RESEARCH ARTICLE

English Major Graduate Students' Perceptions of Different Writing Feedback Styles and Their Relationship with Academic Writing Self-Efficacy

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Abstract

With the application of AI in both learning and teaching, this study investigates English major graduate students' perceptions of corrective and suggestive feedback provided by AI, and the relationship between their perceptions and academic writing self-efficacy. Through a questionnaire survey of 37 graduate students, descriptive statistics and Pearson correlation analysis revealed that students held positive attitudes toward both types of feedback, believing they helped improve grammatical accuracy, enhance confidence in expressing complex ideas, and stimulate writing creativity; there is a strong positive correlation between the perceptions of the two types of feedback, and self-efficacy in both feedback contexts also shows a strong positive correlation. However, there is no significant association between students' perceptions of feedback and their academic writing self-efficacy. The ramification of study suggests that AI writing feedback has practical value but its role in enhancing writing self-efficacy is still limited.

Keywords: AI writing feedback, corrective feedback, suggestive feedback, academic writing self-efficacy, EFL graduate students.

1 Introduction

In recent years, the use of artificial intelligence (AI) in academic writing has attracted growing attention. AI tools have become increasingly popular among students, such as Grammarly, Writefull, and ChatGPT, as they provide automated feedback covering aspects from grammar and spelling correction to stylistic improvement [1, 2].

Generally, AI writing feedback can be categorised into two types: the first one is corrective feedback, which focuses on identifying and correcting language errors, including grammar, spelling, and punctuation; the second one is suggestive feedback, which provides alternative expressions or rephrasing to enhance the clarity, coherence, and stylistic appropriateness of writing [10].

While the pedagogical impact of teacher and peer feedback on students' writing development has been widely explored [5, 7], limited research has examined students' perceptions of different AI

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feedback styles. More importantly, there is a lack of research on how these perceptions connect to students' academic writing self-efficacy, defined as their confidence in performing various academic writing tasks successfully [12]. Self-efficacy is a crucial affective factor influencing students' motivation, strategy use, and performance in academic writing [9].

Therefore, this study aims to explore students' perceptions of corrective and suggestive AI writing feedback styles and examines their relationship with students' academic writing self-efficacy. Thus, this study aims to deal with the following two questions:

1. How do graduate students perceive corrective and suggestive AI writing feedback styles?
2. What is the relationship between students' perceptions of these feedback styles and their academic writing self-efficacy?

2 Literature Review

2.1 AI Writing Feedback in Academic Writing

AI writing tools, such as Grammarly, Writefull, and ChatGPT, are transforming academic writing feedback for students by providing real-time, automated assistance to improve writing quality through their rapid integration [2]. AI feedback is broadly classified into two categories:

- Corrective Feedback (CF): focuses on detecting and correcting language errors, such as grammar, spelling, and punctuation mistakes.
- Suggestive Feedback (SF): provides alternative expressions, paraphrasing suggestions, and stylistic improvements to enhance clarity and coherence.

For instance, Ranalli [10] argued that while corrective AI feedback improves surface-level accuracy, suggestive feedback may foster higher-order writing skills such as idea elaboration and rhetorical effectiveness. However, the effectiveness of these feedback styles largely depends on students' perceptions and cognitive engagement [3].

2.2 Students' Perceptions of AI Feedback Styles

Scholarly inquiry has increasingly delved into student writers' perceptions of the integration and impact of automated feedback systems powered by artificial intelligence. Huang [6] found that Chinese EFL graduate students perceived Grammarly's corrective feedback as useful for identifying grammatical weaknesses, but some reported over-reliance on automated corrections without deep learning. Similarly, Kim [8] observed that suggestive feedback, especially rephrasing suggestions from ChatGPT, was perceived as valuable for idea expansion and stylistic refinement in academic writing tasks.

AlGhamdi's [3] experimental study found that students who received suggestive feedback reported greater satisfaction and engagement than those who only received corrective feedback. This indicates that the perceived advantages of suggestive AI support extend beyond linguistic accuracy to encompass cognitive and affective domains.

However, students' perceptions of AI feedback styles remain underexplored, especially in relation to their academic writing self-efficacy, which is a critical motivational factor in writing performance.

2.3 Academic Writing Self-Efficacy

Academic writing self-efficacy refers to students' beliefs in their capabilities to successfully perform academic writing tasks [12]. High writing self-efficacy is positively correlated with writing achievement, strategy use, and persistence in revision [9].

Recent research by Kim [8] emphasised that self-efficacy influences how students respond to feedback. Students with higher self-efficacy tend to engage more deeply with feedback and incorporate revisions effectively. Conversely, students with low self-efficacy may ignore or superficially apply feedback.

However, while teacher and peer feedback have been extensively studied as factors influencing writing self-efficacy, there is limited empirical evidence on how AI feedback styles shape students' writing confidence.

2.4 The Relationship Between AI Feedback and Self-Efficacy

Recent explorations into AI feedback and self-efficacy are emerging. For example, Zhu et al. [11] examined undergraduate EFL students' experiences with AI writing feedback and found that those who perceived AI suggestions as helpful reported increased writing self-efficacy and motivation to revise. Similarly, Bahari et al. [4] highlighted that AI feedback tools can enhance learners' confidence by providing immediate, accessible support, thus reducing anxiety in academic writing.

What the existing studies did is just to differentiate

corrective and suggestive feedback styles when exploring their impact on self-efficacy. Feng et al. [1] suggested that corrective feedback may reinforce confidence in linguistic accuracy, while suggestive feedback may enhance confidence in content expression and idea development.

2.5 Reach Gap

Although AI-assisted writing has attracted considerable attention, several limitations constrain our current understanding:

1. Existing studies seldom contrast English major graduate students' experiences with corrective versus suggestive AI feedback in academic writing settings, leaving it unclear how each style uniquely influences learner engagement and revision strategies.
2. Research is scarce that investigates how perceptions of these distinct feedback styles map onto learners' academic writing self-efficacy, particularly among non-native English major graduate students.

Therefore, this study will compare graduate students' perceptions on corrective and suggestive feedback from AI, and explore how these perceptions connect with their self-efficacy in academic writing. The aim of this research is to provide insights that can help improve AI feedback features and offer guidance for pedagogical approaches to writing instruction in higher education.

3 Methodology

The methods employed in this study are designed to investigate the English major graduate students' perceptions of corrective and suggestive AI feedback in academic writing settings, and to examine how these perceptions connect with their academic writing self-efficacy.

3.1 Participants

This study collected 37 valid questionnaires from English major graduate students at the School of Foreign Studies, Chongqing Jiaotong University. The gender distribution showed that there were 4 males (10.8%) and 33 females (89.2%). In terms of grade level, first-year graduate students accounted for 73.0% (27 people), second-year graduate students accounted for 16.2% (6 people), and third-year graduate students (graduating students) accounted for 10.8% (4). Participants' academic specializations included Linguistics (37.8%, 14), Literature (29.7%, 11), Translation (21.6%, 8), and others (10.8%, 4).

They were chosen for their varied experience with academic writing tasks (including completing their term papers) and their familiarity with AI-based writing tools. What's more, participation in the study was entirely voluntary.

3.2 Instruments

3.2.1 Perceptions of AI Feedback Styles Questionnaire

This questionnaire was designed to measure students' perceptions of two AI feedback styles: corrective feedback and suggestive feedback. It consisted of three sections: demographic information, frequency of AI feedback use, and perception items. Perception items were rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

3.2.2 Academic Writing Self-Efficacy Questionnaire

This questionnaire measured students' confidence in performing academic writing tasks after receiving corrective and suggestive AI feedback. It had two parts, each with eight items that measured writing self-efficacy across areas like organizing ideas, expressing complex concepts, using academic vocabulary, and integrating sources. Responses were recorded on a five-point Likert scale ranging from 1 (not at all confident) to 5 (completely confident).

3.3 Data Collection Procedure

This study collected data online through the platform of Wenjuanxing, and the survey was conducted in July 2025 for a period of two weeks. The link of the questionnaire was posted in the QQ and WeChat groups, inviting students to participate in filling out the questionnaire. In order to improve the recovery rate and validity of the questionnaire, the researcher issued several reminders to fill out the questionnaire in the group and ensured that each participant submitted the questionnaire only once.At the same time, the researcher assured the participants that all questionnaire data would be used for academic research only, and that personal information and answers would be kept strictly confidential and would not have any impact on their course grades or learning evaluations.

3.4 Data Analysis

This study used SPSS 26.0 software to statistically analyze the data which was collected to answer the research questions.

First, to address research question one (How do graduate students perceive corrective and suggestive AI writing feedback styles?), descriptive statistical analysis was conducted on each of the topics of the perception questionnaire, including the calculation of the mean, standard deviation, and minimum and maximum values, in order to find out the overall tendency of subjects to perceive error-correcting feedback and advising feedback.

Second, for research question two (What is the relationship between students' perceptions of these feedback styles and their academic writing self-efficacy?), Pearson Correlation Analysis (PCA) was used to explore the correlation between the scores of the dimensions of the perception questionnaire and the scores of the academic writing self-efficacy questionnaire. Meanwhile, the correlation coefficients between perceived error-correcting feedback and self-efficacy, as well as perceived suggestion feedback and self-efficacy were calculated to test the relationship between the potential effects of different feedback styles of perception on self-efficacy in academic writing.

The significance level (alpha) for all statistical tests was set at 0.05.

4 Results

4.1 Descriptive Statistics of Participants' Perceptions of AI Feedback Styles

This study conducted a descriptive statistical analysis of 37 valid questionnaire responses to investigate participants' perceptions of corrective and suggestive AI feedback styles (see Table 1).

Table 1. Descriptive statistics of participants' perceptions of corrective and suggestive AI feedback.

Item	N	Min	Max	Mean	SD
Frequency of using AI tools for corrective feedback (grammar correction)	37	2	5	3.62	0.79
Frequency of using AI tools for suggestive feedback (rewriting suggestions)	37	2	5	3.41	0.83
AI corrective feedback helps improve my grammatical accuracy	37	2	5	3.7	0.97
Corrective feedback helps me identify weaknesses in academic writing	37	2	5	3.62	0.83
Corrective feedback makes me feel more confident about my grammar	37	2	5	3.49	0.96
I prefer to receive corrective feedback from AI writing tools	37	2	5	3.35	0.89
Corrective feedback motivates me to check grammar rules carefully	37	1	5	3.41	0.96
AI suggestive feedback helps improve my expression	37	2	5	3.49	0.87
Suggestive feedback helps enhance my academic writing style	37	2	5	3.41	0.8
Suggestive feedback makes me feel more confident in expressing complex ideas	37	2	5	3.59	0.87
I prefer to receive suggestive feedback from AI writing tools	37	1	5	3.41	0.87

First, in terms of the frequency of AI feedback usage, graduate students used corrective feedback (M = 3.62, SD = 0.79, range = 2-5) slightly more frequently than suggestive feedback (M = 3.41, SD = 0.83, range = 2-5). This suggests that most students rely heavily on the corrective functionality of AI tools in their daily academic writing, but the usage frequency of suggestive feedback also remains at a moderately high level, reflecting its potential application value in improving language expression.

Second, in terms of perceptions of corrective feedback, participants overall provided positive evaluations. Among these, "AI corrective feedback helps improve my grammatical accuracy" (M = 3.70, SD = 0.97) and "corrective feedback helps me identify weaknesses in my academic writing" (M = 3.62, SD = 0.83) received relatively high mean scores, indicating that students generally believe AI corrective functions help improve language accuracy and identify personal shortcomings. However, the mean scores for "I prefer receiving error correction feedback from AI writing tools" (M = 3.35, SD = 0.89) and "Corrective feedback motivates me to carefully check grammar rules" (M = 3.41, SD = 0.96) were slightly lower than the previous two items, indicating that some students have reservations about relying on AI corrective feedback.

Furthermore, in terms of perceptions of suggestive feedback, students rated its role in improving expression and style as moderately positive. Among these, the mean scores for "Suggestive feedback boosts my confidence in expressing complex ideas" (M = 3.59, SD = 0.87) and "Suggestive feedback motivates me to write more creatively" (M = 3.57, SD = 0.77) were relatively high, indicating that suggestive feedback plays a positive role in enhancing students' confidence in expression and fostering creative writing. However, the mean scores for "AI's suggestive feedback helps

improve my expression" (M = 3.49, SD = 0.87), "Suggestive feedback helps me improve my academic writing style" (M = 3.41, SD = 0.80), "I prefer receiving suggestive feedback from AI writing tools" (M = 3.41, SD = 0.87) had slightly lower mean scores, indicating a gap between students' preferences for suggestive feedback and their actual perceived effects.

The result of descriptive statistical analysis showed that most participants had a positive attitude toward both corrective and suggestive AI feedback, especially in terms of improving grammatical accuracy and boosting confidence in expressing their own ideas. However, some students are still cautious about relying on AI feedback which offers useful insights for the sensible integration of AI tools in future writing instruction.

4.2 Comparison between Perceptions of Corrective and Suggestive Feedback

To compare students' perceptions of corrective feedback and suggestive feedback, a paired samples t-test was used for analysis (see Table 2).

Table 2. Paired sample statistics, correlations, and t-test results.

	Corrective feedback perception total score	Suggestive feedback perception total score	Corrective − Suggestive feedback perception total score
Mean	17.57	17.46	0.108
N	37	37	37
SD	3.428	3.477	2.366
SE	0.564	0.572	0.389
r (C vs. S)	0.765		—
Sig. (*r*)	0.000		—
Mean diff.	—	—	0.108
SD diff.	—	—	2.366
SE diff.	—	—	0.389
95% CI lower	—	—	-0.681
95% CI upper	—	—	0.897
t	—	—	0.278
df	—	—	36
Sig. (2-tailed)	—	—	0.783

Note. SD = standard deviation; SE = standard error; CI = confidence interval; diff. = difference.

Descriptive statistics showed that the mean total score for participants' perceptions of corrective feedback was 17.57 (standard deviation = 3.43), while the mean total score for suggestive feedback was 17.46 (standard deviation = 3.48), with a small difference between the two means. Pairwise correlation analysis indicated a high positive correlation between the total scores for corrective feedback and suggestive feedback (r = .765, p < .001), suggesting that students' perceptions of the two feedback types are consistent.

The results of the paired-sample t-test showed that the difference between the two was not significant (t(36) = 0.278, p = .783). This indicates that there is no statistically significant difference in students' overall perceptions of corrective feedback and suggestive feedback. In other words, graduate students hold similar levels of positive attitudes toward both corrective and suggestive feedback provided by AI, without showing a clear preference.

4.3 Correlations between Perceptions of AI Feedback Styles and Academic Writing Self-Efficacy

To investigate the relationship between students' perceptions of AI feedback styles and their academic writing self-efficacy, this study employed Pearson correlation analysis for testing (see Table 3).

The results showed that the total score for the perception of corrective feedback was not significantly correlated with the total score for self-efficacy in corrective feedback (r = .044, p = .794), indicating that there was no statistically significant linear relationship between students' perceptions of AI corrective feedback and their self-efficacy in writing after receiving corrective feedback. Similarly, the correlation between the total score for the perception of suggestive feedback and the total score for suggestive feedback self-efficacy was also not significant (r = .089, p = .602), indicating that there is no significant correlation between students' perception of suggestive feedback and their self-efficacy after receiving such feedback.

Furthermore, the total score for perception of corrective feedback was highly positively correlated with the total score for perception of suggestive feedback (r = .765, p < .001), indicating that students' perceptions of the two AI feedback styles were consistent; and there was also a very strong positive correlation between the total scores for self-efficacy in corrective feedback and those for self-efficacy in suggestive feedback (r = .863, p < .001), indicating that students' levels of academic writing self-efficacy were highly consistent across the two different feedback contexts.

Overall, although there was no significant correlation between students' perceptions of corrective and suggestive feedback and their self-efficacy, there was a highly consistent trend between the perceptions of the two feedback types and between self-efficacy in the two contexts.

Table 3. Correlations between feedback perception scores and self-efficacy scores.

Variable	Corrective Feedback Perception Total Score	Suggestive Feedback Perception Total Score	Corrective Feedback Self-Efficacy Total Score	Suggestive Feedback Self-Efficacy Total Score
Corrective Feedback Perception Total Score	1	.765**	.044	.105
Suggestive Feedback Perception Total Score	.765**	1	-.015	.089
Corrective Feedback Self-Efficacy Total Score	.044	-.015	1	.863**
Suggestive Feedback Self-Efficacy Total Score	.105	.089	.863**	1

Note. $N = 37$ for all correlations. $^{**}p < .01$ (two-tailed).

5 Discussion

5.1 Discussion of Research Questions

First, regarding Research Question Table A1, descriptive statistical results indicate that participants hold positive attitudes toward both feedback styles. Corrective feedback is highly valued for helping identify grammatical errors and improve accuracy, while suggestive feedback is notable for boosting confidence in expressing complex ideas and spurring creative writing. The results of the paired-sample t-test indicate that there is no significant difference in the total scores for perceptions of corrective and suggestive feedback, suggesting that both feedback styles are equally important and valuable in students' perceptions.

Second, regarding Research Question Table A2, Pearson correlation analysis shows that neither perceptions of corrective feedback nor perceptions of suggestive feedback exhibit a significant correlation with their corresponding academic writing self-efficacy. This is not entirely consistent with the view in some existing studies that "the more positive the perception, the higher the writing confidence," which may be related to the fact that AI feedback currently focuses primarily on superficial language corrections and limited personalized suggestions. However, it is worth noting that there is a high positive correlation between the perception of corrective feedback and suggestive feedback, as well as between self-efficacy in both feedback contexts, indicating that students' overall attitude toward AI feedback styles and their self-efficacy levels are consistent.

5.2 Pedagogical Implications

Findings of this research provide some implications for the integration of academic English writing instruction and AI tools. First, striking a balance between using corrective and suggestive feedback in instruction. Students have positive views of both kinds of feedback. Teachers can guide students to effectively switch between and combine corrective (to improve language accuracy) and suggestive feedback (to enhance logical expression and style) based on the objectives of the writing task. Second, cultivating students' critical thinking skills in using AI feedback.

Since no significant correlation was observed between AI feedback and self-efficacy, teachers should guide students to recognize the auxiliary nature of AI tools, cultivate their ability to judge, select, and critically use AI corrections and suggestions, and avoid developing dependency. Lastly, promoting the development of writing metacognitive strategies through AI feedback. Teachers can design tasks that incorporate AI feedback, requiring students to reflect on the underlying language knowledge points and writing strategies behind AI modifications and suggestions, thereby deepening their metacognitive regulation and writing ability development.

5.3 Research Limitations and Future Research Recommendations

There also are several limitations that should be acknowledged. One is that the sample size is small and just concentrated on graduate students majoring in English, affecting the generalizability and extensibility of the results. Moreover, use of self-reported questionnaire surveys lacks objective writing performance data. This study employed self-perception scales which can reveal students' perceptions and confidence, but cannot measure the actual impact of AI feedback on writing outcomes objectively. Researchers can enlarge the sample size to enhance the generalizability of results, and can integrate pre- and post- writing tests, text analysis, and

interviews together to better explore the relationship between perceptions of AI feedback and students' academic writing self-efficacy.

6 Conclusion

As the widespread application of AI in the field of academic writing, this study aims to probe English graduate students' perception of AI corrective and suggestive feedback and their relationship with students' academic writing self-efficacy. The findings showcase that students' held positive attitudes towards both corrective and suggestive feedback, especially in the quarters of grammar improvement and confidence enhancement. However, there is no significant correlation between feedback perceptions and writing self-efficacy. In contrast, strong internal correlations exist between the perceptions of the two types of feedback, as well as between self-efficacy in their corresponding contexts. Overall, the study furnishes implications for the pedagogical integration of AI writing tools, emphasizing the necessity to balance the two types of feedback and develop students' ability to use them critically. Its limitations lie in the small sample size and reliance on self-reported data. Future research could integrate writing performance assessments and employ some mixed research methods to conduct in-depth explorations.

Data Availability Statement

Data will be made available on request.

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Conflicts of Interest

The author declares no conflicts of interest.

Ethical Approval and Consent to Participate

This work did not require ethical approval as it involved a voluntary anonymous survey with no identifiable data collected.

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Appendix

Table A1. Questionnaire 1: English graduate students' perceptions of AI writing feedback styles.

Section	Item (English)	Scale
Demographics	Gender (Male/Female)	Single choice
Demographics	Year of study (1st/2nd/3rd)	Single choice
Demographics	What is your major in English? (Linguistics/Literature/Translation/Others)	Single choice
Frequency	How often do you use AI tools for corrective feedback (grammar corrections)?	1 (Never) – 5 (Always)
Frequency	How often do you use AI tools for suggestive feedback (rephrasing suggestions)?	1 (Never) – 5 (Always)
Corrective Perception	I find corrective AI feedback useful for improving my grammar accuracy.	1 (Strongly disagree) – 5 (Strongly agree)
Corrective Perception	Corrective feedback helps me identify my weaknesses in academic writing.	1 – 5
Corrective Perception	Corrective feedback increases my confidence in my grammar accuracy.	1 – 5
Corrective Perception	I prefer receiving corrective feedback from AI tools.	1 – 5
Corrective Perception	Corrective feedback motivates me to check grammar rules carefully.	1 – 5
Suggestive Perception	I find suggestive AI feedback useful for improving the clarity of my ideas.	1 – 5
Suggestive Perception	Suggestive feedback helps me enhance my academic writing style.	1 – 5
Suggestive Perception	Suggestive feedback increases my confidence in expressing complex ideas.	1 – 5
Suggestive Perception	I prefer receiving suggestive feedback from AI tools.	1 – 5
Suggestive Perception	Suggestive feedback motivates me to write more creatively.	1 – 5
Preference	Overall, which type of AI feedback do you prefer? (Corrective/Suggestive/Both/Neither)	Single choice

Table A2. Questionnaire 2: A survey on the relationship between AI writing feedback styles and academic writing self-efficacy.

Section	Item (English)	Scale
Demographics	Gender (Male/Female)	Single choice
Demographics	Year of study (1st/2nd/3rd)	Single choice
Demographics	What is your major in English? (Linguistics/Literature/Translation/Others)	Single choice
Part A: After Corrective Feedback	After receiving corrective AI feedback, I am confident in organising ideas logically.	1–5
	After receiving corrective AI feedback, I can express complex ideas clearly.	1–5
	After receiving corrective AI feedback, I feel confident using academic vocabulary appropriately.	1–5
	After receiving corrective AI feedback, I can integrate sources properly.	1–5
	After receiving corrective AI feedback, I feel confident revising and improving my writing.	1–5
	After receiving corrective AI feedback, I can write clear introductions and conclusions.	1–5
	After receiving corrective AI feedback, I can meet academic writing standards.	1–5
	After receiving corrective AI feedback, I feel confident writing research papers in English.	1–5
Part B: After Suggestive Feedback	After receiving suggestive AI feedback, I am confident in organising ideas logically.	1–5
	After receiving suggestive AI feedback, I can express complex ideas clearly.	1–5
	After receiving suggestive AI feedback, I feel confident using academic vocabulary appropriately.	1–5
	After receiving suggestive AI feedback, I can integrate sources properly.	1–5
	After receiving suggestive AI feedback, I feel confident revising and improving my writing.	1–5
	After receiving suggestive AI feedback, I can write clear introductions and conclusions.	1–5
	After receiving suggestive AI feedback, I can meet academic writing standards.	1–5
	After receiving suggestive AI feedback, I feel confident writing research papers in English.	1–5