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Developing College Students' Creative Thinking and English Story Writing Through AI-supported Collaborative Learning

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Abstract

Many English as a foreign language (EFL) students struggle to generate the ideas, express their emotions, and use English to write stories due to the lack of creativity in traditional or teacher-centered writing environment. This study aimed to investigate the effects of AI-supported collaborative learning on EFL college students' creative thinking and English story writing. A total of 38 EFL college students from two classes, with 16 in the experimental group (AI-supported collaborative writing) and 22 in the control group (traditional writing instruction). The results showed the experimental group improved creativity in fluency, flexibility, and elaboration. The control group made progress in fluency and flexibility; however, effect sizes were small. AI-supported collaborative writing includes story chains, word choice, grammar checking, chatbots, peer feedback and evaluation, which promote students' creative thinking and enhance their English story writing. This study suggests that AI-supported collaborative learning helps college students develop their creative thinking and English story writing.

Keywords: EFL college student, creative thinking, English story writing, AI-supported collaborative learning

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Study Background

Traditional or teacher-centered writing often restricts creative thinking by prioritizing grammatical rules over idea generation (Kawinkoonlasate, 2019). Creativity was defined as fluency, flexibility, originality, and elaboration (Guilford, 1950), which foster students' curiosity, collaboration, risk-taking, and deeper learning, enhancing both academic success and second language acquisition outcomes (Smare, 2022). Story writing serves as a powerful approach for EFL learners to express language, ideas, emotions, and imagination in English. It is the process of taking control of one's creative thinking to produce compelling and dynamic writing (Fitria, 2024). It is not only a language practice but also regarded as an essential skill in education, as it enables college students to express and communicate, which reflects on one's creative thinking (Cheung et al., 2003). For students who struggle with creativity or lack fluency, AI-supported collaborative learning could assist students by generating story elements such as characters, plots, and settings, while also suggesting sentence structures and improving coherence (Biermann et al., 2022; Bai et al., 2021). In this study, AI-supported refers to the integration of digital tools such as story chain, word choice, grammatical checking, chatbot, evaluation and peer feedback, which assist learners in developing ideas, refining language use, and enhancing text coherence. Collaborative writing is defined as a process in which two or more learners jointly plan, draft, and revise a shared text through interaction, negotiation, and mutual feedback (Storch, 2013) to produce good writing. It enhances college students' various learning outcomes (Fang et al., 2023) and improves their creativity, writing skills, engagement, and sense of satisfaction (Chung et al., 2022; Suh & An, 2022; Yuan et al., 2022). Accordingly, this study aimed to investigate the effects of AI-supported collaborative learning on EFL college students' creative thinking and English story writing. The two research questions are as follows.

RQ1. What are the effects of AI-supported collaborative writing on EFL students' creative thinking?
RQ2. What are the effects of AI-supported collaborative writing on EFL students' story writing?

Methodology

38 EFL college students from two classes participated in this study. One class was randomly assigned to the experimental group using an AI-supported collaborative writing method ($N = 16$), while the other class was control group

using traditional collaborative writing method ($N = 22$). Both groups received the same teacher instruction which included creative thinking and story writing exercises, lasting for 18 weeks. The experimental group added AI-supported collaborative learning (story chain, word choice, grammatical checking, chatbot, and evaluation) while the control group using traditional or teacher-centered writing method. Data was collected from the pre- and post-Creative Thinking Scales adapted from Lehmkuhl et al. (2021), English story writing first and final drafts and an open-ended questionnaire.

Result

Figure 1 presents the before and after drafts of English story writing from the experimental group. The experimental group received peer feedback, additionally used AI-supported collaborative learning (story chain, word choice, grammatical checking, chatbot, evaluation and peer feedback) during the process, afterward college students discussed and decided whether to revise their story or proceed to the next step.

Table 1 presents the paired samples t-test for both groups across four dimensions of creativity. In the experimental group, fluency, flexibility, and elaboration improved significantly, with flexibility showing the highest effect size ($d = 0.96$). The control group showed modest gains, with only flexibility ($d = 0.48$) and fluency ($d = 0.54$) reaching significance. These findings suggest that AI-assisted collaborative writing has a positive effect on developing students' creative thinking, particularly in flexibility.

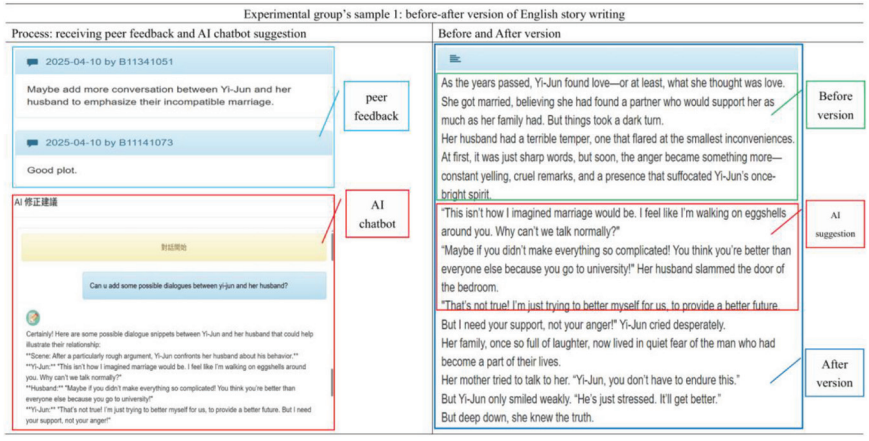

Figure 1. An example of English story writing

Table 1. The experiment group and control group's creativity before and after

Dimension	Groups	*N*	Pre-survey test		Post-survey test		Paired samples *t* test		
			M	*SD*	*M*	*SD*	*t*	*p*	Effect size (*d*)
Originality	Exp.	16	29.69	5.63	31.56	4.23	–1.297	.214	0.32
	Con.	22	30.05	4.59	32.91	6.30	–2.735	.012	0.58
Fluency	Exp.	16	24.19	4.37	27.81	4.23	–2.897	.011	0.72
	Con.	22	25.55	3.56	28.45	6.11	–2.520	.02	0.54
Flexibility	Exp.	16	17.25	3.02	20.75	2.79	–3.834	.002	0.96
	Con.	22	18.55	2.86	20.23	4.17	–2.256	.035	0.48
Elaboration	Exp.	16	22.19	4.56	24.69	3.38	–2.2	.044	0.55
	Con.	22	23.95	3.66	24.95	5.03	–1.062	.301	0.23

For the open-ended questionnaire, students in the control group reported that paper-based collaborative writing facilitated the sharing of diverse opinions, joint story construction, and collective reflection on areas for improvement. Some expressed that learning was enjoyable because peers' ideas inspired them and fostered growth. However, challenges included the need to merge differing perspectives, sometimes without agreement, and difficulties in fully understanding each other's viewpoints. In contrast, students in the experimental group highlighted that online collaborative writing enabled comparison of writing abilities and styles, allowing them to identify preferred approaches for further development. They emphasized that collaboration fostered creativity by integrating diverse perspectives and imaginations, which expanded potential storylines. Several noted that using AI appropriately inspired new ideas and encouraged experimentation with different story beginnings and character settings, enhancing writing engagement. Moreover, the AI story chain prompted students to transcend habitual thinking patterns by generating unexpected responses and introducing novel scenarios. In one case, the AI enriched the narrative through multiple character dialogues, thereby promoting flexibility and enabling students to refine their stories beyond initial expectations.

Discussion and Conclusion

This study demonstrated that compared to traditional writing instruction, AI-supported collaborative writing effectively promoted EFL students' creative thinking, particularly in fluency, flexibility, and elaboration. The use of AI tools encouraged diverse perspectives and fostered dynamic storytelling.

The students not only learned through peer interaction but also benefited from immediate feedback, idea generation, and language support. The findings suggest that AI-supported collaborative writing can effectively promote students' creative thinking and English story writing.

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