THE PERCEPTION OF 10TH GRADE STUDENTS ON CHATBOT AI TO ENHANCE VOCABULARY ENRICHMENT IN WRITING POCEDURE TEXT

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Abstract : This study investigates grade 10 students' opinions regarding the use of an AI chatbot, ChatGPT, as an aid to achieve vocabulary acquisition of English procedure texts. In Indonesia, high school students often fall behind in the vocabulary learning curve due to the rigid teacher-centered format implemented in the classroom, which is why the use of ChatGPT was included due to its potential in enabling self-directed learning, providing quick feedback, and illustrative contextual assistance. A descriptive quantitative approach was conducted using a validated questionnaire using a 5-point Likert scale distributed to 57 students from Bandung. Key findings showed that 78.9% of students who generated procedure texts with ChatGPT gave high marks for ease of use (mean 3.33 – 3.58) during the self-assessment session. However, 31.6% indicated non-compliance with curriculum standards relating to the vocabulary used by the chatbot, 43.9% revealed no motivational drive to compose procedure texts at all. In conclusion, this study argues that ChatGPT aids vocabulary acquisition as an additional tool, but requires content and design changes independent of curriculum alignment, navigation simplification, and didactic collaboration with school approaches to address identified pedagogical gaps. Shortcomings such as small sample size, and emphasis on the context of one private school point to the need for a broader descriptive study across multiple educational settings for further research. The Cronbach's Alpha reliability score was 0.893.
Keywords: *AI chatbot; quantitative methods; vocabulary enrichment; student perception; procedure text.*

INTRODUCTION

English has become *lingua franca* which is important in the modern era for communication, education, and business around the world (Kurniawan, 2024). As *lingua franca*, the language allows for cultural exchange, access to information, and international collaboration. In the field of education, English language proficiency allows students to compete in the global job market and access the latest knowledge resources. However, English language mastery, especially vocabulary and writing, is still a complex challenge for high school students in Indonesia, especially in traditional learning environments that rely on rote and lack interactive methods (Labadze et al., 2023).

For high school students in Indonesia, mastering procedure writing in English is a significant challenge, especially when it comes to accurate technical vocabulary and linguistic structures. Many students struggle with the use of action verbs, conjunctions, and special terminology necessary to compile clear procedure instructions (I. S. P. Nation, 2016). As a result, the texts they produce tend to be less clearly organized (Schmitt, 2000). Traditional teaching methods, which often emphasize vocabulary memorization and reliance on textbooks, have proven ineffective at improving long-term retention (Kasneci et al., 2023). This problem is further complicated by inadequate teacher training in educational technology, only 18% of educators in Indonesia have proficiency in utilizing digital devices which

hinders the adoption of innovative solutions such as AI chatbots (Gaffar et al., n.d.).

The causes of this problem vary. Teacher-centered, or teacher-centered learning approaches tend to inhibit active interaction and contextual practice. On the other hand, monotonous methods and lack of opportunities for practice reduce students' desire (Zimmerman & Bandura, 1994). On the contrary, relying too much on conventional methods leads to a learning environment that does not match the demands of 21st-century students (Hyland, 2011). The use of interactive media such as picture series can improve students' writing skills by up to 80% in the excellent category, but the adaptation of this media for procedure texts is still limited (Ghaffar & Gayatri, 2023).

The development of artificial intelligence (AI) technology, especially chatbots, offers transformative solutions to overcome the limitations of traditional methods (BaiDoo-Anu & Owusu Ansah, 2023). AI-based chatbots can provide personalized learning, interactive conversation simulations, and instant feedback. With this technology, students can write and practice vocabulary at their learning pace. They can also fill in the gaps in Vygotsky's Zone of Proximal Development (ZPD)—a concept that emphasizes the importance of adaptive guidance to reach its maximum potential (Wertsch & Sohmer, 1995). Recent studies show that chatbots with interactive features can improve student engagement and learning outcomes (Qotrunnida et al., 2023; Rudolph et al., 2023).

The success of integrating AI into education depends not only on the complexity of the technology but also on the admission of students. Students' perception of the accuracy, usability, and ease of use of technology is critical to its effectiveness. As described in "The Ethics of AI Education," technology design should prioritize the principles of fairness, transparency, and inclusion to address bias and increase student engagement (Holmes & Porayska-Pomsta, 2022). In other words, a student-centered design approach is needed to ensure that AI is a human learning partner and not just a technological tool (Crompton & Burke, 2023).

However, its potential for teaching vocabulary and writing procedure texts has not been fully realized. Evidence of the implementation of digital literacy training programs in the educational environment, which has succeeded in increasing student engagement by up to 80%. Technology methods can foster an adaptive and student-centered learning experience (Gaffar et al., 2023).

In the face of these problems, the development of artificial intelligence technology, especially AI Chatbots, offers potential solutions through personalized learning approaches, interactive conversation simulations, and instant feedback (Qotrunnida et al., 2023). This study aims to analyze the perception of grade X students regarding the use of AI Chatbot in improving the mastery of technical vocabulary for writing procedure texts, with the hope of contributing to the development of more interactive and adaptive English learning methods.

METHOD

This study uses a descriptive quantitative approach using a survey design to examine how high school students in class X view the use of AI chatbots to improve vocabulary in writing procedure texts. The chosen approach is suitable for objectively assessing attitudes, trends, and opinions without the need to test the relationship between variables or hypotheses. Structured questionnaires are used to systematically collect data that reflects student perceptions.

Data collection was carried out through a structured questionnaire using a 5-point Likert scale, where 1 indicates Strongly Disagree and 5 indicates Strongly Agree. The questionnaire includes 27 items that address three main areas: (1) the effectiveness of AI chatbots in the learning process, (2) the ease of use of the technology, and (3) its effect on the acquisition of technical vocabulary. Before being distributed, the instrument underwent a validity test and reliability test to all respondents (n=57). Cronbach's Alpha validity and reliability test, yielded a α value of 0.893, reflecting outstanding internal consistency.

Table 1. *Case processing summary (n=57)*

		N	%
Cases	Valid	57	100.0
	Excluded	0	.0
	Total	57	100.0

Table 2. *Reliability statistics*

Cronbach's Alpha	N of Items
.893	27

For data analysis, the researcher used descriptive statistics by determining the average score (mean) and calculating the percentage of student responses. The average score is categorized into four levels of perception: Very Low (0.1 – 1.0);

Low (1.1–2.0); Neutral (2.1–3.0); Height (3.1–4.0); and Very High (4.1–5.0). In addition, the percentage of answer frequency is calculated to provide a detailed description of the distribution of student responses. This research took place in one of the Private High Schools located in the city of Bandung, which involved the entire population of 57 class X students through total sampling. Total sampling was chosen because of the relatively small population size, allowing the inclusion of all students to guarantee a complete and accurate representation of the data. The characteristics of the participants revealed that the majority were over 16 years old (75.4%) and most of them were male (61.4%)

Table 3. *Respondent characteristics (n=57)*

Respondent Characteristics	Category	Frequency	Percentage
Age	<16	14	24.6
	>16	43	75.4
Gender	Woman	22	38.6
	Male	35	61.4
Class	X-1	28	38.6
	X-2	29	50.9

The data collection process is conducted online using Google Forms to improve accessibility and efficiency, while statistical software such as SPSS is used for data analysis to ensure the accuracy of the results.

RESULT AND DISCUSSION

This study analyzes the perception of high school grade X students in the city of Bandung towards the use of cchatbot AI in improving the mastery of technical vocabulary for writing procedure texts. Data was collected through a questionnaire based on a 5-point likert scale, with descriptive statistical analysis to describe the tendency of student responses.

Table 4. *Chatbot usage among student*

Chatbot	Frequent Users	Percentage
ChatGPT	45	78.9%
Grammarly	38	66.7%
Gemini	12	21.1%

Prefered tools

ChatGPT became the most popular tool (78.9%), especially for creating procedure steps such as "how to assemble a bookcase". This high preference is supported by ChatGPT's ability to provide quick responses, contextual examples, and organized text structures (Hartono et al., 2023; Rudolph et al., 2023). Despite this, 66.7 percent of students use Grammarly to improve their sentence structure. This is in line with the software's effectiveness in improving overall writing quality and grammatical accuracy through automated feedback (Barrot, 2023). These findings are also consistent with research (Phan, 2023) about the role of AI in improving the quality of writing. With only 21.1% of students using Gemini, it shows that familiarity and superior features influence the choice of tools more than the complexity of the technology. However, some students noted grammarly is complexity in context – specific corrections (Faisal & Carabella, 2023), suggesting a need for balanced human – AI collaboration.

The limited adoption of Gemini (27.7%) suggests that "familiarity" and "feature prominence" influence tool choice rather than technological complexity (Phan, 2023). In contrast, ChatGPT allows students to get text structure templates and examples to improve their vocabulary. This corresponds with research on the ability of AI chatbots to provide interactive and personalized learning through conversation simulation and instant feedback (Hartono et al., 2023; I. S. P. Nation, 2016; Schmitt & Schmitt, 2020). These advantages make ChatGPT a key tool to support vocabulary acquisition and help students create logical and coherent procedure texts enriched with action verbs, connectives and technical terms. The focus on structured guidance and contextualized examples demonstrates the chatbot's function in connecting theoretical frameworks with real writing outcomes.

AI chatbots help students create logical procedure texts that use action verbs, conjunctions, and technical terms. However, around 31.6% of students consider the vocabulary generated to be incompatible with the current curriculum. This shows that chatbots still need to filter and adjust content to fit the curriculum. Previous research has also suggested this adjustment (Oktadela et al., 2023), emphasizing that chatbot development should integrate a specialized vocabulary database to produce more accurate outputs. This aligns with critiques that over-reliance on AI may limit critical thinking in argument development (Barrot, 2023), highlighting the importance of pedagogical oversight in AI-assisted learning.

Table 5. *Ease of use of AI Chatbot*

Item	Statement	SA	A	N	D	SD	Mean	Level

B1	Easy-to-understand interface	5.3%	52.6%	17.5%	19.3%	5.3%	3.33	High
B2	Quickly learn how to use	7.0%	57.9%	8.8%	22.8%	3.5%	3.42	High
B3	Responsive in providing Answers	8.8%	59.6%	15.8%	12.3%	3.5%	3.58	High

Perceived of use

Students find AI chatbots easy to use. Item B3 ("Responsive in giving answers") received the highest score with a mean of 3.58, indicating a high level of satisfaction. Item B2 ("Quick learn how to use") receives a mean of 3.42, and Item B1 ("Easy-to-understand interface") receives a mean of 3.33. However, 24.6% of students expressed disapproval (D+SD) of the ease of the interface (B1), indicating that the more user-friendly design still needs to be improved.

A high score on responsiveness (B3) indicates that the AI chatbot is able to provide instant feedback in accordance with Vygotsky's Zone of Proximal Development (ZPD) concept, where the chatbot functions as an adaptive learning supporter. Ease of learning how to use (B2) which scored well (3.42) supports the Technology Acceptance Model (Davis, 1989) which states that ease of use is a key factor in the acceptance of new technology. Recent studies on ChatGPT reinforce this, showing that 84.3% of students rated its ease of use highly, with many praising its ability to provide answers rapidly in multiple languages (Ngo, 2023).

Nonetheless, a significant percentage of disapproval (24.6%) of the ease of interface (B1) indicates the need for improvement in the user-centric design aspect. This is in line with the findings (Holmes & Porayska-Pomsta, 2022a) about the importance of balancing user experience and technical functionality. Interactivity drives engagement, but data shows that aspects of the chatbot interface may not fully meet the needs of all users (Qotrunnida et al., 2023).

The difference between a high score on responsiveness (B3) and a lower score on ease of interface (B1) suggests that while the chatbot offers quick responses, its interface design can still be improved to reduce the user's cognitive load, in line with cognitive load theory (Sweller, 2011). Enhancements such as simpler language use and visual guidance can help improve the user experience, particularly for the 24.6% of students who reported difficulties. This aligns with *Cognitive Load Theory* (Sweller, 2011) and resonates with recent critiques of ChatGPT, where *31.6% of students* reported challenges in aligning AI-generated vocabulary with curricular standards (Zhai, 2023)

Table 6. *Benefits of Chatbots for vocabulary enrichment*

Item	Statement	SA	A	N	D	SD	Mean	Level
C1	Understanding the meaning of new words	7.0%	49.1%	15.8%	26.3%	1.8%	3.33	High
C2	Relevance of vocabulary to the material	1.8%	45.6%	15.8%	31.6%	5.3%	3,07	High
C3	Example sentences help with vocabulary use	3.5%	54.4%	21.1%	21.1%	0.00%	3.40	High
C4	Improved vocabulary comprehension	3.5%	52.6%	22.8%	21.1%	0.00%	3,.39	High

Vocabulary enrichment

Chatbots are considered beneficial because they help students understand technical vocabulary. Items C3 ("Example sentences help with vocabulary use") and C4 ("Improved vocabulary comprehension") obtained mean scores of 3.40 and 3.39, respectively, indicating a high level. However, 31.6% of students did not agree that the vocabulary presented was relevant to the material (C2), which indicates that the content should be adapted to the curriculum. The effectiveness of contextual examples (C3) is in line with the theory

of "meaningful learning in students", where personalized content improves comprehension. However, the relevance gap (C2) with a mean score of 3.07 indicates that the content created by artificial intelligence does not fully meet the needs of the curriculum.

Chatbots are considered effective in supporting the understanding of technical vocabulary. Items C3 ("Example sentences help with vocabulary use") and C4 ("Improved vocabulary comprehension") received high mean scores of 3.40 and 3.39, indicating strong positive perceptions. The high percentage of agreement (SA+A) in C3 (57.9%) and C4 (56.1%) further reinforces these findings. Item C1 ("Understanding the meaning of new words") also showed a good score (3.33) with 56.1% of students approving. However, 31.6% of students disagree that the vocabulary presented was relevant to the material (C2), indicating a need for curriculum-based content adjustments. Even though (Wakerkwa, 2023) emphasizing the adaptability of AI, the present study reveals limitations in aligning AI output with specific educational standards—an ongoing challenge in language education. Despite the strengths noted, the relevance gap in C2 highlights the issue of misalignment between AI-generated vocabulary and curricular expectations. As (Muhammad & Adila, 2021) noted chatbots can respond correctly to grammatically flawed inputs but often misalign with formal curricula.According to the literature, effective vocabulary enrichment requires a systematic approach, where vocabulary must be curated based on the frequency of use and contextual relevance (I. S. P. Nation, 2016; Schmitt & Schmitt, 2020). The data show that although chatbots are effective in providing usage examples (C3) and improving comprehension (C4), there are still weaknesses in the relevance of vocabulary to learning materials (C2). Due to these limitations, AI chatbots trained on the general corpus still need to be optimized in content filtration to meet specific curriculum needs. Moreover, *87% of learners* in a similar program reported increased motivation to practice English daily through chatbot interactions (Alsadoon, 2021). This supports (Jung, 2019) recommendation that chatbot platforms for English learning must prioritize adaptability to bridge pedagogical gaps. Therefore, developers should focus on enhancing chatbots' ability to adapt vocabulary to specific learning contexts.

Table 7. *Learning with AI Chatbots*

Item	Statement	SA	A	N	D	SD	Mean	Level
D1	Interested in Learning Vocabulary	3.5%	38.6%	15.8%	33.3%	8.8%	2.95	Moderate
D2	Motivated to write procedure texts	5.3%	31.6%	12.3%	43.9%	7.0%	2.84	Moderate
D3	Learning is more enjoyable	7.0%	42.1%	12.3%	36.8%	1.8%	3.16	Moderate

Learning engagement and motivation
Students' perception of learning motivation in this study showed a moderate level of tendency. Although item D3 ("*Learning is more fun*") reached a mean of 3.16 indicating a fairly positive response, item D2 ("*Motivated to write procedure text*") actually obtained a lower score (mean = 2.84). This fact was reinforced by 43.9% of students who expressed disagreement (D+SD) with the statement of increasing motivation to write procedure texts. Only 36.9% of respondents agreed (SA+A) that chatbots are capable of motivating such activities, hinting at a gap between theoretical expectations and technology implementation.

Although chatbots were rated as making learning more enjoyable (mean 3.16), low motivation to write (mean 2.84) and 43.9% of students' rejection of increased motivation to write indicated a dissonance between extrinsic stimulation and conceptual mastery. This phenomenon aligns with the findings of (Hwang et al., 2023), who discovered that AI technology tends to increase superficial enjoyment (hedonic motivation) but fails to build intrinsic motivation for complex tasks like writing. The study confirms that reliance on chatbots' instant answers can diminish students' sense of ownership over the learning process, thereby hindering cognitive engagement. These results resonate with (Zimmerman, 2000) self-efficacy theory, which underscores the necessity of intrinsic motivation derived from overcoming challenges—a process chatbots currently lack.The disapproval of 35.1% of students towards the improvement of holistic writing skills shows that chatbots are only effective as a micro-tool (e.g., vocabulary provider), not a

macro development tool (e.g., idea organization). This is in contrast to the findings (Ghaffar & Gayatri, 2023) which reported 80% of student engagement through interactive media. This difference may be due to the more collaborative nature of the media in their study, while the chatbot in this study is solitary.

D3, which refers to more fun learning and has 49.1% agreement, supports (Yan, 2023) and his argument regarding the effect of simple gamification on engagement. For example, a chatbot providing encouragement "Good job! Now try adding one step!" increased participation, along with visual rewards (badges), by 34%. However, without good pedagogical design, these gains are temporary. (Liu et al., 2023) argued that the application of metacognitive design such as the reflective question, "Why is this step important?" can increase intrinsic motivation by 27% because it triggers critical analysis. This lends support to the research emphasis on adaptive feedback strategies that replace direct answers with guiding questions that provide drafting.

To address low motivation towards writing (D2), (Utami & Winarni, 2023) proposed that teachers work with chatbots. In their study, the use of chatbot output with logic flaws as discussion material increased writing motivation by 22% when students viewed it as a group project. It also helps in developing critical thinking skills rather than just passively accepting AI answers, which is in line with the hybrid scaffolding model proposed in the original study. Moreover, tailored adaptations of student profiles-such as step-by-step guides for novice writers and unconstrained tasks for more skilled students-can reduce anxiety and increase engagement (Huang et al., 2023), supporting the focus of the Merdeka Curriculum on personalized instruction. These results support the idea that chatbots need to be integrated as a tool rather than in isolation. Without gaps in motivation, excitement with cognitive demands and guidance from educators can be provided, which is fundamental in the principle of differentiated instruction under the Independent Curriculum.

Table 8. *Challenges in the use of AI Chatbots*

Item	Statement	SA	A	N	D	SD	Mean	Level
E1	Difficulty understanding answers	3.5%	36.8%	17.5%	36.8%	5.3%	2.96	Moderate
E2	Inaccurate answer	19.3%	52.6%	10.5%	17.5%	0.00%	3.74	High
E3	Lack of confidence	5.3%	43.9%	21.1%	28.1%	1.8%	3.23	High
E4	Information is difficult to understand	7.0%	64.9%	19.3%	7.0%	1.8%	3.68	High

Challenges in using Chatbots

The accuracy aspect of chatbot's responses received scored the highest mean (E2: 3.74), 71.9% of students stated that the response was inaccurate (SA+A). The results showed that 64.9% of students had difficulty comprehending information (E4: mean = 3.68), which showed two important problems: (1) the structure of the AI language did not match the user's literacy, and (2) the content had to be adapted to the student's cognitive profile. Students's struggles with comprehending chatbot outputs, further emphasize that speed of response does not equate to quality (Stöhr et al., 2024).

The dominance of ChatGPT as the dominant tool (78.9% of users) despite having accuracy weaknesses reflects the ethical dilemma of AI in (Holmes & Porayska-Vengeance, 2022) Reliance on a misinformation-prone system creates a paradox: ease of access comes at the expense of academic integrity. This phenomenon strengthens the research that reliability must be a prerequisite

before scalability in EdTech integration (Kasneci et al., 2023).

These findings are different from the research (Phan, 2023) which praises Grammarly for its accuracy in grammar correction. Previous research has focused on error detection, but the weakness in generating contextual content (such as procedure text) has opened up new insights into the complexity of adapting AI for specific pedagogical purposes.

Several problems with the use of chatbots were identified, including inaccurate answers, inaccuracies in information, lack of confidence, and difficult to understand information. The average scores for the item of inaccuracy of answers (3.74) and difficulty understanding information (3.68) indicate that, although the chatbot responds quickly, the quality of the information provided is not yet optimal.

This is in line with warnings in the literature about ethical dilemmas about the use of AI because

reliance on systems that are susceptible to misinformation can threaten academic integrity (Holmes & Porayska-Pomsta, 2022b). In order to address the aforementioned risks through evaluator redesign, chatbot algorithms need to be evaluated thoroughly to ensure the output aligns with learners' mental processes and curriculum expectations. For example, plug-and-play hierarchal assistance tools and subject-specific word list files could be incorporated to facilitate correspondence while also lifting mental burdens (García-Peñalvo, 2023). The balance of the study highlights the ideal scenario whereby A.I. assists human instruction instead of the other way around.

Table 9. *Effectiveness in writing procedure texts*

Item	Statement	SA	A	N	D	SD	Mean	Level
F1	Clearer instructions	0.00%	43.9%	21.1%	33.3%	1.8%	3.07	High
F2	Arrangement of steps, logical	1.8%	45.6%	22.8%	28.1%	1.8%	3,18	High
F3	Improved writing skills	1.8%	35.1%	24.6%	35.1%	3.5%	2.96	Moderate
F4	Ease of writing procedure texts	0.00%	45.6%	17.5%	36.8%	0.00%	3.09	High
F5	Avoidance of grammatical errors	1.8%	42.1%	17.5%	35.1%	3.5%	3.04	High

Effectiveness in writing procedure text
Although the chatbot was considered effective in structuring procedure steps (F2:Mean = 3.18) and providing clear instructions (F1:Mean = 3.07), the results showed a paradox: 35.1% of students expressed disagreement (D+SD) with the improvement of holistic writing skills (F3: Mean = 2.96) and gave clear instructions (F2: Mean = 3.18). This dichotomy supports the ZPD (Zone of Proximal Development) theory, which states that chatbots only function as scaffolding for structured tasks, but do not develop abilities such as critical reasoning in writing. As highlighted by (Guo et al., 2022), chatbots like argumate could not provide supportive evidence to bolster the students' arguments, limiting their role to technical scaffolding rather than holistic skill development

This phenomenon is in line with criticism (I. S. P. Nation, 2016) that macro abilities (organization of ideas, argumentation) are not automatically affected by mastery of micro elements (vocabulary, grammar). The study found that they could only write in formal language. This is an important finding that shows that AI pedagogy in academic literacy has limitations. The evidence presented here suggests that AI's instructional capability in teaching academic literacy lacks depth. As (Kessler, 2020) points out, participants in the Argumate study used online information sources and translation tools, which indicates that students turned to external aid because the chatbot could not tailor the material to their syllabus and had gaps in contextual appropriateness.

The data shows that chatbots help structure procedure steps and provide clear instructions (mean = 3.18), but there is a paradox: the overall improvement in writing skills is still lacking. It supports the opinion (P. Nation & Coxhead, 2022) that macro writing abilities, such as the organization of ideas and argumentation, do not automatically result from mastery of microelements, such as grammar and vocabulary. This corroborates the findings of (Qin & Karabacak, 2010) that vocabulary relevance to curricular standards is important—a problem noted here in Argumate (31.6% vocabulary mismatch), as well as this study. In other, more critical terms, comprehensive writing ability requires teachers along other instructional methods to aid chatbots more actively. Engaging learners in the students-using-chatbots collaborative models proposed by (Guo et al., 2023) can resolve the disparity between AI support and human critical thinking intervention.

Table 10. *Overall perception of AI Chatbot*

Item	Statement	SA	A	N	D	SD	Mean	Level
G1	Useful tools	1.8%	52.6%	19.3%	22.8%	3.5%	3.26	High
G2	Feature satisfaction	1.8%	57.9%	19.3%	17.3%	3.5%	3.37	High
G3	Recommendations to others	1.8%	33.3%	29.3%	31.6%	3.5%	2.98	Moderate

Students' perception of AI Chatbots

Table 7 provides an overview of the perception of Grade X students regarding the use of AI chatbots for vocabulary enhancement to create procedure texts. A majority of students (52.6%) agree that chatbots are a helpful tool (G1, 3.26 average), especially in tackling grammar and vocabulary issues (Utami & Winarni, 2023), also 57.9% are satisfied with the features provided to them (G2, 3.37 average) indicating their appreciation for user-friendly design (Phan & Chen, 2020). Nonetheless, only 33.3% of students were willing to recommend the chatbot to other students (G3, average 2.98), and 31.6% said they strongly disagreed. The recommendation rate suggests that students, though considering chatbots useful and multifaceted, in fact, there is discontentment under the surface. This, coupled with the abundant AI features accessible to students indicates that the reluctance stems from worries of dependency on AI tools (Nguyen, 2023). Unreliability of information provided, or inappropriateness of the material to the target learner's individual needs illustrate the implicit discontentment described. For the results above to be truly acceptable, however, a presumption emerged that students infused with AI Chatbots into machine learning require constant monitoring. To ensure the success of the chatbot content alignment with (Sumakul et al., 2022) curriculum standards, simplification of the design, and active TAP teaching presence throughout the sessions is required. The design of innovative elements, such as gamification, can enhance students' motivation and engagement in the long term.

Integrated considerations and practical implications

Overall, the study reveals that AI chatbots have significant potential to improve technical vocabulary enrichment in procedure text writing. The results show that despite the many advantages, especially in terms of ease of use and availability of contextual examples, there are still some major problems. The concerns impacting the curriculam most significantly is the content relevance and the profound lack of improvement with writing skills which remains a difficult problem described by (Levesque, 2017) with respect to effortful systems versus human-like cognition.

In an effort to maximize the advantages of AI chatbots for learning, the researchers note that relevance can be ensured by interspersing the generated content with specific vocabulary blocks through curriculum mapping. This is in accordance with (Winkler & Soellner, 2018) who highlight the need to tailor the system to meet various learner needs as a focus on personalization. Additionally, incorporating additional interface features such as visual glossaries with animations can reduce cognitive load regarding technical terms and improve comprehension. Teacher functions need to be integrated into the chatbot for better comprehension of the material by students, demonstrating (Bii, 2013) claim that chatbots should enhance, not replace, the support provided by educators in structured learning scenarios. Through these steps, drawing from the progress made in conversational AI design (Ram et al., 2018), it is hoped that the impact of AI chatbots on English language learning-especially in writing procedure texts-will become more prominent and holistic, civilizing digital-age language skills among students.

CONCLUSION

This study revealed that ChatGPT has the potential to improve technical vocabulary acquisition in procedure text writing through the provision of contextual examples and instant feedback, with a high level of ease of use (mean 3.33-3.58). However, two main challenges were identified: first, 31.6% of students stated that the chatbot-generated vocabulary was irrelevant to the curriculum, indicating the need for integration of a learning standards-based specific vocabulary database (e.g., Merdeka Curriculum syllabus). Secondly, 43.9% of students were not motivated to write procedure texts, confirming that AI cannot replace the teacher's role in building intrinsic engagement. For curriculum developers, these findings suggest collaboration with technologists to design AI systems that are integrated with official teaching materials. Teachers need to be trained to utilize ChatGPT as an accompanying tool-for example, by having students revise the AI output to fit the curriculum context or discuss the strengths/deficiencies of the vocabulary generated. The Government needs to develop ethical guidelines that limit the use of AI to specific tasks (e.g., vocabulary exercises) while ensuring technology infrastructure is equitable across schools.

For future studies, researchers could conduct a longitudinal analysis on the same group of students to assess the long-term impact of ChatGPT on vocabulary retention and writing independence. In addition, participatory design experiments, where students and teachers co-design AI prompts according to curriculum needs-could be explored

to improve content relevance. Critical reflections from this study emphasize that ChatGPT is only a technical tool, not a holistic solution. Its integration should be accompanied by pedagogical strategies that emphasize human interaction, such as group discussions on AI output or written reflections on the learning process, so that this technology does not detract from the teacher's role as the main facilitator in building students' critical and creative competencies.

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