

Exploring ChatGPT's Role in English Language Writing Anxiety and Achievement

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ABSTRACT

This study aims to investigate the effects of ChatGPT, an artificial intelligence, in improving English language writing anxiety and writing achievement among Form 4 students in Malaysian public secondary schools. This correlational study recruited 345 respondents from 5 districts in Penang, Malaysia through random sampling method. The need to comprehend how AI technologies affect students' learning experiences and the growing incorporation of these technologies in education are the driving forces behind this research. Survey questionnaires were administered to gather information on students' writing anxiety and English writing achievement. Pearson's correlational study revealed that the use of ChatGPT has a positive significant influence on English language writing achievement and writing anxiety. Descriptive and inferential analysis were carried out to investigate the correlation between the variable. Multiple regression results confirmed that ChatGPT use significantly predicted higher writing achievement and lower writing anxiety. Pedagogical training should be provided for both teachers and students to maximise the effectiveness of ChatGPT integration.

Keywords: English language education, writing anxiety, writing achievement, artificial intelligence, ChatGPT, educational technology, digital scaffold, second language writing, AI-assisted learning.

1. INTRODUCTION

Writing anxiety in English is defined as a condition of fear and worry connected with writing assignments and is common among language learners. Writing anxiety is also a well-documented problem among Malaysian public secondary school students that is a substantial impediment to gaining fluency and confidence in written communication (Nawaz, 2021; Bynum, 2025). Writing achievement in the English language constitutes the ability to communicate oneself effectively and persuasively in written form while complying with grammatical structures and stylistic conventions in the English Language (Washington, 2023). ChatGPT, developed by OpenAI, is an artificial intelligence model that can generate human-like text responses depending on user input (Javaid et al., 2023). Recent studies have emphasized ChatGPT's

transformative influence on research and learning processes across disciplines, reflecting its growing impact on educational practices (Kanwal, 2023).

Despite extensive research on English language writing anxiety and achievement, there are still limited empirical evidence on how artificial intelligence tools such as ChatGPT can be used to mitigate English language writing related challenges in Malaysian schools. This study is based on **Krashen's Affective Filter Hypothesis (1982)** and **Siemens' Connectivism Theory (2005)**, which together provide a dual lens for understanding how ChatGPT may influence students' writing anxiety. ChatGPT aligns with the principle that learning occurs through **participation in knowledge networks (Siemen, 2005)**, where AI mediates access to language models, stylistic patterns, and real-time corrections.

This study adopts a conceptual framework based on two major educational theories, which are the Connectivism learning theory by Siemens (2004) and the Zone of Proximal Development (ZPD) by Vygotsky (1978). Connectivism emphasizes the importance of networks, connections, and collaborative learning in today's educational environments. Within this concept, learning is viewed as a process of network construction and knowledge acquisition that is aided by interactions with varied resources (Corbett & Spinello, 2020). Additionally, Vygotsky (1978) established the Zone of Proximal growth (ZPD), which highlights the role of social interaction and scaffolding in cognitive growth. The ZPD defines the gap between a learner's current level of competence and their potential for improvement, where advice from a knowledgeable person improves learning results.

Theories involved in this study highlights students' interaction with ChatGPT, an AI language model meant to provide writing assistance and feedback. This exchange exemplifies connectivism learning theory, in which learners use digital technologies to get knowledge, receive feedback, and improve their English essay writing. This engagement is surrounded by students' connectivist learning networks, which include a wide range of materials and technological platforms. These networks provide chances for information exchange, collaborative learning, and knowledge production, which aligns with the connectivist concept of learning as network development.

ChatGPT acts as a scaffold within the collaborative learning environment, providing focused feedback, modeling writing styles, and recommending improvements based on students' specific requirements (Su et al., 2023). ChatGPT helps students bridge the gap between their current writing talents and their potential for improvement by acting within their ZPD. The results of students' interactions with ChatGPT and participation in collaborative learning activities are reflected in their writing anxiety and achievement.

This research is guided by the following research questions:

1. Is there a significant relationship between English writing achievement and writing anxiety among Form 4 students?
2. Does the use of ChatGPT significantly influence the relationship of English language writing achievement and writing anxiety among Form 4 students?

2. METHODOLOGY

This study adheres to a quantitative research design. According to Creswell (1994), quantitative research seeks to explain phenomena by gathering

numerical data and analysing them with mathematical tools, particularly statistics. The quantitative research methodology offered the essential data for this study, allowing us to comprehend and assess the influence of ChatGPT on English language writing anxiety and writing achievement, both self-reported by students in the survey administered. By applying a correlational research design, researchers can draw conclusions about the larger population under investigation by employing representative samples and statistical tools (Gravetter & Forzano, 2008). This research is aimed to be conducted with equal number of samples from 5 districts in Penang. Thus, form 4 students from Malaysian public secondary schools were chosen as samples. In this study, the simple random sampling method has been administered. Based on the selection criteria by Krejcie & Morgan (1970), 345 participants were identified out of the total sample for survey administration and data collection purposes.

Questionnaires that consist of 41 items are divided into 2 constructs, which are to test the efficiency of ChatGPT to improve English Language writing achievement and another construct to study English language writing anxiety faced by students. According to Salkind (2006), reliability test is a measure of consistency among the items that are present in an instrument of the study. The instrument adapted for this study consists of two scales namely ChatGPT to improve English language writing achievement and second language writing anxiety which was administered to 30 samples, (N=30) for pilot study. For each scale, the reliability analysis using Cronbach's Alpha reliability test was conducted to assess the internal consistency of the items administered. However, items A3, A10 and A14 were removed to obtain a good level of reliability based on Cronbach's Alpha reliability test. Upon removal of 3 items, this scale now consists of 13 items ($\alpha=.81$). The α -value is .81, hence it is $0.8 > \alpha \geq 0.9$. Based on Cronbach's Alpha, it is interpreted as having a good internal consistency.

3. RESULTS AND DISCUSSION

A correlation test was performed to determine the significant correlation between the influences of ChatGPT to improve English language writing achievement (Sum A) and second language writing anxiety (Sum B) in the population.

According to Table 1, there is a significant correlation between the influences of ChatGPT to improve English language writing achievement (Sum A) and second language writing anxiety (Sum B) in the population, the Pearson correlation coefficient is $r(343) = .87$, $p < .01$. The significance value for the influences of ChatGPT to improve English language writing achievement (Sum A) and second language writing anxiety (Sum B) is $<.001$, p

TABLE 1: Correlation of Influences of ChatGPT to Improve English Language Writing Achievement and Writing Anxiety

Correlations		Sum A	Sum B
Sum A	Pearson Correlation	1	.871**
	Sig. (2-tailed)		<.001
	N	345	345
Sum B	Pearson Correlation	.871**	1
	Sig. (2-tailed)	<.001	
	N	345	345

**Correlation is significant at the 0.001 level (2-tailed)

Source: Author, 2025

≤ .01. Hence, the null hypothesis is rejected. According to Pearson's Correlation Coefficient table, the size of correlation that ranges from .70 to .90 shows a high positive correlation.

Based on Pearson's Correlation Coefficient, the findings of this study reveal that there is a significant positive high correlation between English language writing achievement and second language writing anxiety. As English language writing achievement increases, the writing anxiety of Form 4 Malaysian public secondary school students decreases. English language writing achievement and writing anxiety can be interrelated because improvement in writing skills boosts students' confidence in writing as they may feel more competent in handling writing essays (Teimouri et al., 2019; Tian & Ng, 2024). This contributes significantly to students' English language writing achievement, so the fear of committing mistakes in writing decreases. Hence, there is lesser anxiety in writing English essays among students (Li, 2022).

a. Dependent Variable: Sum A

A simple linear regression analysis was conducted between ChatGPT to improve English language writing achievement (Sum A) and second language writing anxiety (Sum B). Table 2 that a significant regression equation was obtained, $F (1,343) = 87.98$, $p < .01$, with R^2_{adj} of .76. Thus, approximately 76% of the variance in ChatGPT to improve English language writing achievement (Sum A) can be explained by the linear combination of second language writing anxiety (Sum B). According to Table 2,

respondents' second language writing anxiety (Sum B), $b = 1.33$. This indicates that the predicted value of English language writing achievement (Sum A) increases by 1.33 for one unit of second language writing anxiety (Sum B) ChatGPT. Thus, second language writing anxiety (Sum B) is a significant predictor of English language writing achievement (Sum A).

Connectivism theory by Siemens (2004) highlights the significance of social and technical networks in education. ChatGPT provides students with exposure to various genres and styles of writing and language usage. According to Affective Filter Hypothesis by Krashen (1982), emotional elements like anxiety affects language learning. Hence, students' affective filters can be lowered by ChatGPT's capacity to deliver prompt, nonjudgmental feedback. Therefore, students experience less anxiety are more at ease and inclined to participate in writing assignments. Thus, this ChatGPT assisted method of scaffolding allows students to advance through writing tasks which they find challenging.

Song & Song (2023), reported similar findings, which stated that ChatGPT has significantly enhanced students' English language writing achievement and fluency. There is some variance in responses about the use of ChatGPT for idea development, concept formation, and vocabulary enhancement. This suggests that while many students benefit from using ChatGPT in English language essay writing substantially, a few still struggle with the intricacies of English language accuracy.

In terms of structure and organization, respondents of the study find ChatGPT to be useful for brainstorming and organising ideas as it delivers relevant keywords in English essay writing. The high mean scores from the findings demonstrate widespread agreement on the influences of ChatGPT in assisting respondents in organising ideas in English essays. As a result, this contributes to improved writing performance among Form 4 students in Malaysian public secondary schools in Penang, Malaysia. This finding is corroborated by recent research, such as those by Alharbi (2023), that underlines the usefulness of AI tools in assisting students in properly organising their thoughts and writing structures in English essays. Nevertheless, responses among Form 4 students in Malaysian public secondary schools in Penang, Malaysia also suggest that texts generated by ChatGPT has to be

TABLE 2: Coefficient of ChatGPT to Improve English Language Writing Achievement

Model	Unstandardized Co-efficient			99.0% Confidence Interval for B			
	B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	6.506	7.680	.847	.404	-14.714	27.727
	Sum B	1.329	.142	.871	<.001	.937	1.720

Source: Author, 2025

rechecked to confirm its trustworthiness and accuracy. This is also consistent with the results of research conducted by Chen et al. (2023), which found that people were skeptical about AI-generated material. Similar concerns about users' confidence and adaptive behavior toward AI applications in professional and educational contexts have been reported by Robinson (2023).

4. CONCLUSION

In conclusion, the incorporation of ChatGPT in teaching essay writing to secondary school students within secondary ESL curriculum in Malaysia creates an opportunity for policy implications. By utilising ChatGPT in teaching and learning, teachers would be able to offer more individualised and efficient guidance that will help students to write better and feel less anxious (Sidhu & Khor, 2024).

5. Recommendations

Since writing anxiety explained 76% of the variance in writing achievement, structured ChatGPT-based feedback systems could aid teachers in integrating ChatGPT in writing English essays in order to set clear objectives and provide assistance to students. This ensures that all students can effectively use these resources to improve their writing abilities.

The findings of this study were critical to the contribution of further understanding regarding the influences of ChatGPT on English language writing achievement and writing anxiety of Form 4 students in Malaysian public secondary schools in Penang, Malaysia. This study was conducted based on a quantitative approach only; hence, future research can be done in the form of longitudinal studies or experimental studies to investigate the long-term impact of AI tools on students' writing achievement and anxiety levels.

Furthermore, investigating the influences of ChatGPT at various competence levels, from beginner to advanced learners, will also benefit English language curriculum development in Malaysia. Assessing how these tools meet the varying needs and capacities of students at various stages of language competence might help guide targeted interventions and instructional tactics.

6. Limitations of the Study

The findings of this research can address the significance of implementing ChatGPT as an intervention tool to assess English language writing anxiety and writing achievement in ESL classrooms only to a certain extent. This is due to the nature of the study, where the research is only limited to a single locality in Penang, Malaysia. Hence, the limited number of samples will only represent part of the population of Form 4 students in local

government schools in Malaysia. The data of this study cannot be generalised to represent a larger population in Malaysia. Furthermore, the study's focus on a specific age group and education setting may have missed significant differences in English language writing anxiety and writing achievement among students from various backgrounds or educational systems. Apart from that, self-report bias may also exist in this study. Consequently, caution should be exercised when extrapolating the study's results beyond the defined sample demographics and future research should attempt to include a more diverse participant pool to strengthen the study's external validity.

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Declaration of Conflicting Interests

The author declares that she has no competing interests.

Declaration of Generative AI and AI-assisted Technologies in the Writing Process

During the preparation of this manuscript, the author(s) did not employ any of the Generative AI and/or AI-Assisted technologies for Language refinement, drafting background section and did not perform any Task of the technology.

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