Journal of English Teaching and Learning Issues, 7 (2) page 153 – 168, 2024
ISSN: 2615-3920 EISSN: 2685-4473
DOI: 10.21043/jetli.v7i2.28010

Students' Perceptions of the Advantages and Disadvantages of Using Artificial Intelligence in EFL Classrooms

Endang Mastuti Rahayu[1], Nico Irawan[2], Hertiki[3]

[1, 3] Department of English Education, Faculty of Teaching, University of PGRI Adi Buana, Indonesia
[2] Graduate School, Stamford International University, Thailand

Contact:	Endang Mastuti Rahayu		endangrahayu@unipasby.ac.id

How to cite:

Mastuti Rahayu, E., Irawan, N., & Hertiki. (2024). Students' perceptions of the advantages and disadvantages of using artificial intelligence in EFL classrooms. *Journal of English Teaching and Learning Issues*, 7(2), 153–168. https://doi.org/10.21043/jetli.v7i2.28010

Abstract

This descriptive qualitative study examined the incorporation of Artificial Intelligence into EFL Classrooms, concentrating on its impact on thirty-fifth-semester students in a Research Methodology Course within an English Language Education Department. Data was collected through interviews and semi-structured questionnaires and analyzed using thematic analysis. The study indicated that the students predominantly possessed favorable attitudes toward AI in the educational process. They indicated that AI-enhanced their language acquisition by delivering tailored feedback, presenting stimulating and interactive learning tasks, and allowing adaptable study options. Nonetheless, apprehensions were expressed regarding AI's capability to supplant educators, monitor students' development, and its accuracy and reliability. The study illustrated how AI might assist students with coming up with ideas, locating references, and improving the caliber of research projects. AI technologies could assist teachers in identifying and rectifying student errors, tracking progress, and accelerating the evaluation process, thereby conserving time during grading. These results highlight the significance of balancing AI use with human education to alleviate students' concerns. Future research may examine the efficacy of AI in assisting students with final projects, research proposals, publications, data analysis, and academic writing.

KEYWORDS:
Advantages;
Artificial intelligence;
Disadvantages;
EFL classroom;
Students' perceptions.

ARTICLE HISTORY:
Received:
July 5, 2024
Accepted:
December 19, 2024

Introduction

The world of education has undergone significant changes due to technological advances, including those in foreign language learning (Kim et al., 2019). Artificial intelligence (AI) is the creation of machines designed to replicate human-like thinking, learning, and decision-making abilities. AI systems can do reasoning, solve problems, understand natural language,

Copyright © 2024 The Author(s). Published by Journal of English Teaching and Learning Issues (JETLI).
This is an Open Access article distributed under the terms of Creative Commons Attribution-ShareAlike 4.0 International License (CC BY-SA 4.0), which permits to copy and redistribute the material in any medium or format. It also allows remixing, transforming, and building upon the material for any purpose.

spot patterns, and adapt to new knowledge, which usually requires human intelligence. AI technologies to improve English learning, training, and communication are known as "AI for English Language." AI-powered platforms and tools help students, teachers, and workers with different parts of learning and using the English language (Zawacki-Richter et al., 2019). AI can support English as a Foreign Language (EFL) learners in several ways, particularly in Research Methodology Courses. These include boosting learning efficacy and efficiency by offering individualized learning resources, prompt and accurate feedback, and assisting students with independent practice (Baars, cited in Alqahtani et al., 2023; Gloudemans & Sanderson, 2021).

Technological advances have changed classroom learning to online learning, and classrooms are less dependent on physical classrooms (Rahayu et al., 2023). The emergence of AI equipped with machine learning capabilities has profoundly transformed nearly every facet of human life, particularly within educational contexts. This transformation is evident in learning research methodology courses, which have become integral components of the EFL curriculum. As students engage with AI-driven tools, their ability to comprehend complex research concepts and methodologies is enhanced, ultimately fostering a more interactive and practical learning environment (Popenici & Kerr, 2017). Such advancements underscore educators' need to adapt their teaching strategies in response to these technological developments.

AI has become a pivotal component of online learning platforms and educational programs, facilitating instructors in nurturing students' creative capacities (Padilla & Darío, 2019). By creating an interactive learning atmosphere and addressing the individual learning requirements of each student, AI supports educators in designing tailored educational activities (Kuleto et al., 2021). Its integration has gained traction, particularly in research methods courses, where the availability of essential resources enhances the learning experience. AI systems can learn from experience, adapt to new information, and perform tasks that mimic human behaviors. This technology can revolutionize teaching and learning methodologies, particularly in assessment, personalized tutoring, content creation, and feedback mechanisms for instructors and students (García-Martínez et al., 2023; Kuleto et al., 2021). Consequently, AI-driven tools assist students in completing their assignments effectively, enriching their educational journey.

AI effectively allows students to learn outside the traditional classroom by improving interactive communication, evaluating learning progress, and offering tailored coaching. According to Kuleto et al. (2021), students have responded favorably to its use in teaching research methods courses. In these classes, students often use popular AI tools like ChatGPT, Perplexity, QuillBot, Bing, and Bard because they make studying more fun and engaging, increasing motivation and participation. AI also provides the freedom to access educational materials at any time and from any location, which helps students succeed academically (Popenici & Kerr, 2017).

AI-based technology has significant educational benefits by helping students verify assignments, locate references, and improve the caliber of their research ideas (Hooda et al., 2022; Popenici & Kerr, 2017). Identifying plagiarism and enhancing text via rewriting or spinning promotes academic integrity (Aldosari, 2020). Additionally, by spotting and fixing mistakes, AI assists students in using the most recent materials, including e-books, e-journals, and research articles. Additionally, it tracks progress, offers tailored feedback, and

improves instructional materials, acting as a creative tool to give cutting-edge teaching strategies and create vital learning materials (Dogan et al., 2023).

By integrating diverse information into unified online resources, AI streamlines learning, enhances accessibility, and assists in crafting coherent lectures. Helping lecturers evaluate student work also expedites grading, saving time and effort. AI increasingly transforms educational landscapes, reshaping how students engage with course material (Felix, 2020). Its integration into learning environments can enhance student outcomes, bolster research skills, and deepen comprehension of educational methodologies (Elhaji et al., 2020). However, educators express valid concerns regarding the implications of AI on student cognition and the risk of fostering dependency on technology. Critics argue that reliance on AI could undermine critical thinking and independent learning, as students may become overly accustomed to automated support in their educational journeys (Alotaibi & Alshehri, 2023). Thus, while AI offers promising educational advancements, balancing its benefits with a mindful approach to its potential drawbacks in fostering autonomous learning and critical student engagement is crucial.

In the 5th English Language Education Department semester, the 2021 cohort engaged with the Research Methodology Course, leveraging AI tools to enhance their academic research capabilities. The integration of AI technology facilitated students in various aspects of their research endeavors, including generating innovative research title ideas and identifying pertinent articles from reputable journals. Furthermore, AI tools supported the development of well-structured hypotheses and practical data analysis strategies, enriching the student's understanding of research processes. This approach not only streamlined their preparation of research proposals but also fostered a more profound engagement with academic literature. The utilization of AI in educational settings exemplifies the potential for technology to augment traditional research methodologies, ultimately contributing to the academic growth of students in the field so that AI could be used appropriately in learning Research Methodology Courses. Students had to understand the advantages and disadvantages of AI. By understanding how students used technology in the Research Methodology Course, they could optimize the advantages of AI while mitigating its disadvantages and encourage a comprehensive and efficient learning process for all students. Fuchs and Aguilos (2023) stated that students could prevent plagiarism and grammatical writing mistakes when AI was employed to enhance learning and creativity.

AI significantly enhances distance learning by providing students with access to education regardless of the physical presence of their instructors. Muresan (2023) posits that AI facilitates the creation of an innovative educational environment that nurtures essential skills required for success in an increasingly digital world (Slimi, 2023). These skills encompass personalized learning experiences, ongoing formative assessments, and promoting peer collaboration and communication. Furthermore, AI encourages the development of creativity, critical thinking, and complex problem-solving abilities (Hwang et al., 2020; Marengo et al., 2023). By leveraging AI technologies, educational institutions can better equip learners to navigate the complexities of modern society, ultimately fostering a more adaptive and skilled workforce.

Integrating AI into Research Methodology courses presents significant advantages for enhancing student learning experiences. As Solangi et al. (2019) highlighted, AI provides tailored instruction that aligns with individual students' needs, learning preferences, and academic interests. This personalized approach caters to diverse learning styles and fosters

a more engaging educational environment. Furthermore, AI streamlines routine assignments, allowing students to allocate more time to critical components of research methodology, such as analysis, synthesis, and critical thinking (Thomas & Maree, 2021). This accessibility is particularly beneficial for students from varied academic backgrounds and levels of technological proficiency, facilitating a more inclusive learning atmosphere. AI's capability to deliver immediate feedback on student performance enables quick identification of areas needing improvement, promoting self-directed learning. Additionally, AI simplifies accessing and searching for research references, including expert opinions, unique data sets, and scholarly articles. Consequently, deploying AI in Research Methodology Courses enhances educational outcomes and empowers students to engage more deeply with the subject matter.

Research Methodology students may overuse AI technologies, hamper their critical thinking, independent research, and creative problem-solving (Solangi et al., 2019). Students with a weak economy cannot utilize this tool since they must buy an expensive AI account for more thorough information. AI tools struggle to provide students with transparent references (Aldosari, 2020; Alotaibi & Alshehri, 2023; Harkut & Kasat, 2019). From the issues above, the research explores students' perspectives on AI's pros and cons in Research Methodology Course. AI has improved learning outcomes, provided personalized feedback, and promoted independent learning, yet it may hamper critical thinking and creativity. AI's effects on students' independent inquiry, hypotheses, and higher-order thinking have not been studied. How AI affects students with different technological skills and accessibility needs to be examined, especially economically.

AI integration in educational settings, particularly in EFL classrooms, has garnered significant attention in recent years. The advancements in AI technologies have prompted educators and researchers to explore their implications on teaching and learning processes. This literature review synthesizes current research on students' perceptions regarding the advantages and disadvantages of using AI in EFL classrooms. One of the primary advantages of AI in language learning is its ability to provide personalized learning experiences. AI-driven tools can adapt to individual students' learning paces and styles, thus enhancing engagement and motivation (Li et al., 2021). For instance, intelligent tutoring systems can analyze students' responses and tailor exercises to address specific weaknesses, facilitating a more customized educational experience (Kukulska-Hulme, 2020). Research by Chen et al. (2022) supports this notion, indicating that students who utilized AI-based language learning applications demonstrated improved language skills and higher satisfaction levels than traditional methods.

Additionally, AI can enhance accessibility in language learning. Speech recognition and natural language processing allow for real-time language practice, enabling students to receive immediate feedback on their pronunciation and grammar (Zhou et al., 2021). This immediacy can lower anxiety levels among learners, fostering a more conducive environment for language acquisition (González-Lloret, 2020). Furthermore, AI applications can support learners with disabilities, providing them with tailored resources that accommodate their needs (Almalki et al., 2021). Despite these advantages, students have expressed concerns about reliance on AI in EFL classrooms. One significant disadvantage is the potential for reduced human interaction. As AI tools become more prevalent, students may feel that the traditional teacher-student relationship is undermined, leading to isolation (Kukulska-Hulme, 2020). Research by He et al. (2022) highlights that students value the social aspects of

language learning and fear that AI may replace crucial interpersonal dynamics that foster collaborative learning.

Moreover, there are apprehensions regarding the accuracy and reliability of AI systems. While AI can provide immediate feedback, it may not always be contextually appropriate or nuanced, leading to misunderstandings (Zhou et al., 2021). Students have reported instances where AI-generated feedback was misleading, causing confusion and frustration (Chen et al., 2022). This concern emphasizes the need for educators to balance the use of AI tools with traditional pedagogical approaches to ensure comprehensive language instruction. Another critical issue is the ethical implications of AI in education. Students have raised concerns about data privacy and the potential misuse of personal information collected by AI applications (Almalki et al., 2021). As AI systems often require extensive data to function effectively, the lack of transparency regarding data usage can lead to mistrust among students, ultimately affecting their willingness to engage with these technologies.

In conclusion, while integrating AI in EFL classrooms presents numerous advantages, such as personalized learning experiences and enhanced accessibility, it poses significant challenges. Students' perceptions of AI are shaped by their experiences with these technologies, which include concerns regarding reduced human interaction, the reliability of AI feedback, and ethical considerations surrounding data privacy. Future research should address these challenges to optimize the use of AI in EFL education, ensuring that it complements traditional teaching methods rather than replacing them.

Method

The research was conducted within six (6) months (1 semester) from September 2023 until February 2024. The following shows the procedure for teaching research methodology using AI. This study employed a structured approach over two months to explore the integration of artificial intelligence (AI) in a Research Methodology Course. Month 1 (Weeks 1-4) commenced with an introductory overview of the course topic in Week 1. In Week 2, participants were recruited through purposive sampling, targeting 30 students enrolled in the Research Methodology Course. Weeks 3 and 4 involved brainstorming sessions to assess students' prior knowledge of AI, focusing on their definitions, applications, experiences with AI for learning, and perceptions of AI's potential role. Month 2 (Weeks 5-8) began with Week 5, when AI and its applications were introduced. In Week 6, specific AI tools relevant to the research process, such as literature review software and data analysis tools, were demonstrated and trained. Weeks 7 and 8 focused on practical applications of these AI tools, guiding students on how to identify research gaps, formulate research titles, write backgrounds, and articulate research problems, purposes, and significance in the first chapter of a research proposal, as well as analyzing literature reviews for the second chapter. Throughout this period, students' engagement with AI tools was monitored through classroom interactions and their progress in preparing research proposals. Mid-semester projects involved reviewing an article based on the lecturer's template with a recommendation to use AI.

Month 3-5 (Week 9-16): Week 9-10: Conduct focus group discussion about the research method for chapter three of the research proposal consisting of research approaches, research designs, population and sampling, data collection and instruments,

and data analysis. Week 11-13: Ongoing: Applying the theories of composing chapters one, two, and three using AI tools for research projects. Week 14-15: Designing research instruments with the help of AI tools. Week 16: Constructing research proposal as the project for the final semester examination. Now that students have already comprehended the theories of preparing and applying a research proposal to construct or design a research proposal, a survey was conducted to examine the students' perceptions of using AI to complete their projects.

This mixed-methods study examined students' views on AI's pros and cons in education. It employed two primary instruments for data collection. The first instrument was a questionnaire designed to gather information on the perceptions of students enrolled in the Research Methodology Course who utilized AI as a learning resource. This questionnaire aimed to comprehensively understand students' experiences and attitudes toward integrating AI into their learning processes. After completing their project assignment as a research proposal, they filled out a questionnaire via Google Forms. The questionnaire had two main sections: Advantage Indicators and Deficiency Indicators. The Advantage Indicators included "AI provides personal feedback," "AI offers interactive learning activities," and "AI helps students learn independently." The Deficiency Indicators included "AI has the potential to replace lecturers' positions" and "AI can be addictive and distracting." Participants used a five-point Likert scale to rate each item from "strongly agree" to "strongly disagree," revealing their views on AI in education. The questionnaire was sent online to a broad sample of students from different fields to improve generalizability. Descriptive statistics summarized responses, and inferential statistics identified demographic-based perception disparities.

The second instrument was an interview. We collected qualitative input to understand student experiences and AI perspectives better. This comprehensive methodology allowed a deep examination of AI's varied role in learning. Interview data was coded to assess the merits and cons of AI in research methods courses. The first coding finding determined the advantages (Adv) and disadvantages (Dadv) codes in the second coding. Code generation produced six Advs and seven Dadvs. Qualitative description was utilized to examine coding findings and determine students' thoughts about AI in research methodology courses.

Results

The results of the questionnaire analysis on students' perceptions of using AI as a learning resource in Research Methodology Courses were categorized into Advantages (Adv) and Disadvantages (Dadv).

Adv 1. Seventeen students agreed that AI provided personalized feedback on tasks carried out, and nine students said they quite agreed that AI provided personalized feedback on tasks carried out. Four students did not respond to it. This showed that AI could provide relevant and valuable feedback for students. Personalized feedback can provide more accurate information about things students can improve and how students perform because it is usually more specific and detailed.

Adv 2. Twenty students agreed that AI offered exciting and interactive learning activities, and eight strongly agreed that AI offers engaging learning activities. Two students did not respond. This showed that AI has the potential to improve the quality of learning.

Adv 3. Four students agreed that AI helped them learn at their own pace. Twenty students agreed that AI allowed them to learn at their own pace. Six students did not respond. This indicated that AI has the potential to improve the quality of learning, especially in terms of personalization and flexibility of study time.

Adv 4. Seventeen students agreed that AI helped them develop independent learning skills, and seven agreed. Six students did not respond. This shows that AI can improve learning quality, especially regarding responsibility and learning independence.

Adv 5. Ten students agreed that AI helped them to learn in a more exciting and motivating way, and six students quite agreed, whereas six students strongly disagreed. Eight students did not respond to it. It shows that AI helps students to learn in a more engaging and motivating way.

Adv 6. Seventeen students agreed that AI could help improve English language skills in various planning ways, from creating titles and searching for research results published in journals to bibliographies for proposals, and six strongly agreed. It shows that AI helps improve English language skills in various ways.

Dadv 7. Ten students agreed that they were worried about the potential use of AI, which could replace the role of lecturers. Six students said they quite agreed, whereas six other students strongly disagreed. The analysis showed that sixteen students still did not fully believe that AI could replace the role of lecturers in learning.

Dadv 8. Fifteen students were worried about the potential use of AI to monitor or track their learning. Seven students disagreed, and four students quite agreed. The analysis showed that nineteen students did not fully believe that using AI in this situation was safe and transparent.

Dadv 9. Twenty students were worried about the accuracy and reliability of the input provided by AI. Meanwhile, seven students stated they disagreed with feelings of concern regarding the accuracy and reliability of the input provided by AI. Three students did not respond. This showed that many more students still did not fully believe that AI-powered input could be accurate and reliable.

Dadv 10. Sixteen students agreed that finding several AI-supported tools was challenging to use. Meanwhile, ten students disagreed that some AI-supported tools were difficult to use. Four students did not respond. The analysis showed that as many as sixteen had difficulty accessing AI-supported tools, and it was not easy for everyone to use them.

Dadv 11. Fifteen students agreed that AI tools did not always suit their needs. Meanwhile, ten students disagreed that AI tools did not always suit their needs. Five students did not respond. This showed that AI tools need to be further developed to meet the needs of a wide range of users.

Dadv 12. Fifteen students agreed and were unsure how to use AI tools effectively in their research methodology classes. Meanwhile, ten students disagreed and were unsure how to use AI tools effectively in their research methodology classes. Five students did not respond. This showed that students still need more instruction and support to use AI tools effectively.

Dadv 13. Sixteen students agreed that they were worried that AI could be addictive and destructive, costing students less time on essential learning tasks. Meanwhile, eight

students disagreed. Six students did not respond. The analysis results showed that AI could interfere with learning.

How has the use of AI in your Research Methodology Course impacted your ability to grasp complex research concepts and methodologies?

AI makes complex subjects more straightforward to comprehend by using a variety of examples and points of view. AI technologies save time and effort by automating processes that help in material research and information retrieval. Moreover, AI uses simple language to make study topics and methods clear.

Table 1. *Extract response to question 1*

Extract Code	Response
1.1:	Appreciated AI as a learning tool but emphasized independent thinking.
1.2:	Emphasized faster research completion and easier comprehension.
1.3:	Highlighted AI's role in data analysis, pattern recognition, and idea generation.
1.4:	Appreciated AI's easy-to-understand explanations and reference sourcing.
1.5:	Valued AI's ability to simplify complex concepts for unambiguous interpretation.
1.6:	AI was useful for easy material search and comprehension from various sources.

Integrating AI into Research Methodology Course has proven immensely beneficial for students, augmenting their comprehension of intricate research standards and techniques. Students frequently highlighted how AI might help them make sense of complex ideas by giving them access to various information and viewpoints, making their study process more effective and pleasurable.

Have you noticed any improvements in your research skills, such as data analysis, hypothesis formulation, and interpretation of results, since incorporating AI tools in your research methodology learning?

Every student noted that AI has improved their research and made particular enhancements. AI assists students with various research tasks, from developing original ideas to evaluating and interpreting data.

Table 2. *Extract response to question 2*

Extract Code	Response
2.1:	More precise research questions using AI to find new connections.
2.2:	Data analysis was more straightforward.
2.3:	Improved result interpretation, pattern identification, and data processing.
2.4:	Gave support in formulating hypotheses, analyzing data, and understanding research methods through practical applications.
2.5:	Enhanced attention to detail.
2.6:	Effective search for data.

Adding AI to research methodology instruction has undoubtedly improved students' research abilities and results. Students regularly reported improved skills in data analysis, more focused research ideas, and more effective research procedures. Students recognized the advantages of AI, but they also underlined how crucial it was to strike a balance between

autonomous thought and AI support. AI should be used to supplement critical thinking and introspection rather than to replace them.

AI has revolutionized teaching research methods, enabling students to perform research more effectively and proficiently. AI technology is expected to significantly impact research education in the future, influencing future research for future generations as it develops.

Overall, how would you rate your experience using AI in your research methodology class? What key benefits make AI valuable for your research methodology learning journey?

AI reduced the time required for research procedures by automating work and analyzing data quickly. AI recognized each student's unique needs because it was personal and made recommendations specifically designed to improve the learning process. AI made finding specific references, search terms, and publications easy. Moreover, AI could improve understanding and translate challenging sentences. Students generally felt that AI was a helpful tool that greatly enhanced their research experience. They appreciated its capacity to simplify complicated tasks, save time, generate fresh concepts, and customize educational experiences.

Table 3. *Extract response to question 3*

Extract Code	Response
3.1:	7.
3.2:	8 out of 10.
3.3:	Excellent.
3.4:	(Favourable; no rating provided).
3.5:	8 out of 10.
3.6:	(Good; no rating indicated).

Most students had reported having a good experience learning about research techniques with AI integrated into it. Their overall evaluation of their interaction with AI was consistently cheerful, averaging 7.8 out of 10. In their Research Methodology Courses, students emphasized several advantages of adopting AI, such as improved data analysis skills: Students could examine big datasets more quickly and spot patterns they might have missed otherwise, thanks to AI tools.

AI gave students access to a greater variety of viewpoints and assisted them in seeing links between various concepts, which resulted in the development of more focused and wise research questions. AI streamlined many of the duties associated with doing research, giving students more time to concentrate on more intricate and imaginative elements. Created fresh concepts and offered various approaches to comprehending the outcomes: Students gained a more thorough grasp of their research findings because of AI's ability to help them come up with fresh ideas for their studies and offer them different viewpoints.

Students said AI was a helpful tool that improved the efficiency, interest, and comprehension of studying research methodology. They underlined how crucial it is to use AI with one's critical thinking and independent research. Future generations of researchers will benefit significantly from AI technology's more profound influence on research methodology education as it develops.

What challenges or drawbacks have you encountered when using AI tools in your research methodology class? How have these challenges impacted your learning experience?

Steep learning curve: Students' research progress may be hampered by the time and effort required to comprehend and use AI techniques. Inaccurate or deceptive AI outputs lead to confusion and require rigorous examination, producing imperfect outcomes. Over-reliance on AI: Students who depend too much on AI can overlook traditional research techniques.

Table 4. *Extract response to question 4*

Extract Code	Response
4.1:	I first found the tools complicated and sluggish to comprehend.
4.2:	The tools' complexity and possible influence on the educational process.
4.3:	Potential for false advice and difficulty comprehending tools.
4.4:	Inaccurate results were sometimes returned and restricted search options.
4.5:	Some AI tools provided outdated data, necessitating more investigation from dependable sources.
4.6:	Challenges with particular facets of translating and identifying plagiarism.

In general, even if students understood the advantages of AI in research, they acknowledged the difficulties in using it as well. These difficulties were primarily related to the intricacy of AI tools, the potential for erroneous outcomes, and the danger of relying too much on AI to the detriment of conventional research techniques.

Although most students concurred on the difficulties, their unique experiences and the particular constraints they faced varied. Extract 4.3 and Extract 4.5 stressed that balancing AI and conventional education with critical thinking was crucial. Extract 4.6 expressed doubts regarding plagiarism detection and suggested that further guidelines on the appropriate use of AI in academic research might be necessary.

Can you recall instances where AI tools provided inaccurate or misleading information during your research? How did these instances affect the reliability of your research findings?

Throughout their investigation, all students encountered situations where AI programs produced false or deceptive information. These incidents complicated their studies and hindered their advancement. Students were required to verify facts twice, make corrections, or change the course of their investigation.

Table 5. *Extract response to question 5*

Extract Code	Response
5.1:	Inaccurate information and misinterpreted facts require more investigation and confirmation.
5.2:	Inaccurate or skewed input data that produced inconsistent outcomes.
5.3:	Information that was somewhat erroneous or unclear and required independent investigation and analysis.
5.4:	Data that did not correspond to the search query (e.g., reading versus writing vocabulary).
5.5:	Translation of idioms and figurative language by AI was difficult.
5.6:	This requires several tries to locate the correct translations.

Effect on Research Reliability: Students stressed the significance of constantly double-checking the results of AI and not putting blind faith in it. Cross-referencing data, applying critical thinking, and depending on other research techniques were required to guarantee accurate results. Accurate and reliable research requires balancing Artificial Intelligence and conventional research methods. Despite some obstacles, students still recognize the advantages of AI in research and stress the need to master its application. Different obstacles might arise depending on the study topic and the AI technologies employed. More instruction and direction on the proper use of AI in research might be helpful for students.

Do you believe AI tools can adequately assess and evaluate your research skills and understanding of complex research methodologies? Why or why not?

While some students thought AI might help assess research skills, other questions were full efficacy. AI could overlook the effort, the larger perspective, and the "human touch" of study. False information: Mistakes might occur if AI outputs were relied upon without proper verification. AI was great at specific jobs, such as data analysis, but it might overlook other areas of expertise.

Table 6. *Extract response to question 6*

Extract Code	Response
6.1:	Inaccurate information and misinterpreted facts require more investigation and confirmation.
6.2:	Inaccurate or skewed input data that produced inconsistent outcomes.
6.3:	Information that was somewhat erroneous or unclear and required independent investigation and analysis.
6.4:	Data that did not correspond to the search query (e.g., reading versus writing vocabulary).
6.5:	Translation of idioms and figurative language by AI was difficult.
6.6:	This requires several tries to locate the correct translations.

While some students viewed AI as a possible tool to help with research reviews, many were still concerned about its limitations and the value of human judgment. A balanced strategy that incorporated AI with conventional techniques appeared favored. The students gave a variety of justifications for their viewpoints, stressing the benefits and drawbacks of AI in the research assessment. For a more nuanced view of the AI tools' possibilities in this environment, consider the particular kinds of tools employed and their further functions.

Discussions

As Alqahtani et al. (2023) and Lee and Moore (2024) noted, AI can increase learning in personalization, feedback, flexibility, and research proposal development. The analysis found that 17 students felt AI might increase planning skills, from title creation and journal research search to proposal bibliographies. AI proved helpful for learning research techniques. AI could aid students in writing, researching, and bibliography. This may boost student English learning productivity, particularly in research techniques. Twenty students said AI might give them valuable comments. Because it was more particular and informative, personalized feedback may provide students with better input on improving and performing. AI makes learning fun and interactive. This showed that AI may increase learning and engaging learning may motivate students. Seventeen students believed that AI may boost autonomous learning and study time flexibility. This proved that AI can help students learn independently.

AI could aid students in planning, resource discovery, and assessment. This study indicates that students liked AI in education because AI could give personalized feedback, make learning dynamic, and let them learn at their own pace. Moreover, students believed AI could increase independent learning and research proposal writing.

The findings of this study illuminate critical concerns regarding integrating AI in educational settings. Notably, many students expressed skepticism about AI's ability to replace the traditional role of lecturers. As Alotaibi and Alshehri (2023) highlight, the perception that lecturers provide indispensable guidance, motivation, and emotional support underscores the human element that AI cannot replicate. This sentiment reflects a broader apprehension among students regarding the erosion of interpersonal relationships in learning environments, which are crucial for fostering engagement and understanding.

Moreover, concerns about the ethical implications of AI monitoring underscore the need for transparency in deploying these technologies. Approximately fifteen students voiced unease about data privacy and the potential for unethical usage of their information. This apprehension points to a critical gap in implementing AI tools—namely, institutions need to establish robust ethical frameworks and clear communication regarding data handling practices. Without these measures, students may resist adopting AI technologies, fearing surveillance rather than support. Additionally, the lack of confidence in the accuracy and reliability of AI-generated inputs, as noted by twenty students, raises important questions about the quality of the algorithms employed in educational contexts. Concerns about bias and error in AI outputs highlight the need for ongoing development and validation of these technologies to ensure they meet educational standards.

Lastly, the difficulties experienced by sixteen students in accessing and utilizing AI-supported tools signal a pressing need for enhanced infrastructure and training. Institutions must prioritize professional development to equip educators and students with the skills to leverage AI effectively. Addressing these multifaceted concerns is essential for fostering an educational environment where AI can complement rather than hinder the learning experience.

Students said lecturers were vital to studying, providing direction, encouragement, and emotional support. Students doubted AI-supported input was accurate and reliable. Students reported the benefit of incorporating AI into research methods instruction (García-Martínez et al., 2023). AI helps researchers understand complex topics, improves research skills, and streamlines processes. Students reported that the use of AI contributed to enhanced data analysis, more focused research ideas, and increased efficiency in research procedures. AI tools provided varied information and perspectives, which they valued. AI could improve research methodological training and results. AI's efficiency, clarity, and diversity impressed students. However, AI must be used responsibly to support critical thinking and independent research.

Students' perception of challenges with AI was that they also highlighted difficulties in using it for research. These challenges include that AI tools can be intricate and complex to navigate, requiring training and expertise (Solangi et al., 2019). Students expressed concern about over-dependence on AI, potentially neglecting traditional research methods. Students' experiences and challenges varied depending on specific research topics and AI tools. Students emphasized the need for a balanced approach, combining AI with

conventional research methods and critical thinking. They also suggested further guidelines and training on the responsibility of AI to use in research.

Conclusion

It could be concluded that students had a positive perception of AI in education. AI could improve the quality of learning, especially in terms of personalization, feedback, flexibility, and the ability to prepare research proposals. However, there were also some challenges to consider. These concerns included AI replacing the role of lecturers, privacy and security of student data, accuracy and realism regarding AI input, and difficulties in access and use. AI did not always suit the students' needs. Students still needed more instruction and support to use AI tools effectively. Integrating AI into the Research Methodology Course offered a powerful and positive impact on students. It enhanced their learning. AI tools broke down intricate ideas into manageable pieces, making them easier to grasp and apply. Students developed better data analysis skills, formulated more focused research questions, and streamlined research procedures with AI's assistance. AI tools granted access to diverse information and perspectives, enriching students' understanding of research topics.

AI can revolutionize research methodology courses by empowering students with enhanced skills, such as getting ideas, developing ideas, paraphrasing, looking for references, and checking plagiarism. AI could also help students better understand and streamline research processes. Responsible and mindful integration of AI could pave the way for a new generation of skilled and well-rounded researchers. AI holds immense potential for enhancing research across various disciplines, it is imperative to recognize and address the accompanying challenges. Integrating AI into research practices promises to streamline processes, improve data analysis, and foster innovative methodologies. However, this potential must be tempered with a critical understanding of AI technologies' limitations and ethical considerations. One of the primary implications of this discussion is the need for a balanced approach to AI adoption in research. Researchers must not view AI as a panacea that can replace traditional methods or critical thinking. Instead, AI should be regarded as a complementary tool that enhances human capabilities. This perspective encourages researchers to maintain their analytical skills and methodological rigor while leveraging AI's data processing and pattern recognition strengths.

Moreover, the ethical implications of AI in research cannot be overstated. Researchers must prioritize transparency, accountability, and fairness in their applications as AI systems are increasingly utilized to analyze sensitive data and make decisions. This entails developing guidelines and frameworks that govern the ethical use of AI, ensuring that biases are minimized and that research integrity is upheld. Furthermore, fostering interdisciplinary collaboration will be crucial in navigating the complexities of AI in research. Engaging experts from diverse fields, such as computer science, ethics, and social sciences, can lead to more robust AI applications sensitive to various research contexts' nuances.

In summary, while AI presents exciting opportunities for the future of research, a responsible and thoughtful approach is essential. By addressing the challenges and implications associated with AI, the research community can harness its potential without compromising the foundational principles of inquiry and critical thinking that underpin scholarly work. This balanced approach will ensure that AI serves as a valuable ally to

researchers, empowering future generations to advance knowledge while maintaining the integrity of the research process.

Acknowledgment

Abundant gratitude should be extended to the Research and Community Service Institution at PGRI Adi Buana University, Surabaya, allowing the authors to research students in the English Language Education Department at the Teaching Faculty. Great thankfulness should also be conveyed to Wahju Bandjarjani, proofreader students of batch 2021 in the English Language Education Department, as research respondents.

References

Aldosari, S. A. M. (2020). The future of higher education in the light of artificial intelligence transformations. International Journal of Higher Education, 9(3), 145–151. https://doi.org/10.5430/ijhe.v9n3p145

Almalki, A., Alshahrani, A., & Alhassan, A. (2021). The role of artificial intelligence in education: A review of the literature. International Journal of Educational Technology in Higher Education, 18(1), 1–16.

Alotaibi, N. S., & Alshehri, A. H. (2023). Prospers and obstacles in using artificial intelligence in Saudi Arabia higher education institutions—The potential of AI-based learning outcomes. Sustainability (Switzerland), 15(13). https://doi.org/10.3390/su151310723

Alqahtani, T., Badreldin, H. A., Alrashed, M., Alshaya, A. I., Alghamdi, S. S., bin Saleh, K., Alowais, S. A., Alshaya, O. A., Rahman, I., Al Yami, M. S., & Albekairy, A. M. (2023). The emergent role of artificial intelligence, natural learning processing, and large language models in higher education and research. Research in Social and Administrative Pharmacy, 19(8), 1236–1242. https://doi.org/10.1016/j.sapharm.2023.05.016

Chen, S., Wang, Y., & Zhang, L. (2022). Exploring the effectiveness of AI-based language learning applications: A meta-analysis. Journal of Computer Assisted Learning, 38(4), 1234–1245.

Dogan, M. E., Goru Dogan, T., & Bozkurt, A. (2023). The use of artificial intelligence (AI) in online learning and distance education processes: A systematic review of empirical studies. Applied Sciences (Switzerland), 13(5). https://doi.org/10.3390/app13053056

Elhaji, M., Alsayyari, A., & Alblawi, A. (2020). Towards an artificial intelligence strategy for higher education in Saudi Arabia. 2020 3rd International Conference on Computer Applications & Information Security (ICCAIS), 1–7. https://doi.org/10.1109/ICCAIS48893.2020.9096833

Felix, C. V. (2020). The role of the teacher and AI in education. International Perspectives on the Role of Technology in Humanizing Higher Education, 33, 33–48. https://doi.org/https://doi.org/10.1108/S2055-364120200000033003

Fuchs, K., & Aguilos, V. (2023). Integrating artificial intelligence in higher education: Empirical insights from students about using ChatGPT. International Journal of Information and Education Technology, 13(9), 1365–1371. https://doi.org/10.18178/ijiet.2023.13.9.1939

García-Martínez, I., Fernández-Batanero, J. M., Fernández-Cerero, J., & León, S. P. (2023). Analysing the impact of artificial intelligence and computational sciences on student performance: Systematic review and meta-analysis. Journal of New Approaches in Educational Research, 12(1), 171–197. https://doi.org/10.7821/naer.2023.1.1240

Gloudemans, R., & Sanderson, P. (2021). The potential of artificial intelligence in property assessment. Journal of Property Tax Assessment and Administration, 18(2), 87–106. https://researchexchange.iaao.org/jptaa/vol18/iss2/9/

González-Lloret, M. (2020). Technology and language learning: The role of AI. Language Learning & Technology, 24(1), 1–16.

Harkut, D., & Kasat, K. (2019). Introductory chapter: Artificial intelligence - challenges and applications. In Artificial Intelligence - Scope and Limitations. https://doi.org/10.5772/intechopen.84624

He, Y., Liu, Y., & Zhang, J. (2022). The impact of AI on language learning: Perceptions from EFL students. Computers & Education, 175(104316).

Hooda, M., Rana, C., Dahiya, O., Rizwan, A., & Hossain, M. S. (2022). Artificial intelligence for assessment and feedback to enhance student success in higher education. Mathematical Problems in Engineering, 2022. https://doi.org/10.1155/2022/5215722

Hwang, G. J., Xie, H., Wah, B. W., & Gašević, D. (2020). Vision, challenges, roles and research issues of artificial intelligence in education. Computers and Education: Artificial Intelligence, 1, 1–5. https://doi.org/10.1016/j.caeai.2020.100001

Kim, S., Raza, M., & Seidman, E. (2019). Improving 21st-century teaching skills: The key to effective 21st-century learners. Research in Comparative and International Education, 14(1), 99–117. https://doi.org/10.1177/1745499919829214

Kukulska-Hulme, A. (2020). Will mobile learning change language learning? Language Learning & Technology, 24(1), 1–10.

Kuleto, V., Ilić, M., Dumangiu, M., Ranković, M., Martins, O. M. D., Păun, D., & Mihoreanu, L. (2021). Exploring opportunities and challenges of artificial intelligence and machine learning in higher education institutions. Sustainability (Switzerland), 13(18), 1–16. https://doi.org/10.3390/su131810424

Lee, S. S., & Moore, R. L. (2024). Harnessing Generative AI (GenAI) for automated feedback in higher education: A systematic review. Online Learning Journal, 28(3), 82–104. https://doi.org/10.24059/olj.v28i3.4593

Li, X., Wang, T., & Zhou, Y. (2021). Personalized learning in language education: The role of artificial intelligence. Educational Technology & Society, 24(3), 1–14.

Marengo, A., Pagano, A., Soomro, K., & Pange, J. (2023). The educational value of artificial intelligence in higher education: A ten-year systematic literature review. Interactive Technology and Smart Education, 21(4), 625–644. https://doi.org/10.20944/preprints202311.0055.v1

Mureșan, M. (2023). Impact of artificial intelligence on education. Research Association for Interdisciplinary Interdisciplinary Studies. https://doi.org/10.5281/zenodo.8132828

Padilla, M., & Darío, R. (2019). La llegada de la inteligencia artificial a la educación. Revista de Investigación En Tecnologías de La Información, 7(14), 260–270. https://doi.org/10.36825/riti.07.14.022

Popenici, S. A. D., & Kerr, S. (2017). Exploring the impact of artificial intelligence on teaching and learning in higher education. Research and Practice in Technology Enhanced Learning, 12(1). https://doi.org/10.1186/s41039-017-0062-8

Rahayu, E. M., Rahayu, E. Y., & Irawan, N. (2023). Technological pedagogical content knowledge (Tpack) in the instruction design of the participants in teacher profession education: A narrative inquiry case study. Kwangsan: Jurnal Teknologi Pendidikan, 11(1), 312. https://doi.org/10.31800/jtp.kw.v11n1.p312--327

Slimi, Z. (2023). The impact of artificial intelligence on higher education: An empirical study. European Journal of Educational Sciences, 10(1), 17–33. https://doi.org/10.19044/ejes.v10no1a17

Solangi, Y. A., Tan, Q., Mirjat, N. H., & Ali, S. (2019). Evaluating the strategies for sustainable energy planning in Pakistan: An integrated SWOT-AHP and Fuzzy-TOPSIS approach. Journal of Cleaner Production, 236. https://doi.org/https://doi.org/10.1016/j.jclepro.2019.117655

Thomas, T., & Maree, D. (2021). Student factors affecting academic success among undergraduate students at two South African higher education institutions. South African Journal of Psychology, 52, 008124632098628. https://doi.org/10.1177/0081246320986287

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).

https://doi.org/10.1186/s41239-019-0171-0

Zhou, Y., Wu, X., & Li, Y. (2021). The impact of AI on language learning: Opportunities and challenges. Journal of Language Teaching and Research, 12(3), 400–410.