

Exploring EFL Learners' Academic Emotions and Emotion Regulation Strategies in AI-Assisted Collaborative Academic Writing Tasks

Miao Jia ¹, Yuhan Tong ¹, Zeting Yuan ¹, Zitong Liu ¹, Shuting Wang ¹, You Su^{1*},

¹ Beijing University of Posts and Telecommunications

*suyou@bupt.edu.cn

Abstract: *This mixed-methods study investigated the academic emotions and emotion regulation strategies (ERS) of two groups of EFL learners (n=8) during a 6-week AI-assisted collaborative academic writing project. Data from questionnaires and semi-structured interviews revealed that learners experienced diverse emotions, with negative emotions—particularly anxiety, confusion, and anger—outweighing positive and mixed emotions. Moreover, co-regulation, task-related regulation, and cognitive change emerged as dominant ERS, highlighting the role of peer interaction and adaptive problem-solving in managing challenges like AI feedback limitations during AI-assisted collaborative academic writing tasks.*

Keywords: AI-assisted collaborative writing, Academic emotions, Emotion regulation strategies, EFL learners

1. Introduction

Collaborative academic writing fosters skill development but challenges for L2 learners, including task complexity and feedback interpretation. AI tools (e.g., ChatGPT and Doubao) mitigate these issues by providing real-time feedback (Barrot, 2023). Academic emotions and ERS significantly influence collaboration (Järvenoja & Järvelä, 2009), yet research on emotion regulation in AI-assisted writing remains limited. Therefore, this study explored the academic emotions and emotion regulation strategies that EFL learners experience in the face of challenges during AI-assisted collaborative academic writing tasks.

2. Methods

This study involved 8 students in two groups completing five collaborative academic writing tasks. Data were collected through vignette-based scenarios to analyze academic emotions and regulation strategies, supplemented by semi-structured interviews. Quantitative analysis involved frequency coding of emotional responses, while qualitative thematic analysis identified patterns in strategy use.

3. Results

The results showed that negative emotions (68%) slightly outnumbered positive emotions (9%), mixed emotions (20%), and no emotions (3%). Specifically, anxiety, confusion, and anger were the three most prevalent emotions among the fifteen specific emotions studied. Furthermore, through thematic analysis, the study identified a framework of emotion regulation (ER) strategies, consisting of six strategy families: co-regulation (38.68%), task-related regulation (32.08%), cognitive change (13.68%), situation modification (6.13%), response modification (4.25%), and attention deployment (2.38%).

A thematic analysis of interview data from six participants revealed four primary factors inducing negative emotions in academic contexts. Firstly, environmental and technological challenges predominated, particularly regarding AI tool limitations. Learners employed peer negotiation for model adjustments while demonstrating cognitive acceptance of technological constraints. Secondly, time pressure from procrastination and final-year workloads prompted strategic task management and peer negotiation. Thirdly, academic writing difficulties generated affective

barriers (e.g., boredom, stress, confusion) that were mitigated through seeking help from peers and teachers and iterative practice to improve performance and skills. Lastly, group interaction challenges were mediated via mutual empathy cultivation and peer negotiation strategies. Notably, peer negotiation emerged as a cross-thematic coping mechanism, supplemented by context-specific approaches like technological adaptation and emotional regulation techniques.

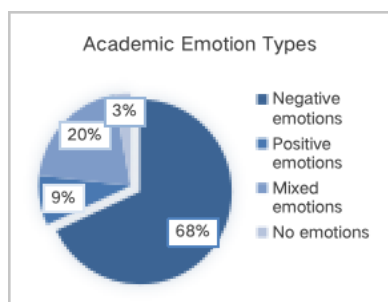


Fig.1 Percentages of academic emotion types

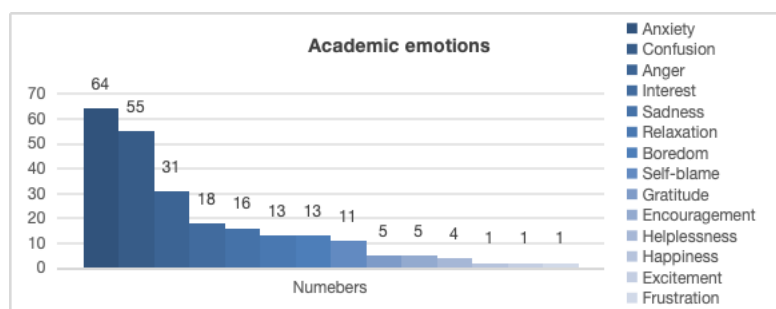


Fig.2 Numbers of specific academic emotions

Table 1. ER strategies framework and their numbers and percentages.

ER strategies	Co-regulation	Task-related Regulation	Cognitive Change	Situation Modification	Response Modification	Attention Deployment	Vague Responses
Numbers.	82	68	29	13	9	6	5
Percentages.	38.68%	32.08%	13.68%	6.13%	4.25%	2.38%	2.36%

4. Discussion and Conclusion

EFL learners experienced significant negative emotions in AI-assisted writing, driven by technological and collaborative challenges. Co-regulation emerged as the most frequently used strategy, followed by task-related regulation and cognitive change. This suggests that students, especially in collaborative environments, benefit from peer interactions and collective problem-solving. This finding echoes previous research that highlights the importance of social regulation strategies in academic settings (Zhang et al., 2021). In conclusion, this study emphasizes the need for further research to explore how individual and group-based emotion regulation strategies can be enhanced in AI-assisted learning environments to enhance emotional resilience and academic writing outcomes in AI-integrated academic environments.

Acknowledgements

This study was supported by the Postgraduate Teaching Reform Projects (2023Y037) of Beijing University of Posts and Telecommunications.

Reference

- Barrot, J. S. (2023). Using ChatGPT for second language writing: Pitfalls and potentials. *Assessing Writing*, 57, 100745. <https://doi.org/10.1016/j.asw.2023.100745>
- Järvenoja, H., & Järvelä, S. (2009). Emotion control in collaborative learning situations: Do students regulate emotions evoked by social challenges? *British Journal of Educational Psychology*, 79(3), 453–471. <https://doi.org/10.1348/000709909X402811>
- Zhang, Z., Liu, T. & Lee, C.B. (2021). Language learners' enjoyment and emotion regulation in online collaborative learning. *System*, 98, 102478. <https://doi.org/10.1016/j.system.2021.102478>