetti Sari Ramadhani

Master of Psychology, Faculty of Psychology,
Universitas 17 Agustus 1945 Surabaya, Indonesia
*Corresponding Author. Email: 1532400033@surel.untag-sby.ac.id

Abstract: This study aims to explore university students' lived experiences in using ChatGPT as a medium for learning engagement. A phenomenological method was employed to capture the essence of students' experiences. The participants consisted of first-year undergraduate students from the Communication Science program at the State University of Surabaya, selected due to their transitional learning phase from secondary to higher education. Data were collected through Focus Group Discussions (FGDs). Data analysis followed a phenomenological procedure that involved transcript reading, meaning identification, thematic clustering, the development of textual and structural descriptions, and the synthesis of the essence of the phenomenon. The findings reveal that students utilize ChatGPT to answer questions, explain concepts, support writing and text editing, stimulate creativity and content production, and assist with analysis and problem-solving tasks. These findings indicate that artificial intelligence has become an integral component of the higher education learning ecosystem, necessitating a reconsideration of how student learning processes are understood. The results further suggest a shift in learning patterns—from exploratory to instant learning, from process-oriented to outcome-oriented approaches, and from independent learning to AI-assisted dependence. Excessive and uncritical use of AI may lead to a decline in students' critical thinking, writing, analytical, and problem-solving skills. Therefore, this study recommends the cultivation of wise and reflective AI use among university students to ensure that AI serves as a supportive tool rather than a substitute for essential cognitive and metacognitive learning processes.

How to Cite: Putranto, T. D., Sofiah, D., & Ramadhani, H. S. (2026). Understanding University Students' Learning Engagement in AI-Supported Learning Environments: An Empirical Study. *Jurnal Paedagogy*, *13*(1), 222-232. https://doi.org/10.33394/jp.v13i1.18960

https://doi.org/10.33394/jp.v13i1.18960

Introduction

Student engagement in learning is important because the learning process is not just a passive activity of receiving explanations from teachers. Learning is an active process of building understanding. Learning engagement allows students to connect new knowledge with their experiences and prior knowledge, making learning more meaningful. Student engagement also contributes to increased motivation to learn. Students who are involved in the learning process will feel valued and recognized for their role, thus developing a sense of responsibility and interest in learning. Active learning makes students more focused, less prone to boredom, and more enthusiastic about participating in classroom activities. Student engagement also plays a role in the development of critical thinking and social skills (Ginting, 2021; Susanti & Agustina, 2023).

Learning engagement is understood as a multidimensional construct that represents the level of student involvement in the learning process. Learning engagement is not limited to physical presence in the classroom, but also includes positive emotional involvement and

deep cognitive investment (Fredricks et al., 2004). Learning engagement is defined by Lawson & Lawson (2013) as a multidimensional construct consisting of behavioral, emotional, and cognitive engagement. Behavioral engagement includes students' active participation in learning tasks in terms of persistence, effort, and concentration (Lawson & Lawson, 2013). Reschly & Christenson (2012) define learning engagement as an individual's direct interaction with various levels of support in the environment, which is a proximal process and the main driving force for their layered development. This suggests that learning engagement is influenced by external environmental factors (e.g., teacher support) and internal individual factors (e.g., self-efficacy, achievement goal orientation) (Wang et al., 2021; Granziera et al., 2022).

This learning engagement is not only viewed from one side, but encompasses three main dimensions that complement each other, namely behavior, emotion, and cognition (Fredricks et al., 2004). From the behavioral engagement side, learning engagement is evident through student attendance in class, active participation in learning activities, compliance with rules, and sincerity in completing assignments. This dimension describes the form of engagement that can be observed in students' daily activities at school. From an emotional perspective (emotional engagement), engagement is reflected in students' affective responses to learning activities, teachers, peers, and the school environment. This can take the form of feelings of enthusiasm, interest, and satisfaction when learning, or conversely, feelings of boredom, anxiety, and lack of interest that can hinder learning engagement. From a cognitive perspective, engagement refers to the extent to which students strive to deeply understand the material, use effective learning strategies, think critically, and show perseverance in overcoming academic challenges. This dimension emphasizes students' mental effort and awareness in optimizing learning (Fredricks et al., 2004). Reeve also defines engagement as representing the range of actions taken by students to develop from not knowing, not understanding, not having skills, and not achieving, to knowing, understanding, having skills, and achieving. According to Reeve, there are four aspects to student engagement, namely 1) *behavioral engagement*, 2) *agentic engagement*, 3) *cognitive engagement*, dan 4) *emotional engagement* (Reeve, 2013). In an effort to improve learning engagement, the media used in learning has become more varied, one of which is through the use of artificial intelligence (AI).

In terms of its application in education, artificial intelligence (AI) is a system created to facilitate learning. The application of AI technology in education has the potential to significantly increase the efficacy of learning (Nadila & Septiaji, 2023). Because self-efficacy is associated with career anxiety among post-graduate students (Surya et al., 2025). Increasing self-efficacy is closely related to students' academic problem-solving abilities. Higher self-efficacy leads to higher academic problem-solving abilities, and vice versa (Gusti et al., 2023). With the advancement of digital technology and the demand for more individualized and flexible learning, the application of artificial intelligence (AI) in education has grown in importance in recent years (Sitorus & DC, 2021). AI has permeated many facets of society, including education, and it has the potential to fundamentally alter how we teach and learn. Artificial intelligence is used in education as a learning aid and media. Using artificial intelligence as a learning medium can assist educators, mentors, and teachers in providing instruction to students and facilitating their comprehension of the subject in order for learning to be carried out correctly and optimally (Putri & Hasan, 2023). Students view AI as a tool for formatting and editing, as most of them want to have the opportunity to do the main work themselves for better learning (Ikrawansyah & Romadhon, 2024). In both

academic and non-academic spheres, students' extensive usage of artificial intelligence (AI) has even emerged as a new trend. Artificial Intelligence (AI) can affect how they interact, such as when they discuss different responses to the data they are given. However, a person's ability to engage with others may be hampered if they only use AI without talking to others. However, there is a lot of promise for using AI in the classroom, where it helps speed up students' work. Students must follow scientific rules to guarantee that there is no plagiarism or harmful circumstances (Patimah et al., 2024).

Because they can increase productivity and student involvement in the learning process, technology-based educational media particularly those utilizing artificial intelligence (AI) continue to garner attention (Chang et al., 2020). Personalized instructional content, higher student engagement, and real-time feedback sharing are just a few benefits of AI-based educational media (Zawacki-Richter et al., 2019). Due to its capacity to offer individualized, flexible, and interactive learning experiences, AI-based educational media such as chatbots, virtual simulation platforms, and gamified educational applications are currently becoming more and more popular (Woolf, 2010). The usage of artificial intelligence in education has had a big influence. The application of artificial intelligence in personalized and adaptive learning facilitates the creation of learning programs that are specifically designed to meet the unique requirements of each student, hence enhancing the effectiveness and efficiency of the learning process. The burden of grading students is lessened for teachers by automated evaluation supported by artificial intelligence, which also allows for quicker and more precise responses (Rifky, 2024). At both the school and university levels, the application of artificial intelligence (AI) has had a major impact on students' motivation to learn. This study demonstrates that using AI successfully and efficiently is one way to boost students' enthusiasm to learn today. AI plays a role in improving learning motivation as well as learning enjoyment, interest, and focus. The responsibility of educators in candidly discussing the role of AI with the community must be balanced with the growing use of AI, though. To ensure that AI has a beneficial effect on pupils, it is crucial to expand our knowledge of how it might boost learning motivation (Hapsari et al., 2025). Some of the advantages of AI include enhanced student interaction, customized learning, and improved administrative procedures. Furthermore, AI can help with risk management and student monitoring, allowing for more prompt and efficient treatments. Despite the numerous benefits of AI, however, there are a number of obstacles that must be addressed in order for it to be implemented effectively (Sitorus & Murti, 2024). There is artificial intelligence used in learning, one of which is ChatGPT.

ChatGPT (Generative Pre-trained Transformer) is one of the technology-based learning media that is now commonly used in classrooms and other learning environments. ChatGPT is a chatbot or robot that makes use of Artificial Intelligence (AI) to engage with people and help them with different tasks. Because ChatGPT makes it easier to deliver information and learning across a range of topics, using it as a learning tool can boost students' drive (Maulana et al., 2023). By using GPT Chat in learning, such as helping to analyze issues given during group discussion assignments or individual assignments, students may be encouraged to think more deeply about the information they have acquired. This is because by using GPT Chat, students can find sources of information that suit their interests and then feel motivated to learn because GPT Chat is quite simple to use (Pontjowulan, 2023).

In a variety of educational and economic settings, students may benefit from using ChatGPT. With the help of this tool, students may make informed choices by gaining a

greater understanding of the data sources they are looking for. Nevertheless, instructors should also be cognizant of the issues that exist, such as worries about the digital divide, the truth of information, and the dependability of technology. Instructors have a key role as academic leaders in addressing technological obstacles and adjusting to these shifts (Sugiarto & Suhono, 2023). The use of ChatGPT in education provides benefits such as personalized learning, accessibility and affordability, interactive learning resources, and assistance with assignments and problem-solving (Suharmawan, 2023). The use of GPT Chat in learning, such as helping to analyze problems given during group discussion assignments or individual assignments, can also provide encouragement to encourage students to think further about the information obtained because by using GPT Chat, students can obtain information sources that suit their wishes and then also feel motivated to learn because using GPT Chat is quite easy (Haidir et al., 2024). Compared with previous research, this study aims to explore the engagement of learning through artificial intelligence (ChatGPT) among students. Although the use of ChatGPT has been widely examined in the context of task efficiency, there is still limited research mapping its relationship with motivations for using ChatGPT based on Uses and Gratifications Theory (UGT) correlate with the learning engagement."

Uses and Gratifications Theory used in this research, which views audiences as individuals who consciously choose media to fulfill certain psychological and social needs, such as information, entertainment, self-identity, and social interaction. Developed by Elihu Katz, Jay Blumler, and Michael Gurevitch (1973), this theory views media use as a result of individual motivations and goals, where media is chosen because it is considered to provide certain satisfactions. Uses and Gratifications Theory emphasizes the question of "what people do with media." (Katz et al., 1973);(Littlejohn, 2012). There are several dimensions in media use according to Uses and Gratifications Theory, including cognitive needs, affective needs, personal integrative needs, social integrative needs, and the need for tension relief.

Research Method

The research method in this research is qualitative with a descriptive approach. Qualitative research methods are useful for better understanding social reality since they give us deeper information than quantitative methods and allow us to see society from the perspective of the actors (Afrizal, 2014);(Creswell & Creswell, 2018). Phenomenology was used as a method in this study to explore the experiences of individuals (university students) in using AI (ChatGPT) as a learning engagement media. The type of phenomenology used in this study is Husserlian descriptive phenomenology, which descriptively reveals the universal essence of experience.

The data collection technique through Focus Group Discussions (FGD) is a technique where the researcher gathers a group of individuals to discuss a certain topic, which aims to draw out the complex personal experiences, beliefs, perceptions and attitudes of the participants through moderated interaction (Hayward et al., 2004). The focus group questions focused on university students' use of ChatGPT in learning engagement.

The selection of these informants was based on the fact that first-year students experience a transition in their learning experiences from high school to higher education. The research informants/participants in this study were first-year university students in State University of Surabaya. Fifteen students were chosen as participants/informants, including boys and girls. Before being selected as informants, the fifteen informants completed a survey to determine each individual's motive for using ChatGPT in learning. After the survey,

the informants were divided into three groups based on their motives for using ChatGPT, which included 1) to help answer questions, 2) for writing, and 3) for analysis.

Creswell & Poth (2017) emphasizes the thematic process in qualitative data analysis, including FGDs: Organizing the data, reading the entire data, coding, grouping the coding into categories/themes, presenting narrative descriptions and participant quotes, and interpreting the meaning of the findings. Data triangulation was conducted by comparing quantitative survey results and qualitative data from FGDs to confirm, deepen, and explain research findings related to learning engagement.

Results and Discussion

Initial data was obtained through students completing a short questionnaire regarding the use of ChatGPT in learning. The questionnaire items were based on the dimensions in the Uses and Gratifications Theory (Katz et al., 1973). The results of this study indicate that AI as a learning engagement media for university students is used to 1) answer questions and explain concepts, 2) write and edit text, 3) foster creativity and content production, and even for 4) analysis and problem-solving. This data is used as initial data which will then be explored further regarding the motives or reasons for using ChatGPT as an effort to build learning engagement.
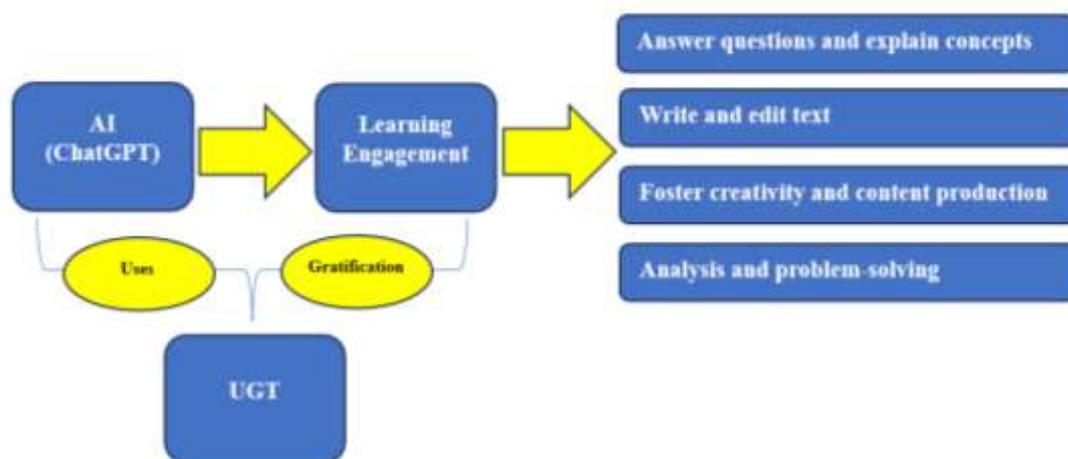

Figure 1. Concept Map of Learning Engagement through AI

ChatGPT: Answer questions and explain concepts

According to Mohammad et al (2025), students use artificial intelligence (AI) for academic support, including explaining concepts, completing homework assignments, and clarifying assignment expectations. (Mohammad et al., 2025)In this research, the Group 1 Focus Group Discussion (FGD) showed that all students had been familiar with and using AI, particularly ChatGPT, since before entering college, particularly since high school. Initially, AI was used for academic purposes such as searching for information, completing assignments, compiling projects, and searching for references, and its use continued and became a habit throughout their studies. AI continued to be used because it was considered practical, fast, and helpful when students experienced a thought block. ChatGPT was perceived as superior in developing concepts, structuring answers, and explaining material concisely and directly. In academic practice, AI was used situationally: it was utilized when facing difficult questions or material, but avoided when students felt they had already grasped

the material. AI was positioned as a tool for clarification, enrichment, and validation, rather than as the primary source of answers.

In open exams, students continued to rely primarily on their own abilities and used AI as a supplement. Student confidence levels were moderate, with a tendency to combine personal abilities and AI assistance in a balanced manner. Confidence increased with understanding of the material but decreased when faced with complex analysis. Dependence on AI was felt to be quite strong, marked by a feeling of losing a primary tool when AI was unavailable. However, students have alternative strategies such as discussing with friends, seeking references through search engines and academic sources, and reading books and journals. The composition of learning resources varies, ranging from AI dominance to a more balanced pattern of use with reading and discussion, especially for assignments requiring scientific validity. Overall, AI plays a significant role in supporting student learning, but its use remains fraught with an awareness of the importance of independent thinking, academic literacy, and social interaction in learning.

ChatGPT: Write and edit text

According to Conrad & Nuebel (2025), High school students view the use of ChatGPT in a school context and are willing to integrate this artificial intelligence-based tool into their daily learning. In this research, the Group 2 Focus Group Discussion (FGD) showed that most students had been familiar with and using ChatGPT since high school, although there was variation in adoption time, with some students only beginning to use it during college. AI is not a foreign technology to students and has been integrated into their learning activities. ChatGPT is primarily used to support academic writing, such as organizing ideas, constructing formal sentences, creating presentation points, and paraphrasing. AI is perceived as a practical and efficient tool, especially for students with limited literacy and vocabulary. However, AI does not replace personal skills, but rather serves as a supporting tool to improve structure and clarify language after students have independently understood the material.

Confidence levels in writing without AI varied; some students felt capable of writing independently, albeit at a slower pace, while others experienced significant difficulties, especially in the early stages of idea development. If AI is not available, students turned to alternative strategies such as reading academic sources, discussing with peers and lecturers, and utilizing audiovisual learning media. The composition of learning resources varied, with interpersonal discussions being the dominant source, followed by the use of AI and reading literature. Students recognized the potential for dependence on AI and began to take control measures, although not entirely successful. Overall, ChatGPT is seen as an important part of the learning process, particularly in academic writing skills, with the note that there needs to be a balance between the use of AI, independent thinking, reading literacy, and social interaction.

ChatGPT: Answer questions and explain concepts

According to Sutrisno & Kadri (2025), ChatGPT helps students understand religious concepts in a more interactive way, providing quick and varied explanations, and supporting independent learning. In this research, the Group 3 Focus Group Discussion (FGD) showed that students had been familiar with and using ChatGPT since high school, through formal educational contexts and technological trends. ChatGPT was initially used to search for information, broaden understanding, and brainstorm, positioning it as a cognitive aid in exploring learning materials. In lectures, ChatGPT was used to assist with understanding unfamiliar material and developing analysis for academic assignments. AI served as a support

for critical thinking, while the final results were still processed independently by students.

Confidence levels without AI varied; some students felt quite confident in their abilities, although concerns arose regarding the use of AI detectors. If AI was not available, students turned to conventional learning strategies such as reading journals, searching for scientific references, and linking the material to prior knowledge. Differences in learning styles were evident in their preference for prior discussion or reading academic sources before discussion. The composition of learning resource use varied, with some students devoting a large portion to AI and others relying more on credible reading sources. Students recognized the potential for dependence on AI and attempted to manage it by continuing to develop ideas independently. Overall, ChatGPT is seen as an important tool in supporting the analysis and understanding of material, but its use is accompanied by an awareness of the importance of balancing technology, independent thinking, academic literacy, and social interaction in learning.

Discussion

Reviewed based on research from Sugiarto & Suhono (2023) that through ChatGPT, students can make the right choices by gaining a better understanding of the data sources they are looking for. Overall, the research results indicate that students primarily utilize ChatGPT to help answer questions and understand concepts, particularly when dealing with material they find difficult, complex, or not yet fully understood. The presence of AI helps students gain an initial overview, clarify concepts, and add perspectives before processing the results independently.

Based on research from Haidir et al (2024) the use of GPT Chat in learning helps analyze the problems given. In this research, ChatGPT is positioned as a cognitive aid that supports the thinking process, not as a substitute for student thinking activities. ChatGPT use is also not automatic in every situation. When a task or question is perceived as easy and has been mastered, students tend to rely on their own abilities and understanding. Conversely, AI is utilized when students experience a thought block, limited understanding, or need a more structured explanation. This pattern indicates that AI use is selective, conscious, and goal-oriented. Students navigate the authority of lecturers, textbooks, and ChatGPT selectively and reflectively. Once knowledge is mastered, they rely on their own abilities. ChatGPT is used situationally as a cognitive aid when there are impasses or limited understanding, while the textbook and lecturer continue to function as sources of academic legitimacy and determinants of learning quality.

Research from Suharmawan (2023) that the use of ChatGPT in education provides benefits such as personalized learning, accessibility and affordability, interactive learning resources, and assistance with assignments and problem solving. In this research, despite the predominant use of AI, social interaction in the form of discussions with peers and lecturers remains considered an effective learning strategy, particularly when AI is unavailable or when students require more in-depth clarification. In this regard, AI does not replace social interaction, but rather functions alongside interpersonal discussions in the learning process. Furthermore, there is significant variation in the composition of learning resources used. Some students rely heavily on AI, even reaching 70–80 percent, while others tend to balance AI use with journal reading and discussions. For assignments demanding scientific validity, students tend to use academic resources such as journals and books more intensively. Overall, the data indicates that ChatGPT plays a significant role in supporting students' learning process, particularly in helping answer questions, explain concepts, and support academic writing. The use of AI is active, strategic, and contextual, and is accompanied by an awareness of the importance of independent

thinking, reading literacy, and academic interaction. These findings confirm that ChatGPT functions as a learning aid that supports, rather than replaces, students' cognitive role.

Context of writing and editing text, ChatGPT is used to help develop ideas, organize writing structure, clarify academic language, paraphrase, and organize presentation points. AI plays a role in improving the efficiency and clarity of writing, especially for students who feel limited in literacy and vocabulary. However, most students still combine AI assistance with their own thinking and understanding. Students' confidence in using AI tends to be balanced, with approximately 50 percent personal ability and 50 percent AI assistance. Confidence increases when the material is well understood, but decreases when faced with more complex analytical tasks. Students recognize that AI can increase confidence, but the quality of answers remains largely determined by individual understanding. Students also acknowledge that AI has become a primary tool that is difficult to abandon due to its practicality and speed. However, on the other hand, awareness is emerging of the risks of over-reliance. Therefore, several control strategies are being implemented, such as reading journals beforehand, discussing with friends, actively taking notes from lecturers, and developing ideas independently before using AI.

Reviewed based on the Uses and Gratification Theory (Katz et al., 1973) there are several dimensions that include cognitive needs, affective needs, personal integrative needs, social integrative needs, and the need for tension relief. The application in this research is that cognitive needs relate to individual efforts to acquire information, knowledge, understanding, and intellectual exploration. Based on FGD findings, this need emerged as the most dominant motive for students' use of ChatGPT. ChatGPT was used to help answer questions, explain difficult concepts, understand complex lecture material, analyze case studies, find initial references, and brainstorm and develop academic ideas. In Group 1 and 3 FGDs, ChatGPT was perceived as a cognitive aid that plays a role when students experience a thought block or lack an adequate understanding of a material. Students do not passively receive information from AI, but rather utilize ChatGPT to gain an initial overview, clarify concepts, and broaden their perspectives before processing them independently. This pattern indicates that students play an active and goal-oriented role in using media, as assumed in the Uses and Gratifications theory.

Affective needs relate to the fulfillment of emotional aspects, such as comfort, calm, and psychological support. In this context, ChatGPT functions as a medium that helps reduce students' academic anxiety. FGD results showed that the presence of AI made students feel calmer when facing difficult assignments, reduced confusion and frustration, and provided a sense of security when they doubted their own understanding. Students' confessions of feeling "lost a key tool" when imagining conditions without AI indicate that ChatGPT not only meets cognitive needs but also provides emotional support in the learning process. Thus, the use of ChatGPT also plays a role in meeting students' affective needs.

Personal integrative needs relate to strengthening an individual's self-confidence, competence, credibility, and self-esteem. FGD findings indicate that ChatGPT is used as a tool to enhance students' academic confidence. AI is used to validate answers or analysis, increase confidence when answering lecturers' questions, and help refine academic language so that work appears more systematic and convincing. Students tend to combine personal understanding with AI assistance in a balanced way to maintain the quality of their answers. In Group 2's FGD, ChatGPT specifically assisted students who felt limited in literacy and vocabulary, thereby increasing their sense of self-efficacy in academic writing. This indicates that AI functions as a tool to strengthen students' academic identity and self-competence.

Social integrative needs relate to interpersonal relationships, social interactions, and a sense of connectedness with others. Although ChatGPT is a technology used individually, FGD

results indicate that its use does not replace social interaction in learning. Instead, AI use coexists with interpersonal discussions. Students often use ChatGPT as a starting point before discussions with peers, compare AI results with their peers' understanding, and discuss with lecturers or peers when AI is unavailable. In Group 1 and 3 FGDs, discussions with peers were seen as the quickest and most effective strategy for building understanding when access to AI is limited. These findings indicate that ChatGPT use remains within the social learning ecosystem and supports students' social integrative needs.

The need to relieve tension is related to efforts to reduce stress, save time, and lower mental pressure. FGD findings indicate that ChatGPT is utilized as an efficiency tool in managing academic workloads. AI helps speed up information searches, overcome time constraints or deadlines, facilitate the development of initial ideas, and reduce the pressure of complex assignments. Students view ChatGPT as a practical and fast tool, thus helping to alleviate the tension caused by academic demands. However, there is also a growing awareness that excessive use of AI has the potential to lead to dependency, leading some students to begin efforts to control the intensity of its use.

Conclusion

The research results indicate that ChatGPT is used by students as a primary cognitive aid in the learning process. The use of AI is instrumental and situational, used as needed to support understanding of the material. At the same time, students' trust levels are moderate and highly dependent on the learning context. While there is a tendency to rely on AI, this is accompanied by a critical awareness of the limitations and risks of its use. Social interaction, such as discussions with peers and lecturers, remains an important learning strategy, while patterns of learning resource utilization vary.

Furthermore, these findings suggest that the phenomenon of AI utilization in learning is not solely a technological issue, but rather reflects a shift in student learning patterns. This shift is evident from an orientation toward exploratory learning to instant learning, from an emphasis on process to a focus on outcomes, and from self-directed learning to a reliance on AI. These conditions carry risks, especially if AI is used excessively and unwisely, as it has the potential to weaken critical thinking, writing, analytical, and problem-solving skills.

Recommendation

Therefore, this study recommends that users, especially students, exercise caution in using AI. Wisdom in the use of AI is needed so that this technology functions as a supporting tool, not a substitute for cognitive processes, so that student engagement in learning can continue to hone and maintain critical thinking skills on an ongoing basis. For lecturers, AI should be used as a tool to enrich learning, encourage critical thinking, and increase student engagement, not as a substitute for the role of lecturers or the learning process itself.

References

Afrizal. (2014). *Metode penelitian kualitatif: Sebuah upaya mendukung penggunaan penelitian kualitatif dalam berbagai disiplin ilmu*. PT Raja Grafindo Persada.

Chang, K.-E., Zhang, J., Huang, Y.-S., Liu, T.-C., & Sung, Y.-T. (2020). Applying augmented reality in physical education on motor skills learning. *Interactive Learning Environments*, *28*(6), 685–697.

Conrad, M., & Nuebel, H. (2025). Learners' Acceptance of ChatGPT in School. *Education Sciences*, *15*(7), 904.

Creswell, J., & Poth, C. (2017). *Qualitative inquiry and research design: Choosing among five approaches*. California: Sage publications.

Creswell, J. W., & Creswell, J. D. (2018). *RESEARCH DESIGN Qualitative, Quantitative, and Mixed Methods Approaches* (Fifth Ed.). SAGE Publications.

Fredricks, J., Blumenfeld, P., & Paris, A. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research*, *74*(1), 59–109.

Ginting, D. (2021). Student Engagement and Factors Affecting Active Learning in English Language Teaching. *Voices of English Language Education Society*, *5*(2 SE-Articles), 215–228. https://doi.org/10.29408/veles.v5i2.3968

Granziera, H., Liem, G., Chong, W., Martin, A., Collie, R., Bishop, M., & Tynan, L. (2022). The role of teachers' instrumental and emotional support in students' academic buoyancy, engagement, and academic skills: A study of high school and elementary school students in different national contexts. *Learning and Instruction*, *80*, 101619.

Gusti, G. N. S. P., Tatik Meiyuntariningsih, & Hetti Sari Ramadhani. (2023). Problem solving ability pada mahasiswa: Menguji peran Self-efficacy. *INNER: Journal of Psychological Research*, *2*(4 SE-Articles), 815–822. https://aksiologi.org/index.php/inner/article/view/802

Haidir, H., Muhamad, T., Roviati, R., Evi, E., & Deka, D. (2024). Penerapan Penerapan Chat GPT dalam Pembelajaran Biologi: Penerapan Chat GPT dalam Pendidikan. *Jurnal Sosial Teknologi*, *4*(3), 182–189.

Hapsari, D., Ramadhani, G., & Ikramullah, N. (2025). Literature review: Pengaruh artificial intelligence (AI) terhadap motivasi belajar peserta didik. *Jurnal Empati*, *13*(4), 313–324.

Hayward, C., Simpson, L., & Wood, L. (2004). Still Left out in the Cold: Problematising Participatory Research and Development. *Sociologia Ruralis*, *44*, 95–108. https://doi.org/https://doi.org/10.1111/j.1467-9523.2004.00264.x

Ikrawansyah, I., & Romadhon, M. G. E. (2024). Artificial Intelligence (AI) is Not A Writing Gods, So Why Do Post-Graduate Students Believe It? *Jurnal Paedagogy*, *11*(3 SE-Articles), 647–658. https://doi.org/10.33394/jp.v11i3.11994

Katz, E., Haas, H., & Gurevitch, M. (1973). On the Use of the Mass Media for Important Things. *American Sociological Review*. https://doi.org/10.2307/2094393

Lawson, M. A., & Lawson, H. A. (2013). New conceptual frameworks for student engagement research, policy, and practice. *Review of Educational Research*, *83*(3), 432–479.

Littlejohn, S. (2012). *Theories of Human Communication*. Waveland Press, Inc. https://doi.org/10.1017/CBO9781107415324.004

Maulana, M., Widianto, S., Safitri, S., & Maulana, R. (2023). Pelatihan Chat Gpt Sebagai Alat Pembelajaran Berbasis Artificial Intelligence Di Kelas. *Jurnal Penelitian Dan Pengabdian Masyarakat Jotika*, *3*(1), 16–19.

Mohammad, N., Demers, M., McCubbin, E., Mitchell, J., & Fulmer, S. (2025). How college students use ChatGPT. *Pedagogical Research*, *10*(4).

Nadila, D., & Septiaji, A. (2023). Implementasi kecerdasan buatan (AI) sebagai media pembelajaran. *Prosiding Seminar Nasional Pendidikan*, *5*(5), 100–104.

Patimah, N., Rahmanita, M., & Raharja, R. (2024). Adaptasi Penggunaan Artificial Intelligence (AI) Pada Mahasiswa. *International Journal of Educational Technology and Society*, *1*(2), 114–123.

Pontjowulan, P. (2023). Implementasi penggunaan media ChatGPT dalam pembelajaran era

digital. *Educationist: Journal of Educational and Cultural Studies*, *2*(2), 1–8.

Putri, A., & Hasan, M. (2023). Penerapan kecerdasan buatan sebagai media pembelajaran bahasa arab di era society 5.0. *Tarling: Journal of Language Education*, *7*(1), 69–80.

Reeve, J. (2013). How students create motivationally supportive learning environments for themselves: The concept of agentic engagement. *Journal of Educational Psychology*, *105*(3), 579.

Reschly, A. L., & Christenson, S. L. (2012). Jingle, jangle, and conceptual haziness: Evolution and future directions of the engagement construct. In *Handbook of research on student engagement* (pp. 3–19). Springer.

Rifky, S. (2024). Dampak penggunaan artificial intelligence bagi pendidikan tinggi. *Indonesian Journal of Multidisciplinary on Social and Technology*, *2*(1), 37–42.

Sitorus, M., & DC, C. A. (2021). Perancangan Sistem Pemilihan Ketua BEM (Badan Eksekutif Mahasiswa) Berbasis E-Voting Dengan Metode CRUD Sebagai Digitalisasi Organisasi DI BRI Institute. *Infotech: Journal of Technology Information*, *7*(2), 125–132.

Sitorus, M., & Murti, M. (2024). Analisis pengaruh penggunaan artificial intelligence pada pembelajaran di cyber university. *Innotech: Jurnal Ilmu Komputer, Sistem Informasi Dan Teknologi Informasi*, *1*(2), 90–101.

Sugiarto, S., & Suhono, S. (2023). Studi kasus penggunaan ChatGPT pada mahasiswa di PTKI Lampung. *Jurnal Al-Qiyam*, *4*(2), 110–119.

Suharmawan, W. (2023). Pemanfaatan Chat GPT dalam dunia pendidikan. *Education Journal: Journal Educational Research and Development*, *7*(2), 158–166.

Surya, A., Sofiah, D., & Farhanindya, H. (2025). Efikasi diri dan kecemasan karir mahasiswa tingkat akhir. *SUKMA: Jurnal Penelitian Psikologi*, *6*(1), 11–19.

Susanti, L., & Agustina, S. (2023). Pengaruh Strategi Engagement Learning dalam Pembelajaran Agama Kristen terhadap Social Skills Siswa. *PEADA': Jurnal Pendidikan Kristen*, *4*(2), 116–126.

Sutrisno, A., & Kadri, M. (2025). Eksplorasi Pemanfaatan ChatGPT Sebagai Asisten Pembelajaran PAI: Studi Kualitatif Di Kalangan Mahasiswa. *JUPEIS: Jurnal Pendidikan Dan Ilmu Sosial*, *4*(3), 316–319.

Wang, J., Huang, Q., Li, Y., & Gu, J. (2021). Reducing transaction uncertainty with brands in web stores of dual-channel retailers. *International Journal of Information Management*, *61*, 102398.

Woolf, B. P. (2010). *Building intelligent interactive tutors: Student-centered strategies for revolutionizing e-learning*. Morgan Kaufmann.

Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education–where are the educators? *International Journal of Educational Technology in Higher Education*, *16*(1), 1–27.