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CHATGPT AND WRITING SKILL DEVELOPMENT: A QUANTITATIVE STUDY OF VOCATIONAL HIGH SCHOOL STUDENTS' PERCEPTIONS

Nurul Rahmania[1], Nukmatus Syahria[2], Balkeese V Kunhimohamed[3]
[1,2]*Universitas PGRI Adibuana Surabaya, Indonesia*
[3]*International Languages Campus (IPGKBA), Kuala Lumpur, Malaysia*

Corresponding author email: syahria@unipasby.ac.id

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Abstract: Research on ChatGPT is predominantly focused on Higher Education, with minimal attention to Vocational High School students and the impact of demographic factors on writing proficiency. Framing with Vygotsky's Zone of Proximal Development (ZPD) and the Technology Acceptance Model (TAM), this study aims to fill this gap by exploring Vocational High School students' perspectives on ChatGPT as a resource for enhancing their writing skills. A quantitative approach was employed, collecting data via a closed-ended and an open-ended questionnaire administered to 109 students at a public Vocational High School in Indonesia. The data were analyzed using one-way ANOVA. The results showed no significant differences related to age, gender, or grade level. However, the frequency of ChatGPT use had a significant effect on students' perceptions of their writing development, $F(4, 104) = 2.62$, $p = .04$, $\eta^2 = 0.09$. Students perceived ChatGPT as an effective tool that improves their writing skills by supporting various aspects, such as helping with writing assignments, organizing ideas, improving grammar, increasing confidence and motivation, improving writing styles, and providing suggestions. The study implies that AI tools are "equalizers" in a Vocational High School setting. Because age, gender, and grade did not affect the outcome, AI-assisted writing instruction can be applied universally across these groups without needing specific demographic tailoring.

Keywords: *students' perceptions, ChatGPT, writing proficiency, artificial intelligence in education; vocational high schools*

INTRODUCTION

The proliferation of artificial intelligence (AI) in educational contexts has precipitated a paradigm shift in pedagogical methodologies, particularly in writing skill development. It has facilitated the creation of highly advanced language and writing tools that possess enhanced capabilities and effectiveness. (Alkamel & Alwagieh, 2024; Geitgey, 2018). Furthermore, artificial intelligence such as ChatGPT served a dual role by offering authoritative insights into students' writing and delivering feedback that learners could comprehend, similar to the peer-review process in writing groups (Allen & Mizumoto, 2024). The advent of sophisticated conversational agents, epitomized by ChatGPT, constitutes a significant milestone in the ongoing evolution of educational technology, presenting both unprecedented opportunities and complex challenges for academic writing instruction (Imran & Almusharraf, 2023).

Writing skills in English are crucial, especially in the setting of Vocational High Schools. It serves as an indispensable skill for professional communication and career advancement. Paradoxically, vocational students frequently encounter substantial obstacles in mastering written composition, particularly a lack of discourse study understanding, such as generic structure, linguistic features, sociocultural value of the text, students' confidence, and awareness (Manfaluthi, Hartono, & Faridi, 2024). The

emergence of AI technologies, particularly large language models like ChatGPT, significantly advanced EFL learners' writing proficiency and addressed practical challenges in writing instruction (Asadi, Ebadi, & Mohammadi, 2025). These advanced systems provide supports language learning through authentic linguistic interaction and personalized experiences with immediate feedback, enhancing learner engagement and motivation (Aljohani, 2026). ChatGPT's architectural versatility, encompassing capabilities from dialogic interaction to specialized documentation, coupled with its proficiency in generating coherent, contextually appropriate linguistic output, has established its utility across diverse applications, including automated content generation and linguistic mediation (Golan, Reddy, Muthigi, & Ramasamy, 2023). Thus, AI technology remains a valuable tool for writing assistance (Godwin-Jones, 2022). For English as a Foreign Language (EFL) learners, writing is a crucial skill for academic and professional communication, serving as a medium for demonstrating one's abilities (Sparks *et al.*, 2014).

Despite its fundamental importance, written composition often proves to be a particularly tough challenge for language learners, requiring not only linguistic accuracy but also significant mental effort. Brown (2018) emphasizes the complex nature of writing, highlighting the importance of mastering grammatical rules, vocabulary, and logical structure. As a key part of communicative competence, writing serves as an essential way to express ideas rather than just showing syntactic skill. Given these many challenges, using AI tools like ChatGPT strategically can offer helpful support. By giving instant, formative feedback, such technologies might reduce writing difficulties, helping learners improve their skills more quickly while building confidence. However, it is important to recognize that while ChatGPT shows a lot of promise as a feedback tool, its limitations in detecting subtle grammatical nuances mean it should be complemented by human assessment (Poláková, Ivenz, & Klímová, 2024).

This investigation is theoretically underpinned by the complementary frameworks of Vygotsky's Zone of Proximal Development (ZPD) and the Technology Acceptance Model (TAM). Concurrently, this study was approached from the Technology Acceptance Model (TAM). TAM explains students' frequency of ChatGPT use. Perceived ease of use (PEOU) is the belief that ChatGPT is simple and requires little effort positively shapes perceived usefulness (PU). It is because ChatGPT tools are easy to handle and more likely to be seen as beneficial for learning and performance (Denovan & Marsasi, 2025; Lewis & Sauro, 2023). Both PEOU and PU then influence students' attitude toward using the system and, more directly, their behavioral intention (BI) to use it in learning tasks (Chahal & Rani, 2022; Scherer et al., 2019). BI is the immediate predictor of actual use or frequency of use which means the stronger the intention, the more often learners log in, consult, and rely on the technology during real tasks (Alfadda & Mahdi, 2021; Chahal & Rani, 2022). Once frequent use is established, technology becomes embedded in users' routines, which TAM conceptualizes as the actual system (Chahal & Rani, 2022; Granić, 2022; Scherer et al., 2019). Thus, within this theoretical framework, frequency of ChatGPT use is the behavioral realization of prior TAM cognitions.

The second theoretical framework is based on Vygotsky's Zone of Proximal Development (ZPD), defined as the distance between what students can do alone and what they can achieve with assistance (Margolis, 2020). In this study, scaffolding is provided by both the teacher and ChatGPT tools. the teacher sets appropriately tasks, guides strategies, and monitors ethical use, while ChatGPT offers real time, individualized feedback and models of academic language (Cai, Msafiri, & Kangwa 2024). As scaffolds are gradually reduced, students internalize strategies and move toward more independent, self regulated writing, indicating development to a higher level of competence (Margolis, 2020). Improved coherence, accuracy, and confidence are thus interpreted as evidence that students are successfully working within their ZPD with AI mediated scaffolding (Cai et al., 2024; Ghimire , Neupane, & Dahal, 2024).

Empirical investigations in tertiary education settings consistently document the capacity of AI-based writing tools to explore the potential benefits and challenges of using ChatGPT for second language (L2) writing (Barrot, 2023). There was also a study from Teng (2024) that explored the potential impact of ChatGPT on writing, as well as their perceptions and experiences of ChatGPT in generating feedback for writing. Moreover, Alkamel & Alwagieh (2024) conducted research related to ChatGPT aimed to determine Yemeni EFL learners' potential opinions, benefits, and challenges

regarding using ChatGPT as an AI-based writing tool in academic writing. Nevertheless, this research corpus predominantly examines university populations whose writing objectives are principally scholarly. Conversely, vocational learners require writing proficiency for applied, occupation-specific purposes, including business correspondence, technical reporting, and project documentation. These distinctly pragmatic communicative needs highlight the necessity for pedagogies specifically engineered for vocational EFL contexts rather than appropriating approaches designed for academic settings.

Despite writing's centrality in vocational curricula, learners persistently experience difficulties, particularly a lack of discourse study understanding, such as generic structure, linguistic features, sociocultural value of the text, students' confident and awareness (Manfaluthi, Hartono & Faridi, 2024). These challenges are frequently exacerbated by limited linguistic immersion and insufficient access to individualized feedback. In the Indonesian educational landscape, burgeoning scholarship explores technological integration in EFL instruction through platforms including Quizziz, Kahoot, Grammarly, Google Translate, Google Classroom, Duolingo, Babble, and ChatGPT for Junior High School students (Winanda, Yunita, & Maisarah, 2024). There was also a study by Zebua & Katemba (2024) that investigated the perceptions of utilizing the ChatGPT OpenAI application to enhance university students' writing skills. Furthermore, Dewi (2024) also investigated the experiences of university students who have used ChatGPT for writing assistance. Empirical research examining AI applications, specifically ChatGPT for writing skill development in vocational streams, remains conspicuously underdeveloped. Furthermore, scholarly attention has largely examined how demographic variables can mediate students' perceptions of the use of ChatGPT (Rehman& Kang, 2025; Jomaa, Attamimi, & Al Mahri et al., 2024). However, there is a dearth study that examine the students' perspectives across demographic variables and frequency of use. This lacuna in the literature underscores the imperative to investigate AI tool functionality across diverse learner demographics and the frequency of use within vocational education.

This study aims to examine vocational secondary students' perceptions of ChatGPT as a compositional aid, with particular emphasis on demographic variables and utilization frequency. The study is guided by the following research questions: (1) To what extent do demographic factors and frequency of ChatGPT utilization influence students' writing processes? (2) How effectively does ChatGPT contribute to the enhancement of students' writing skills?

METHOD

This study employed a quantitative research approach to examine Vocational High School students' perspectives on ChatGPT as a writing assistance tool, with particular attention to demographic influences on their responses. The quantitative methodology provided a systematic framework for collecting and analyzing numerical data to both describe phenomena and test predetermined hypotheses (Bryman, 2016; Creswell, 2014).

This investigation employed purposive sampling to recruit participants with demonstrated experience using ChatGPT for writing tasks. This non-probability technique enables deliberate selection of individuals whose characteristics directly correspond to research objectives (Memon, Thurasamy, Ting, & Cheah, 2025).

Participants of this study comprised 109 students from grades X, XI, and XII who had previously utilized AI tools, particularly ChatGPT, in their learning. Furthermore, the participants were across health, business management, and IT majors, further enhancing demographic representation. The research was conducted at a public vocational high school selected for its contextual relevance and accessibility. This institution systematically integrates digital literacy and AI applications into its English curriculum, providing an appropriate environment for examining ChatGPT's role in vocational EFL writing.

Table 1. *Distribution of participant demographic characteristics*

Variable	Category	Frequency (*n*)	Percentage (%)
Grade	X	17	15.6
	XI	67	61.5
	XII	25	22.9 %
Age	< 15 years old	1	0.9
	15 – 16 years old	49	45.0
	17 – 18 years old	50	45.9
	>18 years old	9	8.3
Gender	Male	63	57.8

Female	46	42.2

All of the participants received informed consent at the beginning of the research, and they can withdraw at any time. To keep the participants' privacy, the school's name is not mentioned. The study received ethical clearance from the researcher's institution, and permission were granted by the Vocational High School.

A structured questionnaire served as the primary data collection instrument for this investigation. It utilized an online survey instrument with closed-ended and open-ended questionnaires.

The closed-ended survey instrument aimed to gather numerical data from participants, allowing for statistical analysis to examine patterns and associations among the observed variables (Cohen, Manion, & Morrison, 2018). The questionnaire used in this study was self-developed and theoretically grounded in the Technology Acceptance Model (TAM). The instrument was designed to measure students perceive ChatGPT as contributing positively to their writing development. The questionnaire items were developed based on conceptual of TAM constructs and previous study on technology use in educational contexts. Item development was guided by perceived usefulness (PU) and perceived ease of use (PEOU) refers to the degree to which students believe that using ChatGPT enhances their writing development. It consisted of 20 items and utilized a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

While the inclusion of open-ended questions offered a deeper understanding of participants' perspectives, enabling the triangulation of the collected data and enriching a more nuanced exploration of the research problems (Creswell & Guetterman, 2018). It consisted of 11 items. All of the items in closed-ended and open-ended questionnaires covered students' demographic information and were also organized into four distinct subscales measuring perceived effectiveness, user experience, impact on motivation and self-confidence, and students' preferences in using ChatGPT.

To establish content validity, the instrument underwent pilot testing and rigorous review by subject matter experts in English language teaching and educational research. These specialists evaluated each item for clarity, relevance, and construct alignment. Furthermore, the instrument was also subjected to statistical validation to determine the reliability and validity. Validity ensured that the questionnaire accurately measured the intended constructs. The validity test was conducted using SPSS version 30. The validity of instrument was examined using Pearson correlation test between each item and the item total correlation. The result in table 2 indicated that all 20 items showed positive and statistically significant correlations at $p < 0.01$. Therefore, all items were considered valid and appropriate for data collection.

Table 2. *Statistical validity of the questionnaire*

Items	Total Pearson Correlation	Significance	N	Category
Q1	.687**	<.001	109	Valid
Q2	.782**	<.001	109	Valid
Q3	.704**	<.001	109	Valid
Q4	.626**	<.001	109	Valid
Q5	.771**	<.001	109	Valid
Q6	.754**	<.001	109	Valid
Q7	.703**	<.001	109	Valid
Q8	.672**	<.001	109	Valid
Q9	.791**	<.001	109	Valid
Q10	.786**	<.001	109	Valid
Q11	.722**	<.001	109	Valid
Q12	.758**	<.001	109	Valid
Q13	.785**	<.001	109	Valid
Q14	.677**	<.001	109	Valid
Q15	.710**	<.001	109	Valid
Q16	.762**	<.001	109	Valid
Q17	.636**	<.001	109	Valid
Q18	.704**	<.001	109	Valid
Q19	.751**	<.001	109	Valid
Q20	.638**	<.001	109	Valid

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

The researcher evaluated the questionnaire's reliability using Cronbach's alpha to determine the internal consistency among the Likert-scale items. A Cronbach's alpha value was 0.951 across 20 questionnaire items. Since The researcher evaluated the questionnaire's reliability using Cronbach's alpha to determine the internal consistency among the Likert-scale items. A Cronbach's alpha value was 0.951. Since this value was greater ($\alpha \geq 0.70$) indicated acceptable reliability, showing that the items consistently measured the same underlying construct.

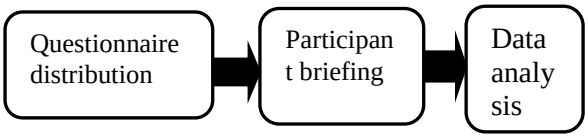


Figure 1. *Data collection Process*

Figure 1 outlines the systematic data collection procedure. The process commenced with the electronic distribution of the questionnaire via Google Forms. Subsequently, participants received a comprehensive briefing regarding research ethics, including study objectives, voluntary participation principles, and guarantees of confidentiality and anonymity. Following complete response collection, data underwent systematic processing and analysis to derive meaningful insights corresponding to the research objectives and questions.

After finishing the instrument's validity and reliability testing, the researchers analyzed the questionnaire responses statistically. The primary analysis utilized one-way ANOVA in SPSS version 30 to compare means across multiple independent groups for a single dependent variable (Chatzi & Doody, 2023). This approach was selected for its interpretive clarity and statistical power when analyzing multiple independent variables separately.

RESULTS AND DISCUSSION

The influence of demographic factors and frequency of ChatGPT utilization on students' writing processes

This section examines the extent to which demographic factors influence students' writing processes. The results were as follows:

Table 3. *Summary of descriptive statistics and ANOVA results for demographic variables*

Variable	Source	SS	Df	MS	*F*	*P*	η^2	Decision
Age Group	Between Groups	257.94	3	85.98	0.49	0.69	0.01	Accepted H_0
	Within Groups	18,296.32	105	174.25				
	Total	18,554.26	108					
Gender	Between Groups	0.02	1	0.02	0.00	0.99	0.00	Accepted H_0
	Within Groups	18,554.23	107	173.40				
	Total	18,554.26	108					
Grade Level	Between Groups	239.72	2	119.86	0.69	0.50	0.01	Accepted H_0
	Within Groups	18,314.54	106	172.78				
	Total	18,554.26	108					

Table 3 presents the results of a one-way ANOVA examining vocational high school students' perceptions of ChatGPT use for writing across three demographic variables: grade level, age, and gender. The findings indicate that there was no statistically significant difference in students' writing process based on grade, as shown by F (2,106) =0.69, p=0.50, η^2=0.01. Similarly, age did not have a significant effect on the writing process (F (3,105) =0.49, p=0.69, η^2=0.01), and no significant difference was found between gender groups (F (1,107) =0.00, p=0.99, η^2=0.00). These results collectively indicated that demographic factors did not influence students' perceptions of ChatGPT's utilization for their writing process. In line with this, the one-way ANOVA outcomes ($p > 0.05$) supported the acceptance of the null hypotheses (accepted H_0), confirming that students' writing process remained consistent regardless of age, grade level, or gender.

Table 4. *One-way ANOVA for students' perception based on frequency of ChatGPT use*

Source	SS	df	MS	F	p	η^2	Decision
Between Groups	1697.388	4	424.35	2.61	0.04	0.09	Rejected H_0
Within Groups	16856.869	104	162.08				
Total	18554.257	108					

As shown in Table 4, the ANOVA results revealed a statistically perceived writing development across frequency groups, F (4, 104) = 2.61, p = 0.04, η^2 = 0.09. Because p < 0.05, H_0 was rejected, indicating that the frequency of ChatGPT use had a moderate and statistically significant effect on students' writing processes. Students who use ChatGPT more frequently will enhance their writing skills.

To further verify these findings, a Post Hoc Tukey HSD test was conducted to identify which frequency group differs. The result showed on Table 5.

Table 5. *Post Hoc Tukey HSD test*

(I) ChatGPT Usage Frequency	(J) ChatGPT Usage Frequency	Mean Difference (I–J)	Std. Error	Sig.	95% CI Lower	95% CI Upper	Interpretation
Monthly	Rarely	0.39898	0.37889	0.830	-0.6529	1.4509	Not significant
Monthly	Weekly	0.45000	0.41493	0.814	-0.7019	1.6019	Not significant
Monthly	Frequently	0.14265	0.38368	0.996	-0.9225	1.2078	Not significant
Monthly	Never	0.77083	0.41121	0.337	-0.3708	1.9124	Not significant
Rarely	Weekly	0.05102	0.21254	0.999	-0.5390	0.6411	Not significant
Rarely	Frequently	-0.25633	0.14219	0.378	-0.6511	0.1384	Not significant
Rarely	Never	0.37185	0.20518	0.372	-0.1978	0.9415	Not significant
Weekly	Frequently	-0.30735	0.22097	0.635	-0.9208	0.3061	Not significant
Weekly	Never	0.32083	0.26592	0.748	-0.4174	1.0591	Not significant
Frequently	Never	0.62819	0.21390	0.033	0.0343	1.2220	Significant

Table 5 of Tukey HSD post hoc test revealed that a statistically significant difference in writing skill was found only between students who frequently used ChatGPT and those who never used ChatGPT (p = 0,033 < 0,05).

The findings showed that Students' age, grade, and gender often showed weak effects on technology acceptance. It was because these psychological evaluations dominated demographic differences in predicting intention and use (Granić, 2022; Scherer et al., 2019). In TAM, frequency of ChatGPT use reflected the actual use stage that followed from behavioral intention, which was itself driven primarily by perceived usefulness (PU) and perceived ease of use (PEOU) (Granić, 2022; Scherer et al., 2019). When students perceived ChatGPT as useful and easy to used for writing, they intended to use it more frequent (Alfadda & Mahdi, 2021; Hsu & Lin, 2021). Repeated use then feeds back into the writing process made the students progressively discovered how to offload sub tasks such as idea generation, language refinement, and structuring to ChatGPT. So technology became embedded in their cognitive and procedural strategies. TAM extensions that included experience or prior AI use consistently showed that more frequency of use strengthened acceptance and shaped how the tool was integrated into learning tasks (Hsu & Lin, 2021). From TAM perpective, perceived usefulness and ease of use spanned demographic groups, but only usage frequency significantly predicted students' writing processes.

The effectiveness of ChatGPT's contribution to enhancement student's writing skills

This theme examines how effectively ChatGPT contributes to the enhancement of students' writing skills. The researchers used a closed-ended questionnaire and an open-ended questionnaire. The results were as follows:

Table 6. *Close-ended questionnaire*

No.	Questions	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)
1.	Using ChatGPT helps me with my writing assignments.	2.8%	4.6%	10.1%	61.5%	21.1%
2.	ChatGPT helps me organize ideas before writing.	0.9%	5.5%	9.2%	48.6%	35.8%
3.	I believe that using ChatGPT improves my English grammar skills	3.9%	8.8%	16.7%	52.9%	24.5%
4.	I feel more confident in my writing ability after using ChatGPT.	3.7%	9.2%	7.3%	53.2%	26.6%
5.	The suggestions provided by ChatGPT match my writing needs.	1.8%	4.6%	13.8%	58.7%	21.1%
6.	Using ChatGPT has increased my motivation to write more frequently.	2.8%	7.3%	17.4%	56.9%	15.6%
7.	Using ChatGPT makes it easier for me to learn different writing styles.	0.9%	2.8%	12.8%	55.0%	28.4%
8.	The features of ChatGPT are useful for enhancing my overall writing skills.	2.9%	5.9%	9.8%	65.7%	22.5%
9.	I prefer using AI tools like ChatGPT rather than traditional methods to learn writing skills.	2.8%	11.9%	11.0%	45.0%	29.4%
10.	I would recommend using ChatGPT to my classmates to improve their writing skills.	3.7%	6.4%	11.9%	56.0%	22.0%
11.	I feel that my writing skills have improved because of using ChatGPT.	3.7%	6.4%	12.8%	50.5%	26.6%
Total		2.74%	6.67%	12.16%	55.18%	24.96%

In the attempt to develop Vocational High School students of writing improvement, the using of ChatGPT effective help students writing assignments (61.5%). The results of the open-ended questionnaire complemented the findings from the close-ended questionnaire. Participants' experiences showed that ChatGPT provided significant support in completing writing assignment. For example, when students received an assignment to write an English essay, ChatGPT helped them generate new ideas, improve sentences, check grammar, and organize paragraphs. The findings provide valuable insights into students' preferences and experiences regarding the use of AI tools for enhancing their written assignments (Teng, 2024).

48.6% students stated that sing ChatGPT also helped them organize ideas before writing. The results of open-ended questionnaire reported that ChatGPT provided structured outlines, key points, and logical sequences that guided them in developing their texts. For instance, students used ChatGPT to generate lists of essential points for articles and to create coherent storyline sequences when writing narrative texts. It indicated that ChatGPT is a valuable resource for generating main ideas and guidelines for their writing, effectively overcoming the lack of ideas and inspiration (Liu, Hou, Tu, Wang, & Hwang, 2023).

The findings showed that ChatGPT helped students improve their grammar accuracy (52.9%), which was also reflected in the open-ended responses indicating better mastery of English grammar, including the use of tenses. Previously the student wrote a sentence like "She go to school yesterday" after that the student knew the correct sentence "She went to school yesterday". Furthermore, the students explained that ChatGPT helped them understand verb usage, sentence structure and the correct use of "has" or "have". Through its corrective feedback utilize ChatGPT for both primary and secondary English learning purposes, supporting various language dimensions including reading, writing,

vocabulary, and grammar (Tram, Nguyen, & Tran, 2024).

58.7% students agree that the suggestions provided by ChatGPT match with students' writing needs. The finding of open-ended questionnaire informs some of suggestions when using ChatGPT. for example, when students wrote essays and felt unsure about word choices, ChatGPT highlighted weak expressions, suggested better alternatives, and guided them toward more accurate and appropriate academic language. These Results showed students preferred ChatGPT over other writing tools and found its suggestions helpful and accurate (Dewi, 2024).

Moreover 56.9% students stated that using ChatGPT increased students' motivation to write more frequently. This was supported by the results of the open questionnaire which showed that interaction with ChatGPT makes students motivated in writing because ChatGPT made the writing process easier, provided complete information, and offered immediate feedback that helped them improve their work. The findings supported the significant positive effects of AI assistance on writing, including writing motivation, self-efficacy, engagement, and collaborative writing tendency (Teng, 2024).

55% of the students agree that using ChatGPT makes it easier to learn different writing types of text. The result of open-ended questionnaire showed that the students understand how to write different type of texts such as narrative, descriptive, and persuasive. it supported with the features of ChatGPT. It means that most students felt that ChatGPT was equally helpful across different types of writing (Dewi,2024).

65.7% students agree that the features of ChatGPT were useful for enhancing their overall writing skills. Based on the result of open-ended questionnaire, they stated that some features of ChatGPT were real time feedback and search feature. It interpreted that ChatGPT's user-friendly interface and intuitive features make it one of the most straightforward and useful tools students have used (Dewi, 2024).

Furthermore, 45.0% students agree that they prefer using ChatGPT rather than traditional methods to learn writing skills. This is due to ChatGPT giving instant feedback, suggestions, and providing immediate explanations and examples. But they also argued that ChatGPT has a weakness, such as being less effective in giving a deep understanding like a teacher. This perspective aligns with scholarly insights that highlight the need for comprehensive pedagogical frameworks that balance technological innovation with traditional writing instruction (Khampusen, 2025).

53.2% students felt more confident in their writing ability after using ChatGPT. Open-ended questionnaire results showed that using ChatGPT had increased their confidence in writing because of ChatGPT's helpful suggestions, corrections, and examples. Others highlighted that ChatGPT introduced writing steps that they previously did not know, which further strengthened their writing process. Moreover, 56.0% students stated that they would recommend using ChatGPT to their classmates to improve their writing skills. The result of open-ended questionnaire showed several reasons, such as ChatGPT could help them to improve their writing skill, help them to generate ideas quickly in writing, improve their grammar, and also provide quick feedback. The outcomes aligned with previous study that students reported increased confidence in their writing abilities after using ChatGPT and would recommend it to other students (Dewi, 2024). These findings indicated that using ChatGPT had a lot of advantages for students writing skill. So that, 50.5% of students agreed that their writing skills improved through the use of ChatGPT. The findings highlighted the potential benefits of ChatGPT for EFL learners, including improved writing fluency, accuracy, and overall quality of academic writing, as well as the challenges associated with using AI-based writing tools (Alkamel & Alwagieh, 2024).

From a ZPD perspective, these finding accured because ChatGPT operated as a digital scaffold that supports performance just beyond what learners could do alone. It personalized help, adapted explanations and examples to learners' prompts then offered models of structure and language that students gradually internalize (Al-Hamadi & Yousif, 2025; Margolis, 2020). Research on AI and ZPD showed that such scaffolding was effective when it given real time and individualized feedback. It aligned difficulty with the learner's current level and promoted self-regulated learning, thereby moving learners from other regulated to more autonomous writing (Margolis, 2020; Munshi et al., 2022). In writing classrooms, ChatGPT could act as a "more capable other" that helped students planed outlines, refined statements, improved cohesion, and adjusted tone, while teachers provided pedagogical and ethical guidance (Al-Hamadi & Yousif, 2025; Chang, Lin, Hajian, & Wang,

2023). In conclusion, ChatGPT was used as scaffolding that helping learners operated within their ZPD but not replacing, their current capabilities.

CONCLUSION

This study aims to examine the Vocational High School students' perspectives of ChatGPT as a writing-assistance tool for writing improvement, emphasizing the potential demographic variations and frequency of ChatGPT use. The findings showed that demographic factors such as age, grade, and gender do not significantly influence students' perceptions of using ChatGPT for writing processes, as the null hypotheses for these variables were accepted. In contrast, the frequency of ChatGPT use indicates a statistically significant effect on students' perceptions, with more frequent users demonstrating improved writing skills. Second, ChatGPT contributes to the enhancement of students' writing skills effectively, as it helps them organize ideas, improve grammar, gain confidence, and learn various writing styles more easily. Students also feel more motivated to write, find the features relevant to their needs, and prefer using ChatGPT over traditional methods, leading many of them to recommend it to others for the enhancement of writing skills.

This study has several limitations that warrant attention. This study has several limitations that warrant attention. First, the research involved a limited sample from public Vocational High Schools in one region, which may affect the generalizability of the findings. Second, this investigation employed purposive sampling to recruit participants with demonstrated experience using ChatGPT for writing tasks. Third, demographic factors were tested based on age, class, and gender. Fourth, this study was conducted only quantitative method. Future research should involve a broader sample across different regions in Indonesia. employing more diverse sampling techniques is also recommended to achieve more comprehensive participant representation. additionally, future research may consider other relevant demographic factors and mixed method approaches to gain a deeper understanding of chatgpt use in writing tasks.

This study contributes to theoretical contribution and practical contribution. For theoretical, this study contributes to enrich the theoretical discourse on the role of generative AI in supporting self-regulated learning and writing development, particularly within the vocational education context. this study practically contributes as reference for educators and schools in developing responsible and effective AI-assisted writing practices.

This study offers several implications for educators and curriculum designers. AI-assisted writing can be implemented broadly in Vocational High Schools without demographic differentiation, as outcomes were not influenced by age, gender, or grade. Teachers should focus on higher-order thinking and emotional support, while AI supports technical aspects such as grammar and idea scaffolding. Curricula should integrate structured AI-assisted writing tasks, and teacher training should strengthen AI literacy and practical strategies for effective and ethical use.

Nurul Rahmania is an English educator with 5 years of experience in teaching Elementary level to Higher Education. Currently, she is a Master's Degree Student of English Language Education at Universitas PGRI Adi Buana Surabaya. Her research interest lie in ELT Methods, Linguistic, and Technology Enhanced Learning (TEL).

Nukmatus Syahria is a senior educator with 7 years of experience in teaching Kindergarten and Secondary level. Currently, she is a senior lecturer at Universitas PGRI Adi Buana Surabaya with 13 years of experience in teaching, administration, and academic leadership. Her research interests lie in Teaching English for Young Learners, Teacher Professional Development, ELT Methods, and Teacher and Student Well-being.

Balkeese Binti V Kunhimohamed is a senior lecturer with 25 years of distinguished experience in education, spanning teaching, administration, and academic leadership. Her career includes roles as a secondary school teacher, Assistant Director at the Teacher Education Division of the Ministry of Education, and her current position as the Head of the Academic Studies Unit at the Institute of Teacher Education, International Languages Campus, Kuala Lumpur (IPGM KBA). She holds a Ph.D. in Education & Human Resource Studies from Colorado State University (CSU), an M. IT from the National University of Malaysia (UKM), and a B.Ed. in TESOL (Hons) from the University of Southampton, UK. An active scholar, she has presented at international conferences and contributed as a peer reviewer for academic journals. Her extensive publication record includes book chapters and instructional modules. Her academic interests focus on TESL/TESOL, English Language Teaching Methodology, e-Learning, and Information

Technology.

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