Artificial Intelligence and Language Education: The Role of ChatGPT in Improving Writing Skills for English Major Students

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Abstract: This study investigates the role of ChatGPT in improving writing skills among English major students at Nguyen Tat Thanh University (NTTU), amidst the growing incorporation of AI in education. As AI tools become more prevalent, understanding their impact on academic learning is essential. A structured questionnaire was administered to 300 students, with 286 valid responses analyzed using descriptive and inferential statistics. The findings indicate that while ChatGPT provides valuable resources and feedback, its role is seen as supplementary rather than foundational, with ongoing concerns about over-reliance, academic integrity, and data privacy. The study concludes that ChatGPT has potential as an educational tool but must be integrated carefully with a focus on maintaining academic values and supporting independent skill development.

Keywords: ChatGPT, Writing Skills, Language Education, Artificial Intelligence, English Major Students.

1. Introduction

The integration of digital technologies, particularly artificial intelligence (AI), has revolutionized various sectors, with education being a notable beneficiary. AI's role in language learning has garnered considerable attention, highlighting its potential to enhance educational experiences. Research has demonstrated that AI tools, including chatbots, can significantly improve grammar instruction, student engagement, and overall learning outcomes (Nguyen, 2021; Ghali et al., 2018; Park, 2019). Chatbots, as a form of AI, offer immediate feedback and support, which can be particularly beneficial in language education. They enhance student interaction, satisfaction, and access to learning resources (Haristiani, 2020; Winkler & Soellner, 2018; Pham et al., 2018). In writing instruction, chatbots can help overcome challenges associated with providing individualized feedback, especially in large classes (Ranoliya et al., 2017; Petrova & Mikheeva, 2021). Despite these advancements, there is limited research on how non-native English speakers perceive AI tools like ChatGPT in writing education. Understanding these perceptions is crucial for effectively integrating such tools into language curricula. This study aims to explore the views of English major students at NTTU on using ChatGPT to enhance their writing skills. The findings will provide insights into how AI can be better utilized to support language learners and improve writing instruction.

2. Literature Review

A. Artificial Intelligence

Artificial Intelligence (AI) encompasses technologies designed to perform tasks traditionally requiring human intelligence. AI's potential in education is well-documented, with applications enhancing various aspects of learning. AI's role in language education includes tools like Intelligent Tutoring Systems that support grammar comprehension (Ghali et al., 2018) and platforms such as Grammarly that improve writing skills and ease educators' workloads (Dewi et al., 2021; Fitria, 2021). AI's capacity to simulate human cognitive processes positions it as a transformative force in educational settings (Baker & Smith, 2019; Ouyang & Jiao, 2021).

B. Chatbots

Chatbots are AI programs designed for interaction through text or voice, utilizing technologies like natural language processing to engage users (Oxford Dictionary Online, 2020; Shawar & Atwell, 2007). Initially rudimentary, modern chatbots now provide nuanced responses and enhance learning experiences by making them more engaging and interactive (Clarizia et al., 2018; Kim et al., 2019). These tools contribute to educational settings by increasing student engagement and facilitating real-time support (Shi et al., 2020; Okonkwo & Ade-Ibijola, 2020).

C. Chatbots in Language Learning and Teaching

Chatbots have shown promise in language education by creating supportive learning environments and offering interactive practice (Fryer & Carpenter, 2006; Shawar, 2007). They have been effective in improving grammar, reducing language anxiety, and fostering communication skills (Kim, 2019; Ayedoun et al., 2015). Chatbots like Replika and Google Assistant have been noted for enhancing language proficiency and confidence among learners (Tai & Chen, 2020).

D. ChatGPT

ChatGPT, developed by OpenAI, utilizes deep learning and

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large language models to provide contextually relevant responses based on extensive text data (Radford et al., 2018). Its capabilities in generating human-like text and refining interactions through techniques like supervised fine-tuning and reinforcement learning enhance its effectiveness in educational applications (Lee et al., 2018; Greyling, 2022).

E. Benefits and Limitations of ChatGPT

ChatGPT's strengths include its ability to assist in writing, provide feedback, and act as a conversational partner (Shahriar & Hayawi, 2023; Kasneci et al., 2023). It supports various educational tasks such as summarizing content, generating outlines, and improving writing skills (Zhai, 2022; Moore et al., 2022). Additionally, it helps reduce instructors' workload by aiding in lesson planning and grading (Baskara & Mukarto, 2023; Rudolph et al., 2022).

Despite its advantages, ChatGPT raises concerns about social bias, academic integrity, and data privacy (Kasneci et al., 2023; Dwivedi et al., 2023). Addressing these issues requires diverse training data, robust security measures, and thoughtful implementation to avoid dependency and maintain educational integrity (Lund & Wang, 2023; Aydin & Karaarslan, 2022).

F. Writing Skills

Writing remains a critical skill for effective communication and cognitive development (Klimova, 2012). Mastery of writing involves understanding grammar, structure, and syntax, which are essential for conveying clear and concise information in academic and professional contexts.

3. Methodology

A. Research Setting

The study was conducted at NTTU in Ho Chi Minh City, Vietnam, with a focus on the English Department. NTTU, known for its diverse student body and commitment to modern technological integration, provides an ideal environment for examining the impact of AI tools, such as ChatGPT, on language education. The research specifically targets English major students across different academic years to gather a comprehensive range of perspectives on using ChatGPT to enhance writing skills.

Table 1
Survey participants by academic year

Academic Year	Number	Percentage
1st year	44	15.4 %
2nd year	106	37.1 %
3rd year	120	42 %
4th year	16	5.5 %

The survey data reveals that third-year students constitute the largest group of respondents, making up 42% of the sample. This significant representation may be due to their advanced stage in the program, where engagement with writing tasks and AI tools like ChatGPT is more intensive. Second-year students also form a considerable portion of the survey, at 37.1%, likely reflecting their growing familiarity and interest in integrating technological tools into their studies.

First-year students, who represent only 15.4% of the sample, may have limited exposure to ChatGPT due to their recent entry into the English major program. Fourth-year students, contributing the smallest percentage at 5.5%, might be less involved in the survey due to their focus on completing their studies and specific tasks like thesis writing, which may lead them to rely on other resources or have already established their views on AI tools.

The higher participation rates among second and third-year students suggest they are more engaged or interested in using AI tools such as ChatGPT for their writing courses. The lower participation from first and fourth-year students could indicate varying levels of interaction with these tools at different stages of their academic journey. This distribution offers a nuanced view of how ChatGPT is perceived and utilized across different levels of the English major program, providing valuable insights into its role in improving writing skills.

B. Research Participants

This study focuses on English major students enrolled at NTTU to assess the impact of ChatGPT on improving writing skills. A total of 300 students were targeted for participation, with the aim of obtaining a robust sample for analysis. The sample was selected using a non-random, convenience sampling method, which facilitated practical data collection given the time and resource constraints. The anticipated response rate is 286 valid responses, which will offer a comprehensive view of the students' perceptions of ChatGPT.

Table 2
Survey participants by gender

Gender	Number	Percentage
Male	75	26.2 %
Female	211	73.8%

This gender distribution indicates that female students represent a substantial majority of the survey participants. This may reflect the overall gender dynamics within the English major at NTTU, where female students are typically more numerous. The higher representation of female students suggests a potentially stronger interest or engagement in the study's subject matter. As a result, the insights gathered may predominantly reflect female perspectives on using ChatGPT to enhance writing skills.

The predominance of female participants highlights a notable gender disparity in the sample. This imbalance should be considered when interpreting the findings, as it may affect the generalizability of the results and the understanding of how different genders perceive the effectiveness of ChatGPT in language education. The insights gained could reveal gender-specific attitudes towards AI tools in education, potentially informing targeted strategies for integrating such technologies into writing instruction.

C. Research Instruments

The primary tool for data collection in this study is a structured questionnaire designed to assess the perceptions of English major students at NTTU regarding the use of ChatGPT

to improve their writing skills. The questionnaire is organized into three sections, each addressing specific research questions related to the study's objectives.

1) Section 1: Perceptions (Questions 1 through 12)

It aims to capture students' views on both the benefits and potential challenges associated with using ChatGPT. The questions explore several key areas: firstly, how students recognize and perceive the advantages of ChatGPT in enhancing their writing skills; secondly, the concerns they might have regarding its use, such as the risk of over-reliance on AI, possible reductions in creativity, or ethical issues; and thirdly, their perspectives on the future role of ChatGPT in writing instruction, including whether they view it as an essential tool for future learning environments.

2) Section 2: Factors (Questions 13 through 19)

It explores several factors that may shape students' views. These factors include gender, by examining any differences in perceptions between male and female students; academic year, to understand how perceptions vary among students in different years of study (freshman, sophomore, junior, senior); and course, to investigate how specific courses or types of courses affect attitudes toward ChatGPT. Additionally, the section assesses how the frequency of ChatGPT use influences students' perceptions and identifies the primary reasons students use ChatGPT and how these reasons shape their views. Lastly, it considers the impact of available support, such as training and guidance from instructors, on students' experiences with ChatGPT.

3) Section 3: Expectations (Questions 20 through 28)

It seeks to gather suggestions for optimizing the use of ChatGPT in writing classes. The questions focus on several key areas, including the evaluation of ChatGPT responses by recommending ways to critically assess and utilize the outputs generated. They also cover crafting clear prompts, offering strategies for creating effective prompts to obtain useful responses from ChatGPT. Additionally, the section encourages viewing ChatGPT as a support tool rather than a replacement for students' own writing efforts. Proper usage techniques are emphasized, including best practices for using ChatGPT responsibly and ethically in academic work. The importance of obtaining instructor permissions before using AI tools in coursework is highlighted. The section explores how ChatGPT can be effectively used during the editing and drafting stages of writing and familiarizes students with AI detection tools to maintain academic integrity. Lastly, it includes suggestions for integrating ChatGPT into classroom activities to enhance learning and engagement.

The questionnaire utilizes a 5-point Likert scale, ranging from "Strongly Disagree" to "Strongly Agree," to capture the nuances of students' attitudes and beliefs. This scale is selected for its effectiveness in providing a detailed and nuanced understanding of the students' perceptions. The questionnaire was meticulously developed based on a thorough review of relevant literature and was piloted with a small group of students to ensure its clarity, relevance, and reliability.

D. Data Collection and Data Analysis

Data for this study were collected through a structured questionnaire administered to 300 English major students at NTTU. The questionnaire was meticulously crafted to address three core research questions related to students' perceptions, the factors influencing these perceptions, and recommendations for enhancing the use of ChatGPT in writing skills development.

The data collection took place in March 2024. Questionnaires were distributed during class sessions to maximize participation and response rates. Students were allotted ample time to complete the questionnaire, which was then collected and compiled for analysis. To maintain data integrity, all responses were reviewed for completeness and consistency prior to analysis. After data collection, both descriptive and inferential statistical methods were used to analyze the responses and address the research questions thoroughly.

Descriptive Statistics were employed to summarize central tendencies and variations in the student responses. Key measures such as mean scores, standard deviations, and frequency distributions were calculated to provide a clear overview of students' perceptions (Section 1), the factors influencing these perceptions (Section 2), and their expectations (Section 3). This approach helped in identifying general trends and patterns within the data.

Inferential Statistics were applied to explore relationships between variables, test hypotheses, and uncover significant differences or correlations among various student groups. Techniques such as t-tests and correlation analyses were used to compare perceptions between male and female students, different academic years, and varying levels of ChatGPT use. This analysis, conducted using SPSS 20 and Excel, provided robust testing and validation of the study's findings.

Cross-Sectional Analysis examined how different factors—such as gender, academic year, and frequency of ChatGPT use—interacted and influenced students' perceptions of ChatGPT's effectiveness in enhancing writing skills. This approach offered nuanced insights into how these factors collectively shaped students' views and experiences. For Section 3, which focused on expectations, the analysis involved evaluating quantitative responses related to recommendations for improving ChatGPT's role in writing instruction. This involved examining and synthesizing students' suggestions for optimizing ChatGPT's effectiveness in support of writing skills development.

E. Reliability Statistics

The reliability of the data collected in this study was evaluated using Cronbach's Alpha, a statistical measure of internal consistency. This assessment was crucial for ensuring the dependability of the responses gathered through the structured questionnaire.

Cronbach's Alpha was applied to determine the reliability of the five-point Likert scale used in the questionnaire. The overall Cronbach's Alpha score for the entire dataset was 0.908, reflecting a high level of consistency in participants' responses across the 37 items and demonstrating excellent internal

reliability. For Section 1 (Perceptions), which comprised 12 items, the Cronbach's Alpha was 0.792. This score exceeds the commonly accepted benchmark of 0.7, indicating satisfactory reliability for the data related to students' perceptions of ChatGPT. Section 2 (Factors), consisting of 16 items, achieved a Cronbach's Alpha of 0.863. This high value signifies strong internal consistency and reliability in the data concerning the various factors influencing students' perceptions of ChatGPT. In Section 3 (Expectations), which included 9 items, the Cronbach's Alpha was 0.809. This score is above the acceptable threshold, confirming reliable responses regarding students' recommendations for enhancing ChatGPT's effectiveness.

Overall, the Cronbach's Alpha values for all sections fall within the acceptable range of 0.6 to 1, affirming that the questionnaire used in this study provides dependable and consistent data for analyzing the role of ChatGPT in improving writing skills among English major students.

4. Results and Discussion

A. Results

1) Perceptions

a) Advantages

The data reveals that among the perceived benefits of using ChatGPT in writing classes, some are rated more highly than others by the students at NTTU. The benefit with the highest mean score is "Resources", with a mean of 3.66 and a standard deviation of 0.903. This suggests that students particularly value the ability of ChatGPT to suggest reading materials that can inspire ideas for their writing tasks. The relatively lower standard deviation also indicates a more consistent agreement among students on this benefit.

On the other hand, the benefit that received the lowest mean score is "Tutor", with a mean of 3.22 and a standard deviation of 0.927. This suggests that students are somewhat less convinced of ChatGPT's effectiveness as a tutor in writing classes. Although they still see potential in this role, as indicated by the score above the neutral midpoint of 3, it is the least highly rated benefit in comparison to others.

The standard deviations, which range from 0.903 to 1.019, indicate some variability in student responses. This variability could be attributed to differences in how students use ChatGPT, their individual learning styles, or their previous experiences with similar technologies. The relatively higher standard deviation for the item on immediate responses suggests that while some students find ChatGPT's responsiveness highly beneficial, others may have experienced less consistency in the tool's performance or may have different expectations for what constitutes an effective response.

Moreover, while students generally agree on the utility of ChatGPT in enhancing writing skills, offering feedback, and boosting motivation, the overall perception seems to be one of cautious optimism. The moderate mean scores suggest that while students see the potential in ChatGPT, they may also be aware of its limitations or may not have fully integrated it into their learning processes yet. This caution could stem from the relatively new introduction of AI tools like ChatGPT in educational settings, leading to a period of adjustment as students learn to use the tool more effectively.

Ranking the benefits in order of perceived value: Tutor → Motivation → Skills enhancement → Feedback → Learning sources → Responses → Resources. These rankings reflect the areas where students perceive ChatGPT to be most and least beneficial in their writing classes. The high rating for

Table 3
Perceptions of ChatGPT advantages

Content	Keyword	Mean	Std. Deviation
The diverse learning sources suggested by ChatGPT in creating engaging learning materials for writing classes.	Learning sources	3.41	0.912
The use of ChatGPT in writing classes has the potential to enhance students' writing skills.	Skills enhancement	3.36	0.940
ChatGPT proves useful by suggesting reading resources to students, which can inspire ideas for writing tasks.	Resources	3.66	0.903
In my opinion, ChatGPT can provide immediate responses to any questions posed by lecturers.	Responses	3.43	1.019
By providing accurate feedback and valuable suggestions for revisions, ChatGPT helps students improve their grammar and vocabulary in writing performance.	Feedback	3.37	0.960
Integrating ChatGPT into writing classes can boost students' learning motivation.	Motivation	3.31	0.975
In my view, ChatGPT can serve as an effective tutor in writing classes.	Tutor	3.22	0.927

Table 4
Perceptions of ChatGPT disadvantages

Content	Keyword	Mean	Std. Deviation
Students might become too dependent on ChatGPT, potentially impairing their critical thinking and problem-solving abilities.	Dependence	3.93	0.945
Introducing ChatGPT in writing classes may raise concerns regarding the academic integrity of students' submitted papers.	Academic integrity	3.68	0.985
Employing ChatGPT could potentially lead to significant privacy and security risks tied to the handling of student data.	Privacy	3.44	0.954

Table 5
Perceptions of ChatGPT future development

Content	Keyword	Mean	Std. Deviation
In the future, ChatGPT has the potential to serve as a supplement to human teaching and instructions.	Supplement	3.45	1.044
I am optimistic that I will be able to learn how to use ChatGPT effectively in language acquisition.	Effective learning	3.66	0.914

"Resources" indicates that students particularly appreciate the practical support ChatGPT provides in terms of accessible content and material for their writing tasks. In contrast, the lower rating for "Tutor" suggests that while ChatGPT is useful, students might still prefer human interaction or may feel that the tool needs further development to fulfill a more active tutoring role effectively. The overall moderate scores across the board indicate a balanced but cautious optimism, with room for further integration and improvement in using ChatGPT for writing skill enhancement

b) Disadvantages

The data highlights students' concerns regarding the use of ChatGPT in writing classes, particularly focusing on issues related to dependence, academic integrity, and privacy. Among these concerns, the highest mean score is observed for "Dependence", with a mean of 3.93 and a standard deviation of 0.945. This indicates that students are particularly worried about the possibility of becoming too reliant on ChatGPT, which could potentially impair their critical thinking and problem-solving abilities. The high mean score suggests that this concern is strongly felt across the student body, and the relatively low standard deviation indicates a fairly consistent level of agreement on this issue.

The next most significant concern is "Academic integrity", which has a mean score of 3.68 and a standard deviation of 0.985. This suggests that students are also quite concerned about how the use of ChatGPT might affect the honesty and originality of their work. The concern here is that relying on AI to assist with writing tasks could lead to issues such as plagiarism or submitting work that doesn't reflect the student's own abilities. The slightly higher standard deviation compared to "Dependence" suggests that there is some variability in how strongly students feel about this issue, but overall, it is a significant concern.

The lowest mean score among the three concerns is for "Privacy", with a mean of 3.44 and a standard deviation of 0.954. While still above the neutral midpoint, indicating a moderate level of concern, this suggests that students are less worried about privacy and security risks associated with using ChatGPT than they are about dependence and academic integrity. However, the concern is still notable, as students recognize the potential risks tied to the handling of their data by AI systems.

The ranking of concerns is as follows: "Privacy" → "Academic integrity" → "Dependence". Each of these concerns highlights important considerations when integrating ChatGPT into writing instruction. The highest level of concern relates to the potential for students to become too dependent on AI, followed by worries about maintaining "Academic integrity" and then concerns about "Privacy". To effectively address these issues, educators should focus on strategies that encourage independent critical thinking, uphold academic honesty, and protect students' privacy, ensuring that the use of ChatGPT is beneficial rather than detrimental to students' learning experiences.

c) Future development

The data reflects a generally positive but cautious attitude among English major students at NTTU regarding the future role of ChatGPT in their language learning, particularly in writing skills. The students show a moderate level of agreement that ChatGPT could serve as a useful "Supplement" to traditional teaching methods, as indicated by the mean score of 3.45. However, the relatively high standard deviation suggests there is a diversity of opinions, with some students more skeptical or uncertain about the integration of AI in their learning process.

On the other hand, there is a more consistent optimism regarding their ability to effectively learn how to use ChatGPT, with a mean score of 3.66 and a lower standard deviation. This indicates that students feel relatively confident in their potential to adapt to and benefit from AI tools in their education, provided they receive the necessary training and support. Overall, while students recognize the potential benefits of ChatGPT, they also acknowledge the importance of careful implementation and guidance to ensure it enhances their writing skills without undermining the traditional aspects of language learning.

B. Factors

Table 6
Factors impact on perceptions

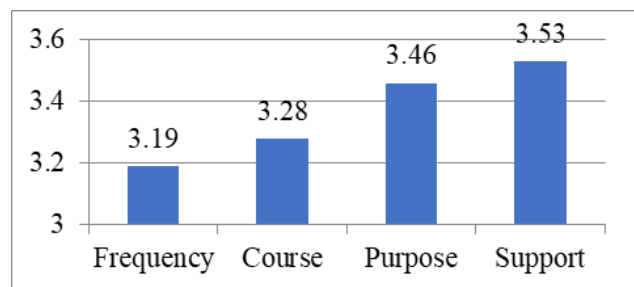| Content	Mean
Frequency	3.19
Course	3.28
Purpose	3.46
Support	3.53

Fig 1. Factors impact on perceptions (Section 2)

The analysis of the factors influencing students' perceptions of using ChatGPT for writing skills reveals varying levels of impact. The factor with the lowest mean score is "frequency", at 3.19. This suggests that students perceive ChatGPT as being used infrequently in their writing practices. The low score indicates that ChatGPT might not be a regular tool in their academic activities, reflecting either limited usage or perhaps a lack of engagement with the tool.

Following this, the mean score for "course" is 3.28. This moderately above-average score implies that students see some

value in ChatGPT depending on the type of course they are enrolled in. However, the impact is not uniformly strong across all courses. It indicates that while ChatGPT might be beneficial in certain contexts, its perceived effectiveness may vary depending on the specific course or subject matter.

The "purpose" of using ChatGPT shows a higher mean score of 3.46. This suggests that students recognize moderate benefits from using ChatGPT for specific tasks or goals. They appreciate the tool's role in addressing particular writing-related needs, though it is not seen as universally crucial for all writing activities.

The factor with the highest mean score is "support", at 3.53. This reflects a relatively positive perception of the support and resources available for using ChatGPT. Students feel that the support they receive, whether through training or guidance, is adequate, which contributes to a more favorable view of ChatGPT's effectiveness in their writing endeavors.

In summary, while students generally appreciate the support provided for using ChatGPT and recognize its purpose in specific writing tasks, the tool's frequency of use and impact across different courses are less pronounced. These insights suggest areas where further engagement and targeted support could enhance the integration and effectiveness of ChatGPT in writing instruction.

5. Expectations

The chart effectively categorizes expectations associated with the use of ChatGPT in educational settings based on specific keywords. The categories of evaluation and prompts emphasize the significance of student interaction with ChatGPT, particularly in evaluating outputs and crafting effective inputs. The supplementary tool category reflects ChatGPT's role as an assistant in the learning process, rather than as a replacement. Proper utilization highlights the necessity for teachers to provide appropriate guidance on using ChatGPT effectively. Permission suggests a classroom

environment that permits and encourages the use of ChatGPT. The revision and editing category underscores ChatGPT t's potential in enhancing the quality of students' writing. the draft category ensures that the use of ChatGPT does not replace the essential drafting process, thereby preserving academic integrity. AI detectors address concerns related to plagiarism and AI-generated content by advocating the use of AI detection tools. Finally, classroom activities encourages the design of activities that utilize ChatGPT to foster critical thinking and problem-solving skills.
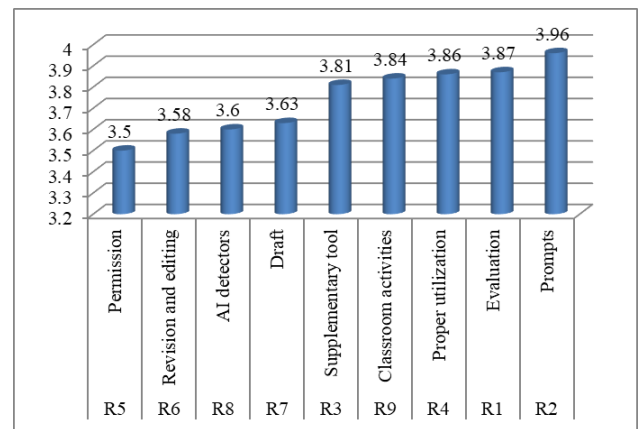

Fig. 2. Mean values of expectations (section 3)

The analysis of the questionnaire results indicates varying levels of importance assigned to different aspects of ChatGPT's usage and its integration into educational practices.

The highest mean rating is given to "Prompts" (3.96), highlighting the importance of students knowing how to craft specific and effective prompts for ChatGPT. This suggests that students recognize the significance of using well-structured prompts to obtain useful and relevant responses from the tool. Closely following is "Evaluation" (3.87), emphasizing the necessity for students to be aware of ChatGPT's limitations and

Table 7
Student expectations of ChatGPT usage

Content	Keyword	Mean	Std. Deviation
Students should be aware of the limitations of ChatGPT and consistently evaluate the quality of its responses to their questions or requirements.	Evaluation	3.87	0.846
It is crucial for students to know how to provide specific prompts that work well with ChatGPT	Prompts	3.96	0.771
Students should recognize that ChatGPT serves as a supplementary tool for their learning	Supplementary tool	3.81	0.89
Teachers should provide guidance to students on how to properly utilize ChatGPT.	Proper utilization	3.86	0.877
Teachers should allow students to utilize ChatGPT during classroom activities.	Permission	3.5	0.882
In my viewpoint, teachers should actively encourage students to utilize ChatGPT during the revision and editing phases.	Revision and editing	3.58	0.841
Teachers should mandate students to submit rough drafts or outlines alongside their final papers to maintain academic integrity.	Draft	3.63	0.964
Teachers should notify students that AI content detectors such as GPTZero, Percent Human, and Originality AI will be used to review their submitted work.	AI detectors	3.6	1.02
Teachers should construct activities that necessitate the utilization of critical thinking and problem-solving abilities by students.	Classroom activities	3.84	0.88

to assess the quality of its responses critically. This reflects an understanding that while ChatGPT can be a valuable resource, its outputs need careful evaluation to ensure accuracy and relevance.

"Proper Utilization" (3.86) and "Supplementary Tool" (3.81) also receive high ratings. This indicates that students acknowledge the importance of guidance from teachers on effectively integrating ChatGPT into their learning process and recognize it as a supplementary tool rather than a primary resource. This shows a nuanced understanding of ChatGPT's role in enhancing learning rather than replacing traditional educational methods.

"Classroom Activities" (3.84) and "Draft" (3.63) are also rated relatively high, with students supporting the idea of utilizing ChatGPT during classroom activities and requiring submission of drafts or outlines. This suggests that there is support for incorporating ChatGPT into practical classroom settings and maintaining academic integrity through drafts.

"AI Detectors" (3.6) and "Revision and Editing" (3.58) have slightly lower ratings but still reflect significant concern. The lower rating for "AI Detectors" indicates that while students acknowledge the importance of tools that check for AI-generated content, it may not be as pressing a concern compared to other factors. The rating for "Revision and Editing" suggests that students view ChatGPT's role in these phases as beneficial but perhaps not as central as other aspects like prompts and evaluation.

"Permission" (3.5) receives the lowest mean rating, indicating that while students agree on the importance of allowing ChatGPT use in "classroom activities", it is less emphasized compared to other aspects. This could reflect varying opinions on the extent to which ChatGPT should be integrated into regular classroom activities.

A. Discussion

1) Regarding "Perceptions"

The analysis of students' perceptions regarding ChatGPT in writing classes, particularly among English majors at NTTU, reveals a nuanced understanding of its potential "advantages". Students recognize the diverse learning resources ChatGPT offers, finding them instrumental in making writing tasks more engaging and in fostering exploration. They particularly value its ability to enhance writing skills, especially in areas like grammar and vocabulary. However, they tend to view ChatGPT as a supplementary tool rather than a primary resource, highlighting the tool's capacity to suggest relevant reading materials and provide instant feedback as key strengths that contribute to the practical aspects of their learning process. Despite these benefits, traditional methods—especially feedback from instructors or peers—remain preferred by students, indicating that while ChatGPT is appreciated, it hasn't yet replaced the value of human interaction in their educational experience. Moreover, although ChatGPT offers some motivational benefits, students are less convinced of its role as a tutor, suggesting that they either prefer human interaction or feel that the tool requires further development in this area.

Moving beyond the advantages, the analysis uncovers significant "disadvantages" that temper students' enthusiasm for using ChatGPT. Chief among these concerns is the potential for over-reliance on the tool, with students fearing that excessive use could impair their critical thinking and problem-solving abilities. This apprehension reflects a broader anxiety about dependence, where students worry that the convenience and immediacy of AI-driven assistance might undermine their ability to develop essential cognitive skills independently. Additionally, there are strong ethical concerns, particularly around plagiarism and the authenticity of their work. Students emphasize the importance of maintaining academic integrity, expressing a clear discomfort with the possibility that ChatGPT could inadvertently encourage academic dishonesty. While privacy issues are slightly less emphasized, they are still notable, with students aware of the risks associated with data handling. This underscores the necessity for robust privacy protection measures to ensure that their personal information is safeguarded while using such tools.

Looking towards the "future development" of ChatGPT, students exhibit a sense of cautious optimism. While they see potential in the tool, particularly in how it could evolve to better support their learning, this optimism is tempered by the aforementioned concerns. Students believe that with further development, particularly in enhancing its tutoring capabilities and addressing the ethical and privacy issues, ChatGPT could become a more integral part of their learning process. However, this future integration would need to strike a balance, ensuring that the benefits of AI are fully leveraged without compromising critical academic values or the students' development of independent skills. In sum, the analysis suggests that while students at NTTU recognize the significant potential of ChatGPT, they remain mindful of its current limitations and the need for ongoing development to address their concerns effectively.

2) Regarding "Factors"

The analysis of English major students' perceptions at NTTU toward using ChatGPT in writing classes highlights key dynamics in how they engage with the tool and identifies areas where its potential remains underutilized. The factors—frequency, course, purpose, and support—offer insights into the multifaceted relationship between students' academic environments and their use of AI in learning.

One significant finding is the infrequent use of ChatGPT in writing activities. This limited engagement could stem from several causes: unfamiliarity with the tool, a lack of structured integration into curricula, or even uncertainty about how to use it effectively. The absence of habitual usage suggests that students may not be fully aware of ChatGPT's capabilities, or perhaps they do not perceive its relevance to their everyday writing tasks. To address this, educators could foster a more intentional and consistent application of ChatGPT in coursework, allowing students to become more comfortable and proficient in using it as part of their academic toolkit. A deeper focus on integrating ChatGPT into routine writing exercises might enhance both its perceived value and practical utility.

Additionally, the effectiveness of ChatGPT varies depending

on the course, suggesting that the tool's perceived usefulness is context-dependent. In more technical or structured writing courses, where grammar, syntax, and clear language are critical, ChatGPT may offer substantial benefits by providing immediate corrections and suggestions. In contrast, courses that emphasize creativity or interpretive writing may not see as much advantage, as students could feel that AI-driven feedback lacks the nuanced understanding that human interaction provides. This highlights the need for a more tailored approach, where ChatGPT's role is customized to the specific demands and goals of different subjects. By aligning its use with the particular nature of each course, educators can better tap into the tool's strengths while addressing the unique needs of students across various disciplines.

The purpose behind using ChatGPT also influences its perceived value. Students recognize the benefits of the tool when it is applied to specific tasks like grammar correction, vocabulary building, or even brainstorming ideas for writing assignments. However, ChatGPT is not yet seen as a comprehensive solution to all aspects of writing, indicating that its application remains somewhat limited. This suggests a gap in how students engage with the full scope of AI's capabilities in writing. To realize the full potential of ChatGPT, it is essential to demonstrate how the tool can support a broader range of writing processes, from initial idea generation to final revisions. Through deeper integration and education on the versatility of the tool, ChatGPT can move from being a targeted aid to a more comprehensive writing companion.

Support emerges as a crucial factor in shaping students' positive perceptions of ChatGPT. When students feel they have adequate guidance—whether through training, resources, or institutional support—they are more likely to view the tool as beneficial to their academic growth. This underscores the importance of equipping students with the necessary skills and knowledge to maximize their use of AI in writing. Continued investment in support systems, such as workshops, tutorials, or real-time assistance, will be vital in ensuring that ChatGPT is not only accessible but also effectively integrated into students' writing routines.

3) Regarding "Expectations"

The analysis of students' expectations regarding the use of ChatGPT in educational settings, particularly in writing classes, reveals a thoughtful and well-considered approach to integrating this AI tool into their learning processes. Notably, students exhibit a clear understanding of the necessity for crafting effective prompts and the critical evaluation of ChatGPT's outputs. This emphasis on interaction with the tool highlights the importance students place on using ChatGPT to maximize its benefits, ensuring that its integration is both meaningful and effective.

Moreover, students recognize ChatGPT's role as a supplementary resource rather than a replacement for traditional educational methods. This reflects a balanced perspective on its potential, where the tool is seen as an enhancement to, rather than a substitute for, existing teaching strategies. Such a viewpoint suggests that students are cautious yet optimistic about the role of AI in their education, acknowledging its value while also understanding the importance of maintaining conventional learning practices.

In addition to recognizing ChatGPT's supplementary role, the data suggests that students highly value proper guidance from educators on how to utilize ChatGPT effectively. This underscores the need for structured support in its application, as students are aware that without proper direction, the tool's potential might not be fully realized. This need for guidance is further complemented by a desire for permission to use ChatGPT in classroom activities. This indicates a willingness among students to explore the tool's practical benefits in real-time learning scenarios, which can enhance their engagement and learning outcomes.

Furthermore, students acknowledge the tool's potential in the revision and editing stages of their writing process, recognizing that ChatGPT can significantly contribute to refining their work. However, they also maintain that it should not replace the fundamental drafting process, which is crucial for preserving academic integrity. This balance between leveraging AI for improvements and ensuring the authenticity of their work demonstrates a mature approach to using technological aids in education.

Concerns about plagiarism and AI-generated content are also addressed, with students showing support for the use of AI detectors to maintain originality and authenticity in their work. This awareness and acceptance of AI detection tools highlight the students' commitment to upholding ethical standards in their academic pursuits. Although the relatively lower emphasis on permission suggests a nuanced perspective on how ChatGPT should be integrated into classroom activities, it reflects varied opinions on its role in regular educational practices, indicating that students may be divided on the extent to which AI should be incorporated into their learning environment.

6. Conclusion

In conclusion, this study has illuminated the significant yet complex role of ChatGPT in enhancing the writing skills of English major students. The findings reveal that while ChatGPT offers valuable resources and instant feedback that can support grammar, vocabulary, and idea generation, its current impact is seen as supplementary rather than foundational. Students appreciate the tool's ability to make writing tasks more engaging and provide diverse learning resources but continue to value traditional methods of feedback and interaction with instructors and peers.

Despite its advantages, concerns regarding over-reliance on AI and potential risks to academic integrity remain prominent. Students worry that excessive use of ChatGPT might undermine their critical thinking and problem-solving skills, and there are notable ethical concerns about plagiarism and data privacy. These issues highlight the need for a balanced approach that incorporates AI tools like ChatGPT without compromising essential academic values.

Looking ahead, students express cautious optimism about the future development of ChatGPT. They anticipate that with further improvements, particularly in its tutoring capabilities and ethical safeguards, ChatGPT could become a more integral

and effective part of their educational experience. This future integration must carefully balance the benefits of AI with the need to maintain academic integrity and promote independent skill development.

The study underscores the necessity for educational institutions to develop comprehensive policies on AI integration, invest in training and resources, and implement tools to ensure academic integrity. Teachers and students alike should focus on using ChatGPT as a supplementary aid rather than a primary resource, while actively engaging in learning processes and maintaining high standards of academic honesty.

Future research should continue to explore ChatGPT's long-term effects on writing skills, compare its effectiveness with traditional aids, and assess its impact on academic integrity. Additionally, investigating the effectiveness of training programs and examining student perceptions across different disciplines will provide valuable insights for optimizing the use of AI in education. By addressing these areas, we can better understand and harness ChatGPT's potential to support and enhance writing education for English major students.

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