

Application of AI-Based Blended Teaching Model in College English Writing Instruction

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Abstract: This study explores the application of an AI-based blended teaching model in college English writing instruction, analyzing its impact on improving students' English writing proficiency and their attitudes toward writing errors. Through empirical research, the results indicate that the blended teaching model effectively enhances students' English writing abilities and improves their attitudes toward writing errors. The study also finds that AI technology offers significant advantages in providing personalized feedback and optimizing teaching content. AI plays a crucial supporting role in the implementation of the blended teaching model.

Keywords: artificial intelligence, blended teaching model, college English writing

1. Introduction

The cultivation of English writing skills is a critical component of college English education, as writing proficiency often reflects the shortcomings in students' language learning. Improving the effectiveness of English writing instruction and students' writing abilities has long been a focus for language educators. Traditional English writing instruction primarily relies on classroom-based teaching, emphasizing the transmission of language knowledge, which often neglects students' active participation. With the advancement of information technology, many educators and scholars have been exploring how AI-based blended teaching models can enhance college English writing instruction and improve students' writing abilities. Simultaneously, artificial intelligence (AI) has played a significant role in personalized learning, particularly in providing targeted feedback on students' writing errors, thereby offering more tailored support for their learning.

2. Blended Teaching Model and Language Instruction

The blended teaching model has been widely applied in various disciplines, and scholars both domestically and internationally have conducted research on its integration with language instruction. It is generally regarded as a comprehensive explanation of the blended teaching model, defining it as a combination of various web technologies, teaching theories, instructional designs, and face-to-face teaching to achieve better educational outcomes. Garrison and Kanuka, in their work "Blended Learning: Uncovering Its Transformative Potential in Higher Education", discussed the transformative potential of blended learning in the context of challenges faced by higher education. They concluded that blended learning aligns with the values of traditional higher education institutions and enhances the effectiveness and efficiency of meaningful learning^[1]. Domestically, Lü Xiaomin, in her article "Exploration of MOOC-Based Blended Teaching Model in College English Writing Instruction", proposed a corresponding teaching model based on the concept of blended teaching and verified its advantages in improving teaching effectiveness and fostering students' autonomous learning abilities^[2]. He Kekang argued that the integration of online and offline teaching models facilitates the realization of student-centered and teacher-guided roles in the teaching process^[3].

The blended teaching model is not merely a quantitative addition to the teaching process or a repetition of online and offline activities. Instead, it represents an organic combination of in-class and out-of-class, online and offline activities.

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leveraging their complementary advantages. In language instruction, it optimizes resource allocation and plays a significant role in enhancing teaching effectiveness.

3. The Significance of AI in Language Instruction

With the rise and continuous development of artificial intelligence, its application in the field of education has been expanding. This is primarily due to the irreplaceable role of AI in the teaching process, particularly in providing writing feedback. First, AI can offer real-time feedback and content assistance, helping students improve the accuracy and quality of their writing. Second, AI provides personalized guidance and feedback, supporting differentiated instruction to meet the diverse learning needs of students. Third, AI technology can reduce teachers' workload through automated grading and feedback systems, allowing teachers to manage large volumes of student writing assignments more efficiently and dedicate more time to targeted instruction. Jessie Barrot, a Ph.D. from the University of the Philippines, in his article “ChatGPT as a Language Learning Tool: An Emerging Technology Report”, introduced the essence of ChatGPT and highlighted its features, including ease of use, personalization, immersive learning, and instant feedback, making it a valuable resource for language learners and educators^[4]. Zheng Liwen, in “The Application of AI Technology in College English Teaching”, pointed out that applying AI technology to college English teaching represents an innovation in language learning for both students and teachers. Fully utilizing AI technology can transform the English learning process into a more efficient and convenient experience for students^[5].

4. Instructional Design of AI-Based Blended Teaching Model in English Writing Instruction

This study designs and implements an AI-based blended learning model using the IWrite system, which includes pre-class, in-class, and post-class phases, to investigate its impact on college English writing instruction. This module serves as the top-level design of the project and is the focus of the research. It explores the integration of college English writing instruction with the IWrite English Writing and Evaluation System, forming an online-offline blended teaching model.

4.1 Pre-Class Arrangement

Rich teaching resources and their optimized integration are essential for this teaching model. Course-related resources, including videos on writing topics, vocabulary, grammar points, and sample essays, are developed. Teachers deliver these resources through online platforms (e.g., Rain Classroom). Students complete online writing tasks via the IWrite system, which provides real-time feedback on grammar, vocabulary, coherence, content richness, and relevance. After submitting their essays, students can read reference sample essays.

4.2 In-Class Arrangement

While online teaching can enhance students' active participation, it requires complementary classroom teaching to achieve better results. In the classroom, teachers organize group discussions where students share feedback from the IWrite system, deeply understand the issues identified, discuss writing challenges, and provide suggestions to each other, thereby promoting peer learning. Simultaneously, teachers can offer personalized guidance, focusing on individual students to deepen the teaching process.

4.3 Post-Class Arrangement

Students are encouraged to revise their essays based on feedback from the IWrite system and teacher comments. After revision, they resubmit their essays to receive new feedback, forming a positive cycle of writing-feedback-revision.

5. Teaching Experiment and Effect Analysis

5.1 Experimental Design

This teaching study collects data through proficiency tests and interviews. Proficiency tests are conducted before and after the experiment, with results evaluated by both human graders and the AI system to ensure objectivity and fairness. By comparing test results, the study investigates the impact of this teaching model on students' writing abilities. Interviews aim to understand changes in students' attitudes toward writing errors after the experiment, analyzing whether the teaching model improves their attitudes toward writing errors.

The study participants are second-year non-English major undergraduates from the class of 2023. The experimental class consists of 30 students, and the control class also consists of 30 students. After one year of learning, students in the experimental class are familiar with the IWrite system and the Rain Classroom online learning platform.

5.2 Research Results and Analysis

5.2.1 Analysis of Writing Proficiency Test Results

To ensure the validity of the test questions, CET-4 writing test questions are used. Both pre-tests and post-tests are completed within a specified time and location, with a total score of 100 points. Test results are evaluated by both the IWrite system and teachers. The experimental class and control class each have 30 students, and their pre-test and post-test scores follow a normal distribution. SPSS is used for analysis. Results are shown in the following tables:

Table 1.1 Experimental Class

		Paired Samples Statistics			
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	T1	69.757	30	5.6897	1.0388
	T2	71.837	30	6.2653	1.1439

Table 1.2 Experimental Class

		Paired Samples Correlations		
		N	Correlation	Sig.
Pair 1	T1 & T2	30	.751	.000

Table 1.3 Control Class

		Paired Samples Statistics			
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	T1	69.503	30	7.3090	1.3344
	T2	70.547	30	7.0657	1.2900

From the above tables, it is evident that both classes have the same number of students and similar English writing proficiency at the beginning of the experiment, making them comparable. After the experiment, the experimental class's average score increased by 2.08 points, with a p-value of 0.00 in paired sample analysis, indicating a significant difference between pre-test and post-test scores. The control class's average score increased by 1.04 points. The experimental class's average score increase is higher than that of the control class, demonstrating that the AI-based blended teaching model has a better teaching effect compared to traditional methods.

5.2.2 Impact on Attitudes Toward Writing Errors

Language learners' attitudes toward writing errors are crucial, as understanding and internalizing errors are essential for overcoming challenges and making progress. In traditional teaching models, students often focus on numerical scores, neglecting the digestion of errors during the writing process, which diminishes the significance of teachers' error correction efforts. The AI-based blended teaching model provides students with timely feedback, offering detailed explanations from the perspectives of vocabulary, syntax, coherence, and content. Additionally, in-class group discussions and teacher-led explanations of key points foster a high level of attention to writing errors. This study designs three questions and interviews four students from the experimental group, including two with strong language skills and two with weaker language skills, to understand changes in their attitudes toward writing errors. The interview questions are as follows:

1. After the application of the AI-based blended teaching model in writing instruction, what new understanding do you have about English writing errors?
2. After the application of the AI-based blended teaching model in writing instruction, how has your approach to handling writing errors changed?

3. After the application of the AI-based blended teaching model in writing instruction, how has your emotional response to writing errors changed?

In response to the first question, Student 1 stated that using the AI system made them realize that errors are inevitable and that accepting and correcting them is essential for progress. Student 2 mentioned that they now view writing errors as valuable opportunities to improve their writing skills and approach them with a more positive and calm mindset. Student 3 expressed that the AI-based blended teaching model reinforced their belief that writing errors are opportunities for improvement, making their English skills more solid. Student 4 noted that while they initially ignored errors, repeated feedback on the same errors in subsequent essays made them more attentive and motivated to correct them. Four students have developed a new and more positive attitude towards mistakes in writing. With the help of AI-assisted learning, they regard mistakes as a ladder for self-improvement rather than as obstacles.

In response to the second question, Student 1 stated that they now delve into the underlying knowledge behind errors rather than merely correcting surface-level mistakes. Student 2 mentioned that with the assistance of the AI system, they carefully analyze each error, identify the root causes, and review related grammar points. Student 3 shared that they have expanded their learning methods to include recording, reading, and extending knowledge, along with improved revision practices. Student 4 reported a shift from indifference to active attention toward writing errors. Four students, through AI-based blended learning, have become more proactive and engaged in deeply processing their errors. By analyzing the mistakes made in their writing, they further consolidate and expand their knowledge.

In response to the third question, Student 1 stated that their emotional response to writing errors shifted from annoyance and rejection to active acceptance. Student 2 mentioned that they now approach errors with curiosity and anticipation, wondering where and why errors occur. Student 3 described a transition from fearing errors to worrying about them and finally to accepting and understanding them. Student 4 noted increased attention to familiar errors and a tendency to reflect on the causes of new errors. Through AI-based blended learning, the students' attitude towards mistakes in writing has shifted from rejection to active acceptance.

5.3 Overall Evaluation

The experimental results demonstrate that the AI-based blended teaching model effectively improves students' English writing proficiency and positively influences their attitudes toward writing errors, including their understanding, handling, and emotional responses to errors. This model also helps students develop a positive attitude, increase their confidence, and foster critical thinking.

6. Conclusion

Through this teaching experiment, the author concludes that the AI-based blended teaching model effectively enhances students' English writing proficiency and improves their attitudes toward writing errors. This model holds significant implications for promoting reforms in college English teaching. However, this study has limitations. First, the experimental period is relatively short. A longer experimental period is needed to verify the long-term effects of this teaching model on students. Second, the study's participants are limited to 30 second-year non-English major students. Further research with a larger and more diverse student population is necessary to determine the broader applicability of this model. Therefore, more comprehensive and long-term studies are required to explore the effects of this teaching model.

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