E-Clue *Journal of English, Culture, Language, Literature,and Education* published by English Education Department Faculty of Languages and Arts, Universitas Negeri Manado, Vol. 13 No. 1, pp. 83-102

Indonesian EFL Students' Perceptions of AI-Based Chatbots in English Language Learning at The Secondary School Level

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ARTICLE HISTORY

Receive: 12 April 2025
Accepted: 12 May 2025
Published: 23 May 2025

KEYWORDS

AI-based chatbots
Students' perceptions
Secondary school level
English language learning
Technology Acceptance Model

ABSTRACT

The rapid advancement of technology has brought transformative changes to the field of education, including English language learning. This study investigates Indonesian EFL secondary school students' perceptions of AI-based chatbots in English language learning, guided by the Technology Acceptance Model (TAM). Employing a quantitative survey design, data were collected from 142 senior high school students across East Java who had prior experience using AI-based chatbots such as ChatGPT, Gemini, and Perplexity. The analysis explored five dimensions of TAM: Perceived Usefulness, Perceived Ease of Use, Positive Attitudes, Negative Attitudes, and Behavioral Intention. The results indicated generally favorable perceptions, with students reporting high ease of use and a positive outlook on chatbot-assisted learning, especially for reading and writing. However, they expressed moderate concerns regarding ethical risks, such as academic dishonesty and the need for supervision. Gender analysis revealed that female students reported significantly higher negative attitudes, while no significant differences were found across grade levels. These findings affirm the relevance of TAM in understanding technology adoption in EFL contexts and highlight the need for pedagogical strategies and digital literacy to ensure the ethical and effective integration of AI-based chatbots into formal language learning environments.

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INTRODUCTION

English has become an essential language for global communication, influencing various sectors such as business, politics, technology, and education. In Indonesia, English is taught as a foreign language at almost every educational level.

According to Permendikbudristek No.12 of 2024, English will move from an elective to a main subject in primary schools by the 2027/2028 academic year, continuing as a compulsory subject in secondary schools. Despite receiving over 6 years of formal English education, Indonesian students still face challenges in achieving proficiency. EF Education First (2024) reported that Indonesia ranked 80th out of 116 countries in EF SET 2024. It indicates that despite this long learning period, many students still struggle with English proficiency. This is the same issue as the study by Tawir & Bin Baharum (2024) that made them analyze the challenges EFL teachers face in the classrooms, which have been found influenced by factors such as limited exposure to proficient English speakers, large class sizes, short class durations, and inconsistent teaching quality due to insufficient resources.

To address these problems, as educators and policymakers have explored more innovative approaches to enhance English language learning, technology has emerged as a key solution. In the last decades, Information and communication technology (ICT) development has been massive, and artificial intelligence (AI) has become a groundbreaking technology with the power to transform language education even further. Many kinds of AI technology are used nowadays, such as AI Virtual Assistants (e.g., Google Assistant and Siri), AI-based Chatbots (e.g., ChatGPT, Gemini, Perplexity, Copilot, DeepSeek), Automated essay graders (e.g., Grammarly, Turnitin), Image recognition and Language translation AI (e.g., Google Lens and DeepL), offer the personalized learning experience that is fulfilling the students' needs and abilities.

AI-based Chatbots represent a highly promising tool in the field of education. A lot of learners utilize AI-based Chatbots such as ChatGPT, Perplexity, and Gemini for improving their skills in writing (Handley, 2024). ChatGPT, for instance, offers grammar rule explanations, speaking exercises, and interpretation of phrases and vocabulary (Nugroho et al., 2023). Teachers also use AI-based Chatbots like TalkPal to offer advice on improving speaking abilities (Efendi Hidayatullah, 2024). Nevertheless, some educators hold diverse views regarding the capability of AI-based Chatbots to transform current instructional practices and paradigms (Rasul et al., 2023).

On the other side, the use of AI-based Chatbots for English language learning has raised a range of perceptions among both learners and researchers. Certain learners find value in these AI-based Chatbots due to their entertaining and interactive characteristics, enhancing the engagement of the learning experience. Another view, however, emphasizes the shortcomings of AI-based Chatbots, particularly their deficiency in emotional intelligence and personalized feedback. The identified shortcomings may result in students experiencing a sense of disconnection, thereby diminishing their credibility as effective learning instruments (Morales-Chan et al., 2024). Furthermore, obstacles such as a lack of interaction and the deficiency of human-like elements have an important impact in creating perceptions of

unreliability (Yang et al., 2022). To overcome these obstacles, careful implementation techniques and ongoing technology advancements are needed. Therefore, in order to optimize their efficiency in the learning process, it is important to take into consideration about their potential negative effects and limitations, even though implementing AI-based Chatbots has potential benefits in EFL.

Students' perceptions of AI-based Chatbots are crucial for determining their acceptance and effectiveness as learning tools. Perceptions are important in education because they directly affect students' academic performance, motivation, and engagement (Muenks et al., 2020). Students are more likely to be interested and motivated when they have good perceptions about their learning experiences, and this improves their academic achievement. Conversely, bad perceptions could end up in decreased motivation and engagement, which will ultimately affect academic achievement (Jones & Carter, 2019). These perceptions are in line with the Technology Acceptance Model (TAM). According to Davis (1989), TAM identifies Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) as the two primary beliefs shaping Behavioral Intention (BI) and Attitude Toward Using (ATU), that are critical aspects affecting how new technologies get adopted. In order to implement AI-based Chatbots into language learning, it is required to know the way students acquire the benefits and difficulties of using these tools, whether or not they interact with them, and how they plan to use them both in the classroom and beyond.

Some research has been done related to students' perception regarding the implementation of AI-based Chatbots. In this regard, a current study by Stöhr et al. (2024) looked into how students are adopting and perceiving ChatGPT and other AI-based chatbots at university level, especially in light of the ongoing discussions related to the effect of AI on educational practices. This research used survey to collect data from a substantial 5,894 students' sample at some higher education in Sweden to examine overall attitudes and particular concerns about the implementation of AI-based chatbots in academic contexts. The results showed that there is a high degree of awareness and usage of ChatGPT specifically, whereas other AI-based chatbots were utilized less frequently. A majority of students had a favorable view of AI-based chatbots as educational tools, yet a significant number also raised concerns regarding their future applications. There were significant differences in attitudes based on gender, academic field, and level of study that were statistically significant. Female students, along with those studying humanities and medicine, exhibited greater scepticism, which stands in contrast to the increased usage and optimism observed among male students and those focused on technology. The findings emphasize how student demographics influence technology adoption and reveal the complexities and the challenges that come with integrating AI into the educational sector, suggesting the requirement for educational solutions which consider the varied needs and students' perspectives.

In addition, another recent exploratory study has been carried out in South Korea by Seo (2024) examined the implementation of ChatGPT as a tool for assistance in writing and its potential for enhancing Language Learning (L2) writing education at the college level. The study, conducted by the researcher with a sample of 44 South Korea university students, investigated the trends of student-initiated requests to ChatGPT and the effects of its assistance on narrative writing. The key findings of the research showed that students predominantly used ChatGPT for asking help in terms of language use, revision, and information gathering, with language-related requests being the most common. In addition, the study showed that ChatGPT was able to accurately identify surface-level linguistic errors. The results of statistical analysis revealed significant improvements in students' writing fluency and overall writing performance after the intervention. Interestingly, although there was a decrease in syntactic complexity scores, there was an increase in clausal complexity, specifically clause-by-clause complements. These results highlight the possibilities of ChatGPT within educational contexts while raising considerations for the development of syntactic complexity, providing a basis for pedagogical applications in L2 writing contexts.

Understanding students' perceptions of AI-based chatbots is essential, as their acceptance and attitudes significantly influence the effectiveness of these tools in language learning. Positive perceptions can enhance engagement, motivation, and overall learning outcomes, whereas negative perceptions may hinder their adoption and limit their potential benefits. While research on AI-based chatbots in education has gained global attention, most studies have focused on university students, leaving a gap in understanding how secondary school students, particularly in Indonesia, perceive these tools.

Existing research has primarily explored chatbot applications in writing assistance, engagement, and usability in higher education, but little is known about their effectiveness and reception among younger learners in formal classroom settings. Given that secondary school students are at a crucial stage of developing language skills while balancing structured instruction and independent learning, their perspectives are vital in assessing the feasibility of AI-based chatbot integration in EFL education. To address this gap, this study examines Indonesian secondary school students' perceptions of AI-based chatbots in English learning through the lens of the Technology Acceptance Model (TAM). By analyzing students' views on perceived usefulness, perceived ease of use, attitude toward using, and behavioral intention, this research aims to provide insights into the adoption and potential impact of AI-based chatbots in secondary EFL classrooms. The findings will contribute to a deeper understanding of AI implementation in secondary education and offer guidance for educators and policymakers seeking to enhance EFL learning through technology.

RESEARCH METHOD

This research employed a quantitative descriptive approach, using surveys to investigate how Indonesian EFL secondary school students perceive the role of AI-based chatbots in their English language learning journey. The research framework draws upon the Technology Acceptance Model (TAM) developed by Davis in 1989, emphasizing important elements like Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Behavioral Intention (BI), and Attitude toward Usage (ATU). A structured questionnaire served as the main tool for gathering data on students' perceptions. The selection of participants was based on the specific criteria: (1) They must have used AI-based chatbots, such as ChatGPT, Perplexity, Gemini, etc, at least once in their English learning process. (2) They must be Indonesian secondary school students. The online questionnaire was distributed to them via WhatsApp to ensure accessibility and ease of participation. In this study, a total of 142 students, whom are 56 male students (39.4%) and 86 female students (60.6%) responded to the questionnaire.

Questionnaire

The questionnaire consists of two sections. The initial section covers Demographic Information which contains name, gender, grade, AI-based Chatbots that have been used, and frequency of the usage. The second section examines students' perceptions regarding the use of AI-based chatbots for learning the English language. The questionnaire consists of 27 items which categorized into 5 dimensions, evaluated through a 4-point Likert scale. The dimensions consist of Perceived Usefulness (PU) featuring 5 items, Perceived Ease of Use (PEOU) comprising 7 items, Positive Attitudes with 5 items, Negative Attitudes also with 5 items, and Behavioral Intention (BI) which includes 5 items. The questionnaire was adapted from existing tools used in the research by Vo & Nguyen (2024) to align more closely with the context of this study.

Reliability test

A pilot study involving 30 students was carried out to assess the reliability of the instrument and to pinpoint any potential issues. The questionnaire's internal consistency was evaluated through the use of Cronbach's alpha, with all subscales demonstrating acceptable to excellent reliability (α = 0.703 to 0.847). The overall reliability coefficient was α: 0.927. For the specific constructs, Perceived Usefulness had an α of 0.712, Perceived Ease of Use was α: 0.821, Positive Attitudes showed α: 0.803, Negative Attitudes had α: 0.703, and Behavioral Intention was α: 0.847. The values suggest that the overall instrument and its dimensions demonstrate strong reliability.

FINDINGS AND DISCUSSION

Findings

Research participants

This study involved a total of 142 Indonesian secondary school students, especially senior high school students in East Java. Among the participants, 86 (60.6%) were female and 56 (39.4%) were male, indicating a slightly higher participation rate among female students (*Figure 1*). A total of students from different grade levels participated in the study. Among them, 77 students, which accounts for 54.2%, are in the twelfth grade. Additionally, there are 50 students in the tenth grade, making up 35.2% of the group, while the remaining 15 students, or 10.6%, are in the eleventh grade (*Figure 2*). This distribution provided a variety of responses from individuals at various educational levels.

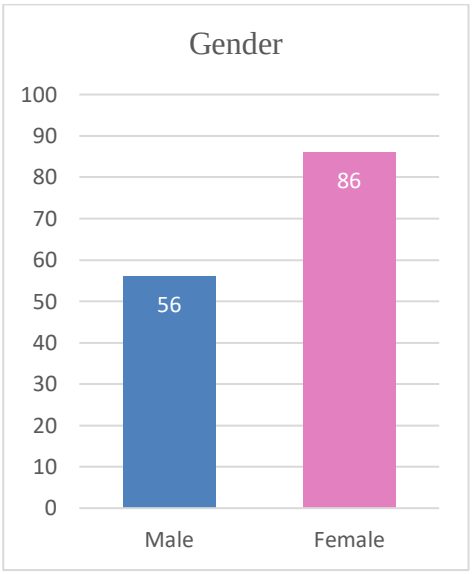

Figure 1

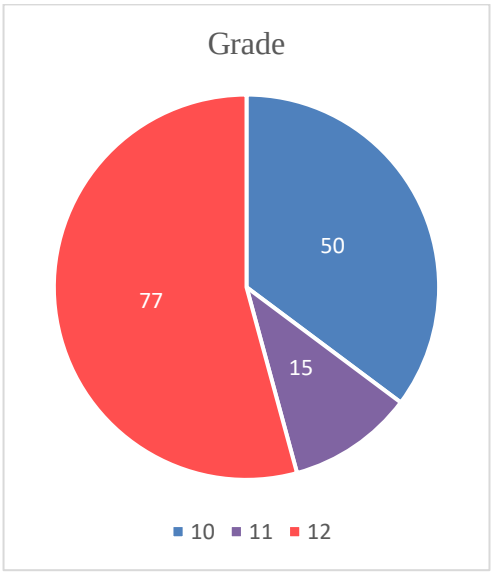

Figure 2

Participants were additionally requested to specify the kinds of AI-based chatbots they often utilized. Because participants were allowed to choose more than one option, a multiple-response analysis was utilized. The majority of students used ChatGPT (85.7%), followed by Gemini (70.0%), Perplexity (24.3%), and Blackbox AI (17.9%). Other tools mentioned less frequently were DeepSeek AI (14.3%), Copilot (8.6%), Poe (3.6%), and Cici (3.6%). A tiny number of students also mentioned using platforms such as Grock, Claude, and Character AI, which were used by fewer than 2.5% of the sample. A mere 2.1% of the participants indicated that they no longer utilized any AI-based chatbots (*Figure 3*). The findings indicate that students are quite familiar with AI-based chatbot platforms, with ChatGPT and Gemini clearly leading as their preferred digital tools for learning English.

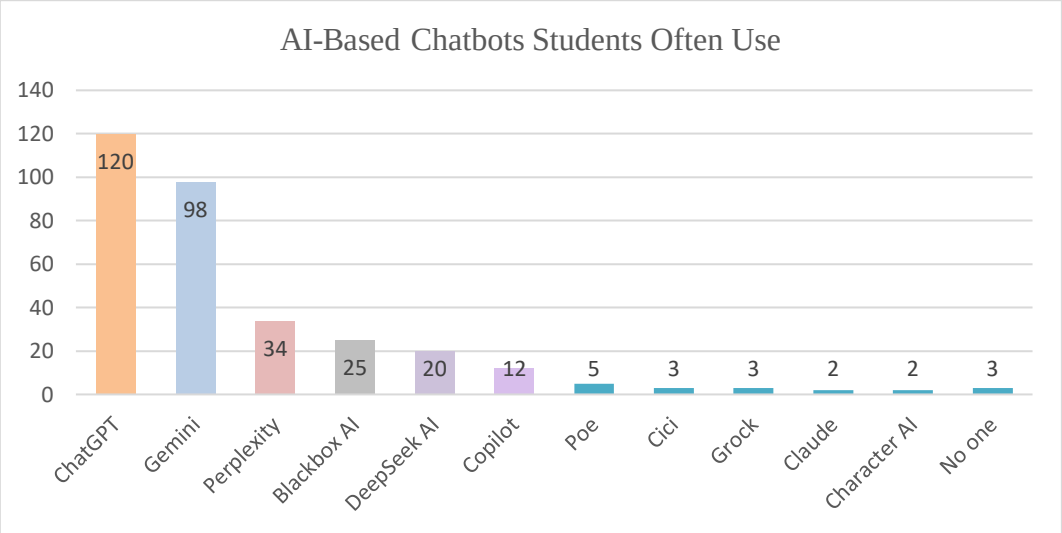

Figure 3

The majority of students, specifically 62 individuals or 43.7%, indicated that they use AI-based chatbots between three to six times a week. Furthermore, 30 students, representing 21.1%, reported using them more than seven times a week, whereas 29 students, or 20.4%, indicated they used them once a week. A smaller percentage of students utilized them on a monthly basis, with 15 students (10.6%) indicating such usage, while 6 students (4.2%) stated that they never engaged with AI-based chatbots (*Figure 4*). This trend shows that AI-Based Chatbots are increasingly becoming a regular learning partner for numerous secondary school students, particularly those in the upper grades.

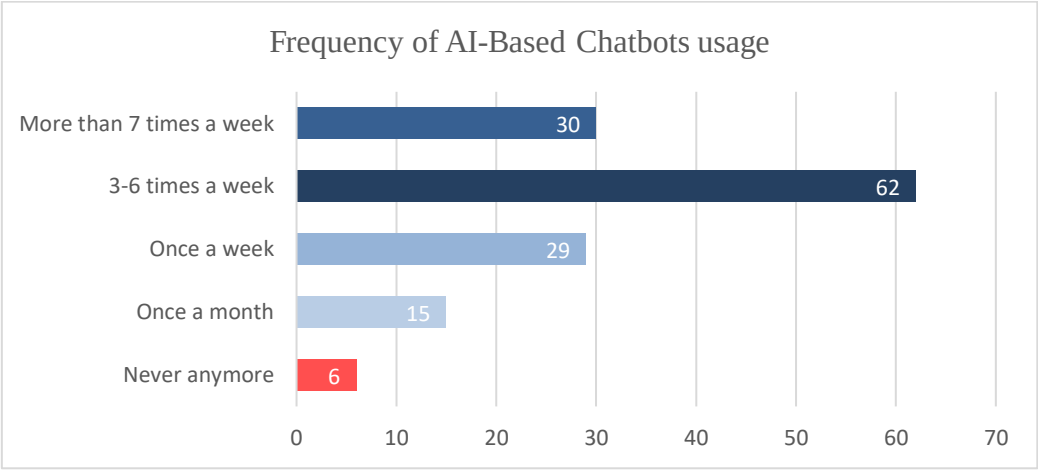

Figure 4

Overall Students' Perceptions

Descriptive statistics were used to explore students' perceptions of AI-based chatbot use across five key dimensions of TAM: Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Positive Attitudes, Negative Attitudes, and Behavioral Intention (BI).

Table 1. Descriptive Statistics of Each Dimensions

	Minimum	Maximum	Mean	Std. Deviation
Perceived Usefulness	1.00	4.00	2.81	0.58
Perceived Ease of Use	1.00	4.00	2.89	0.58
Positive Attitude	1.00	4.00	3.04	0.57
Negative Attitude	1.00	4.00	2.94	0.59
Behavioral Intention	1.00	4.00	2.82	0.68

The mean values for all the dimensions range from **2.81** (Perceived Usefulness) to **3.04** (Positive Attitudes). On a **4-point Likert scale**, the interval is **0.75** (*calculated using the formula: Interval = (Scale Range ÷ Number of Options), i.e., (4–1)/4 = 0.75*). Therefore, students' perceptions in each dimension fall into the "*Agree*" category. This indicates that students generally perceived AI-based chatbots positively, particularly in terms of their usefulness, ease of use, and motivational impact on English language learning.

Perceived Usefulness

The mean scores for Perceived Usefulness range from **2.47** to **3.07**. Students appear to hold moderately positive views about the usefulness of AI-based chatbots for improving their English skills. They showed the highest agreement with the statement that chatbots are beneficial for enhancing reading skills (M = 3.07), followed by writing (M = 2.91) and overall language improvement (M = 2.89). However, they were less convinced of the chatbots' effectiveness for speaking (M = 2.70), and particularly for listening skills, which received the lowest mean score (M = 2.47). These results indicate that students perceive AI-based chatbots as more useful for receptive and productive written skills (reading and writing) than for oral or auditory skills (speaking and listening).

Table 2. Descriptive Statistics of Perceived Usefulness

	Mean	Std. Deviation
Using AI-based Chatbots has improved my English language skills.	2.89	0.82
AI-based Chatbots are useful for developing my speaking skills.	2.70	0.85
AI-based Chatbots are helpful for improving my writing skills.	2.91	0.96
AI-based Chatbots are beneficial for enhancing my reading skills.	3.07	0.79
AI-based Chatbots are effective for improving my listening skills.	2.47	0.94

Perceived Ease of Use

The mean values for the items measuring perceived ease of use range from **2.46** to **3.12**. Students reported the highest agreement with the statement that AI-based chatbots provide good explanations (M = 3.12), followed by convenience in use (M = 3.04) and the general ease of use (M = 3.00). They also rated chatbot interactions as friendly and well-structured (M = 2.94 and M = 2.90, respectively). In terms of

generating authentic language materials, students showed moderate agreement (M = 2.75). Meanwhile, less agreement was shown for accuracy (M = 2.46), which was the lowest among all items. These findings suggest that while students found chatbots accessible and easy to use, they remained cautiously optimistic about the actual educational value of the content generated by these tools.

Table 3. Descriptive Statistics of Ease of Use

	Mean	Std. Deviation
I have no difficulty using AI-based Chatbots in my language learning.	3.00	0.88
Using AI-based Chatbots for learning English is convenient.	3.04	0.81
AI-based Chatbots interactions are friendly and human-like.	2.94	0.91
AI-based Chatbots provide good explanations.	3.12	0.80
AI-based Chatbots answers are well-structured.	2.90	0.89
AI-based Chatbots answers are accurate.	2.46	0.73
AI-based Chatbots can generate authentic language materials.	2.75	0.79

Positive Attitude

The mean values for positive attitudes toward AI-based chatbots range from **2.86** to **3.13**, indicating that students generally held favorable opinions. They expressed the strongest agreement with the idea that chatbots are good as complementary learning resources (M = 3.13), helpful and effective for language learning (M = 3.11), and capable of motivating them to explore new aspects of learning (M = 3.07). Students also acknowledged the impressive capabilities of AI-based chatbots (M = 3.06). While all items received relatively high ratings, the lowest score was recorded for the statement about enhancing confidence in practicing English (M = 2.86). These results suggest that although students value the presence of AI-based chatbots in their learning journey, they may still feel hesitant about relying on them for active language production tasks.

Table 4. Descriptive Statistics of Positive Attitudes

	Mean	Std. Deviation
AI-based Chatbots have amazing capabilities.	3.06	0.74
AI-based Chatbots are helpful and effective for language learning.	3.11	0.73
AI-based Chatbots are good as complementary learning resources.	3.13	0.75
AI-based Chatbots motivate me to explore new aspects of language learning.	3.07	0.81
AI-based Chatbots enhance my confidence in practicing English.	2.86	0.84

Negative Attitude

The mean values for negative attitudes range from **2.39** to **3.27,** reflecting a mixture of concerns among students. The highest level of agreement was seen in the

belief that chatbots will make academic cheating easier (M = 3.27), followed by the idea that chatbot use requires careful monitoring to avoid errors (M = 3.12). Students also expressed concern that chatbots may negatively impact learning by providing easy solutions (M = 3.01), and some admitted to feeling confused by the answers chatbots provide (M = 2.89). The lowest score was given to the item stating that chatbots provide biased or inappropriate content (M = 2.39), indicating that while students acknowledge some risks, they may not perceive this as a frequent or severe issue. Overall, these responses suggest that while students value the usefulness of chatbots, they are also aware of the potential academic and ethical challenges associated with their use.

Table 5. Descriptive Statistics of Negative Attitudes

	Mean	Std. Deviation
Using AI-based Chatbots requires careful monitoring to avoid errors.	3.12	0.86
AI-based Chatbots affect learning negatively because I can find answers and solutions without efforts.	3.01	0.88
I feel confused by some answers provided by AI-based Chatbots.	2.89	0.87
AI-based Chatbots can sometimes provide biased or inappropriate content.	2.39	1.06
AI-based Chatbots will make academic cheating easier	3.27	0.85

Behavioral Intention

The mean values for behavioral intention items range from **2.63** to **2.96**, indicating an overall positive inclination toward continued use of AI-based chatbots. Students agreed most strongly with the statement that chatbots make learning English enjoyable (M = 2.96), and that they offer a comfortable learning environment (M = 2.93). Motivation to continue using chatbots also received a favorable mean score (M = 2.82). However, preferences for using chatbots inside (M = 2.63) and outside (M = 2.75) the classroom were slightly lower. These findings indicate that while students appreciated the learning experience with AI-based Chatbots, they preferred using them on their own terms rather than as structured classroom tools.

Table 6. Descriptive Statistics of Behavior Intention

	Mean	Std. Deviation
I find AI-based Chatbots to be a comfortable learning environment.	2.93	0.73
AI-based Chatbots motivate me to continue using them for English learning.	2.82	0.90
AI-based Chatbots make learning English enjoyable.	2.96	0.83
I prefer using AI-based Chatbots to practice English in the classroom.	2.63	0.98
I prefer using AI-based Chatbots to practice English outside the classroom.	2.75	0.92

Gender Differences

To examine whether students' perceptions of AI-based chatbots differed significantly by gender, an independent samples t-Test was conducted across all five dimensions: perceived usefulness, perceived ease of use, positive attitudes, negative attitudes, and behavioral intention.

Table 7. Independent Sample t-Test

	Gender	N	Mean	Std. Deviation	Std. Error Mean	Sig. (2-tailed)
Perceived Usefulness	Male	56	2.74	0.61	0.08	0.278
	Female	86	2.85	0.55	0.06	
Perceived Ease of Use	Male	56	2.87	0.65	0.09	0.820
	Female	86	2.90	0.54	0.06	
Positive Attitude	Male	56	3.05	0.65	0.09	0.963
	Female	86	3.04	0.52	0.06	
Negative Attitude	Male	56	2.74	0.65	0.09	0.001
	Female	86	3.06	0.51	0.05	
Behavioral Intention	Male	56	2.73	0.70	0.09	0.214
	Female	86	2.88	0.66	0.07	

The t-Test results show that there were no significant gender differences in students' perceptions across most dimensions, including perceived usefulness ($p = 0.278$), perceived ease of use ($p = 0.820$), positive attitudes ($p = 0.963$), and behavioral intention ($p = 0.214$). However, a statistically significant difference was found in negative attitudes ($p = 0.001$), where female students ($M = 3.06$) reported significantly higher levels of concern compared to male students ($M = 2.74$). This suggests that while overall perceptions were similar between genders, female students were more cautious about the risks and drawbacks associated with using AI-based chatbots.

Grade Level Differences

A one-way multivariate analysis of variance (MANOVA) was conducted to examine whether students' perceptions of AI-based chatbots differed significantly across grade levels (Grade 10, 11, and 12). The results, summarized in Table 8, revealed no statistically significant differences between the groups.

Table 8. Multivariate Analysis of Variance (MANOVA)

Effect		Value	F	Hypothesis df	Error df	Sig.
Grade	Wilks' Lambda	.943	.810	10.000	270.000	.619

As shown in the table, the MANOVA test produced a Wilks' Lambda of 0.943, with a corresponding F-value of 0.810 and a significance level of $p = .619$. Since the significance value exceeds the .05 threshold, it indicates that there were no statistically significant differences in students' perceptions across grade levels. In other words, students from Grade 10, Grade 11, and Grade 12 demonstrated relatively similar attitudes toward the use of AI-based chatbots for English language learning. This result suggests that the experience and perception of AI tools are not strongly

influenced by academic level, and that students across all grades are equally receptive to the integration of chatbot technology in their learning process.

Discussion

The rapid advancement of technology has significantly transformed various sectors, particularly education. This study aimed to explore Indonesian secondary school students' perceptions of AI-based chatbots in English language learning through the lens of the Technology Acceptance Model (TAM). TAM was initially proposed by Davis (1989) to investigate how individuals accept technology in relation to different information system elements. The TAM is grounded in social psychology theories and seeks to explore how cognitive and emotional factors influence how users engage with technology. The model suggests that the acceptance of technology happens in three distinct stages that follow one another. First, Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) are the main external elements which lead to cognitive reactions. In the next phase, these cognitive reactions result in an emotional response, which influences the user's attitude to engage with the technology. Finally, users' attitudes influence their behavior, influencing whether or not they will accept the technology.

The main elements in the TAM framework are Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). Perceived Usefulness (PU) is about how users personally assess whether a technological system can improve their performance in everyday activities or work tasks. Conversely, Perceived Ease of Use (PEOU) pertains to the extent to which users anticipate which the technology should be easy and uncomplicated to use. The influence of different external elements, including social, cultural, and political contexts, has an important impact on forming these factors. The model emphasizes the idea of attitude toward use, which shows how a user feels about the desirability of adopting a particular system, and behavioral intention, which assesses the probability of actual usage. The Technology Acceptance Model indicates that when the technology is perceived as easy to use, people are more inclined to consider it beneficial which subsequently raises the chances of acceptance and adoption (Davis, 1989, 1993). The Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) of a technology serve an important function in influencing behavioral intention, which in turn shapes the overall experience of users.

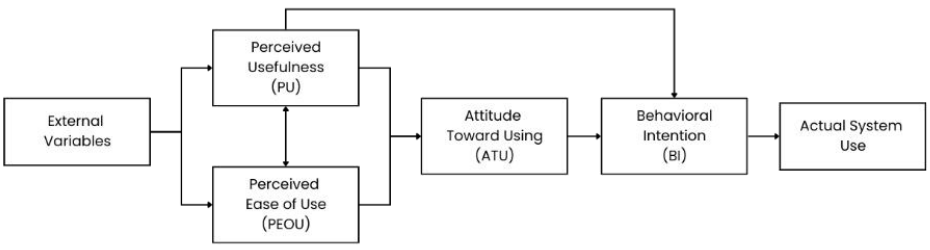

Figure 4. TAM by Davis (1989)

The findings of this study revealed that students generally responded positively toward AI-based chatbot use, as reflected in favorable ratings across all five core dimensions of the Technology Acceptance Model (TAM): Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Attitude Toward Use (ATU – subdivided into positive and negative), and Behavioral Intention (BI). The Technology Acceptance Model, first introduced by Davis (1989), provides a useful framework for analyzing students' responses to technology by exploring not just their satisfaction, but their beliefs, intentions, and affective attitudes. The fact that all TAM components yielded relatively positive feedback suggests that AI tools, particularly chatbots, are becoming increasingly acceptable to secondary school students as part of their English learning process.

The Perceived Usefulness (PU) of chatbots received a moderate yet favorable evaluation, with students identifying them as especially helpful for improving reading and writing skills. This finding echoes a broad range of prior research, including studies by Ali et al. (2023) and Bin-Hady et al. (2023), who observed that learners often find AI-generated content beneficial for brainstorming, composing ideas, and receiving instant feedback on grammar, structure, and vocabulary use. These tools provide non-judgmental, immediate responses that help reduce anxiety often associated with traditional correction by teachers. Moreover, they offer examples and alternatives that can help learners see language in context, which supports deeper understanding. However, the usefulness scores for speaking and listening were consistently lower, likely due to the predominantly text-based interaction that current chatbots offer. While some advanced platforms have incorporated voice input/output features, many students in this study were using free or limited versions that do not support real-time auditory exchange. This limitation reflects similar concerns raised by Ho (2024), who noted that while AI tools are increasingly effective for developing written language, they often fall short when it comes to supporting oral communication skills.

Such shortcomings have important implications. According Yang et al. (2022) and Kemelbekova et al. (2024), language learners benefit significantly from immersive and interactive speaking environments where they can practice pronunciation, intonation, and listening comprehension in real-time. The absence of these features in most chatbot platforms means that they may be less effective in developing communicative competence—one of the core goals in language education. This suggests that while chatbots can be useful aids for certain aspects of language learning, they are not yet capable of replacing traditional speaking and listening practice methods such as peer conversation, group discussion, or language labs. Their role, for now, remains supplementary rather than central in fostering oral fluency.

The Perceived Ease of Use (PEOU) dimension received a slightly higher mean than PU, indicating that students found AI-based chatbots user-friendly and

accessible. Most participants agreed that the chatbots were easy to navigate, provided structured answers, and offered useful explanations. However, concerns regarding content accuracy remain, suggesting that ease of use alone does not guarantee trust. This supports Davis's (1989) original TAM model, which proposed that PEOU influences PU, but ease does not inherently ensure reliability or perceived effectiveness. This is further confirmed by Fryer et al. (2019) who found that students appreciated the technical fluency of chatbot responses but remained critical of their factual correctness.

In the positive attitude dimension, students showed the highest level of agreement. Many expressed enthusiasms about using AI-based chatbots, describing them as helpful, motivational, and innovative. Several students noted that chatbots provided an alternative voice in the learning process, which made studying English more enjoyable and less intimidating. The chatbot's neutral tone and non-judgmental style seem to encourage participation, especially among learners who may be shy or anxious about language performance. This finding resonates with Muenks et al. (2020), who emphasize the role of affective factors such as enjoyment and self-confidence in sustaining student engagement and improving outcomes. The chatbot's 24/7 availability also plays a motivational role, allowing students to practice and explore language at their own pace and convenience.

Nonetheless, students were slightly less confident about the chatbot's ability to boost their speaking confidence, suggesting that while it may enhance input-related skills (like reading and writing), it may not provide the kind of real-time feedback or interaction needed to foster output-oriented skills like speaking. This reinforces the idea that chatbot technologies, in their current form, are best suited for receptive and productive skills in written format, rather than for interactive verbal communication.

On the other hand, students also acknowledged several negative aspects, indicating a balanced view. The most prominent concerns were related to the risk of academic dishonesty, particularly the temptation to over-rely on AI for assignments or exams. Some students admitted that it was easy to copy chatbot responses without fully understanding the material, raising ethical questions about originality and learning authenticity. This concern aligns with those raised by Yu (2023), who warned that AI tools, while powerful, could be misused if not guided by clear academic integrity policies. Other students highlighted the issue of overdependence, fearing that frequent use of chatbots might diminish their creativity and problem-solving abilities over time.

Interestingly, while concerns about misinformation, bias, or inappropriate content were acknowledged, they were not deemed significant by most students. This implies that learners tend to see such flaws as exceptions rather than the norm. However, even isolated instances of incorrect information can have negative educational consequences, particularly when students lack the experience to recognize errors. This further underscore the need for teacher supervision and

instructional design that includes explicit guidance on how to use AI responsibly and ethically in academic contexts.

In terms of Behavioral Intention (BI), students expressed a moderate yet clear willingness to continue using chatbots as part of their learning process. Many appreciated the freedom and flexibility that chatbots offered, noting that they could be used at any time and adapted to personal learning goals. This convenience makes them attractive tools for informal or self-regulated learning, especially outside school hours. However, the relatively lower enthusiasm for using chatbots in classroom settings suggests a potential disconnect between students' individual learning habits and the structured nature of school instruction. This finding mirrors those of Rizky Ananda & Salmiah (2024) who observed that students tend to view AI-based platforms like Gemini as add-ons to traditional education rather than integrated components.

This tension highlights a need for better curriculum integration, where AI tools are incorporated into classroom activities in ways that complement, rather than compete with, teacher-led instruction. When used thoughtfully—such as in writing workshops, vocabulary drills, or grammar correction sessions—chatbots can reinforce lessons and provide additional practice opportunities. However, their use must be intentional and pedagogically sound, with clear boundaries to prevent misuse or overreliance.

The gender-based analysis revealed that female students reported significantly higher negative attitudes toward chatbot use compared to male students. This finding suggests that female learners may be more cautious about ethical implications, data privacy, and the reliability of AI-generated content. Stöhr et al. (2024) also found similar patterns, proposing that female students tend to express greater concern about academic integrity and the potential for AI misuse. Despite this difference in negative attitudes, the study found no significant gender-based variation in the other TAM dimensions usefulness, ease of use, positive attitudes, or behavioral intention indicating broad consensus across genders regarding the general value of AI chatbots in language learning.

Likewise, grade level analysis showed no statistically significant differences, indicating consistent perceptions of chatbot use among students in grades 10, 11, and 12. This result suggests that students, regardless of academic stage, share a similar degree of digital familiarity and exposure to AI tools. It reinforces the idea that technological receptivity among Gen Z learners is more strongly influenced by their overall digital environment than by formal academic maturity. As Bin-Hady et al. (2023) argue, digital fluency is now part of the baseline skill set for most students, making them ready adopters of emerging educational technologies provided those tools meet their learning needs and preferences.

In summary, this study demonstrates that AI-based chatbots are generally well-received by Indonesian EFL secondary students. Students perceived AI-based

chatbots as especially useful for improving reading and writing skills, though less effective for enhancing speaking and listening due to the lack of interactive and oral features. They found chatbots easy to use, appreciating their structured explanations and friendly interface. Most students held positive attitudes, expressing that chatbots were motivational, enjoyable, and valuable as learning support. However, concerns were raised about the risks of overreliance, academic dishonesty, and the need for supervision, indicating moderate levels of negative attitudes. Students also showed a clear intention to continue using chatbots, especially outside the classroom setting. Gender differences appeared in the level of negative attitudes, with female students reporting higher concerns. Meanwhile, grade level did not significantly influence students' perceptions. These findings support Davis's TAM framework, which posits that perceptions of usefulness and ease of use directly shape attitudes and intentions toward technology adoption.

The results also emphasize the dual responsibility of educators: to encourage the thoughtful use of AI in learning environments while providing the necessary scaffolding to prevent misuse. Educators must balance innovation with caution, equipping students with the critical thinking skills and digital literacy required to navigate AI-enhanced learning ethically and effectively. With the right strategies and support, chatbots can serve not only as supplementary tools but as catalysts for more personalized, flexible, and meaningful language learning experiences.

The findings imply that AI-based chatbots have the potential to support English language learning in secondary schools, particularly for autonomous learning and written communication. Their ease of use and engaging nature can enhance learner motivation and independence. However, since students are cautious about the reliability of chatbot-generated content and the possibility of academic misconduct, it is crucial to integrate digital literacy training alongside AI use in educational settings. Additionally, the neutral or hesitant perception of chatbots in classroom contexts suggests that effective pedagogical strategies are needed to bridge the gap between informal and formal learning. Teachers play an essential role in guiding students on how to ethically and effectively use AI tools, ensuring that these technologies complement rather than replace critical human interaction.

Based on the research results, several recommendations can be made for various stakeholders. Teachers are encouraged to incorporate AI-based chatbots as supplementary tools in English learning, particularly for reading and writing activities. They should also provide guidance on ethical and critical usage, including how to verify AI-generated content and avoid plagiarism. School administrators are advised to support the integration of AI tools by offering training opportunities for teachers and ensuring safe, monitored access for students. Students themselves should use chatbots to enhance their self-directed learning outside the classroom, while remaining cautious about overreliance. They are encouraged to evaluate AI-generated information critically and to consult their teachers when in doubt. Finally,

future researchers are recommended to explore deeper insights into chatbot use by combining quantitative data with qualitative approaches, such as interviews or observations, especially to better understand its impact on speaking and listening skill development.

CONCLUSION AND CONSIDERATION

This study found that Indonesian secondary school students generally perceive AI-based chatbots positively in the context of English language learning. Chatbots were considered especially useful for developing reading and writing skills due to their structured responses and constant availability. Most students reported that the tools were easy to use and motivational, reinforcing their engagement and autonomy. However, students were more cautious about their effectiveness in enhancing speaking and listening skills, mainly due to limited interactivity and oral features. Negative attitudes, though less prominent, were related to concerns about academic dishonesty and overreliance, particularly among female students. No significant differences were found across grade levels, suggesting that digital familiarity transcends academic maturity. These findings align with the Technology Acceptance Model (TAM), confirming that perceived usefulness and ease of use shape students' attitudes and willingness to adopt technology.

In light of these results, it is essential for educators, institutions, and students to approach AI chatbot use with balanced strategies. Teachers should integrate chatbots as supportive tools, especially for writing and reading, while providing explicit instruction on ethical usage, originality, and content evaluation. Administrators are encouraged to offer teacher training and ensure secure, guided access to such technologies. Students, meanwhile, should be encouraged to leverage chatbots for self-directed learning beyond the classroom while maintaining academic integrity. The limited classroom integration of chatbots highlights a need for pedagogically grounded approaches to align chatbot use with formal instruction. Future researchers are recommended to investigate the impact of AI tools on oral skills through qualitative methods such as interviews and classroom observations, offering a more comprehensive understanding of their role in communicative language learning.

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