

Application of the AIAS (Artificial Intelligence-Based Essay) Model in College English Classrooms:

-- An experimental study to improve college students' writing skills

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Abstract: Against the backdrop of the deep integration of artificial intelligence into education, this study explores the application effects of the AIAS (Attention-Interaction-Assessment-Support) model in college English writing and translation teaching. Through qualitative research methods including classroom observation, text analysis, interviews, and teaching logs, this study found that the AIAS model significantly improves students' learning behavior, language output ability, and learning experience. In terms of learning behavior, students are more focused, actively participate in classroom interactions, and enhance their self-monitoring and strategic learning abilities. Regarding writing ability, text structure is clearer, language expression is more accurate and richer, and students are able to conduct multi-level self-revision. In terms of translation ability, students can use vocabulary and sentence structures appropriately, improve the naturalness and cultural adaptability of translations, and develop a preliminary awareness of translation strategies. Meanwhile, students generally believe that the immediate feedback and personalized support provided by the AIAS model effectively alleviate writing and translation anxiety, and improve learning confidence and autonomy. The research shows that the AIAS model, through the synergistic effect of attention, interaction, assessment, and support mechanisms, provides an operable and replicable teaching paradigm for English writing and translation teaching, and has practical reference value for the digital transformation of college English education.

Keywords: AIAS Model, English Writing, Translation Skills.

1. Introduction

In an era where artificial intelligence is deeply integrated into education, English teaching, particularly the cultivation of writing and translation skills, is facing new challenges and opportunities. Many university students struggle with vocabulary gaps, inadequate paragraph organization, and unclear logical expression in English writing; in translation learning, they often fail to improve due to a lack of strategic guidance and feedback mechanisms. Traditional classroom models suffer from insufficient student motivation and a lack of personalized support, making it difficult to effectively address these issues. The AIAS (Attention-Interaction-Assessment-Support) model, an educational model emphasizing "attention mechanisms, interaction mechanisms, evaluation mechanisms, and support mechanisms," provides new teaching approaches for content generation, intelligent feedback, and learning path optimization.

This study aims to explore how the AIAS model, based on artificial intelligence, can play a role in English writing and translation teaching, in order to construct a more interactive, strategic, and phased feedback-oriented teaching method. The significance of this research lies in: theoretically, it helps to deepen the integration of AI-assisted teaching and learning behavior models; methodologically, it provides new teaching processes and structured solutions for English writing and translation teaching; practically, it can provide an operable teaching paradigm for the digital transformation of higher education English education. Overall, this study aims to find sustainable, intervention-friendly, and replicable teaching pathways to improve college students' writing and translation skills.[1]

2. Concepts and Theoretical Basis

2.1. Concepts

Attention: Guides students to clarify learning objectives, stimulates learning motivation, and enables students to maintain focus when facing writing or translation tasks. This concept emphasizes improving student engagement through intelligent reminders, task demonstrations, and example guidance in instructional design.

Interaction: Emphasizes multi-dimensional interactions between learners and teachers, learners and the intelligent system, and among learners themselves. AI technology can provide immediate language suggestions, text reconstruction prompts, and reference texts to achieve targeted interaction.

Assessment: Emphasizes formative assessment, highlighting immediate feedback, segment-by-segment evaluation, and process tracking. The intelligent system provides feedback on language standardization, structural logic, and other dimensions to help students gradually improve.

Support: Provides personalized assistance based on student learning performance and comprehension difficulties, such as vocabulary databases, translation strategy libraries, writing templates, and dynamic prompts.

English Writing Ability: English writing ability is a core component of comprehensive language application ability, involving multiple dimensions such as language knowledge, thinking strategies, and text construction. It is a highly complex language output ability. From a linguistic perspective, writing ability encompasses not only linguistic precision-the accurate use of vocabulary, grammar, and syntax-but also linguistic diversity and appropriateness. It

requires selecting suitable expressions based on context to effectively convey pragmatic meaning.[2]

Translation ability: English translation ability is a comprehensive language application skill involving cross-linguistic and cross-cultural information comprehension and re-expression. Its core includes not only language conversion ability-the accurate conversion of vocabulary, syntax, and grammatical structures between the source and target languages-but also the translator's ability to flexibly choose appropriate expressions based on context, ensuring naturalness and readability. Furthermore, translation ability includes semantic comprehension; translators need to deeply understand the literal meaning, discourse logic, and implicit information of the source text to accurately convey the original meaning in the target language.[3]

The AIAS model has a natural fit with students' language output (writing and translation). Its attention mechanism helps learners focus on key language points and output strategies, ensuring concentration during tasks. The interaction mechanism provides students with opportunities to demonstrate, compare, and rewrite language expressions, enabling learners to continuously optimize their expression in practice. The evaluation mechanism provides immediate feedback, allowing students to identify problems and make timely corrections, thereby enhancing self-monitoring and the application of learning strategies. The support mechanism reduces obstacles in the writing and translation process by providing personalized resources and guidance, improving task completion and output quality. Overall, the AIAS model effectively promotes the improvement of students' writing and translation abilities through the synergistic effect of these four mechanisms.

2.2. Theoretical Basis of the Research

The theoretical framework of this study is primarily based on constructivist learning theory, process writing theory, and cognitive translation studies. These three theories collectively support the application of the AIAS model in English writing and translation teaching. Constructivist learning theory emphasizes that learners are active constructors of knowledge rather than passive recipients. The learning process should be student-centered, emphasizing learners' active exploration, cognitive interaction, and experience integration. In the AIAS model, the interaction and evaluation mechanisms embody the core concepts of constructivism. Through multidimensional communication between students and teachers, peers, and intelligent systems, learners can construct language knowledge and expression strategies in real or simulated tasks, while internalizing language skills through continuous feedback and revision. Process writing theory emphasizes that writing is a gradual and dynamic process, including pre-writing, drafting, revising, polishing, and finalization. Improvement in writing ability depends on strategic training and reflection at each stage. The evaluation-support mechanism in the AIAS model aligns closely with process writing theory. Through immediate feedback, error prompts, and personalized support, it guides students to focus on linguistic accuracy, textual logic, and coherence in their writing, thereby fostering strategic awareness and optimizing output quality in writing practice. Cognitive translation studies, focusing on the cognitive processes in translation, posits that translation is a complex cognitive activity requiring learners to understand the source text, select translation strategies, process language forms, and

reconstruct the target text. The AIAS model provides cognitive load decomposition, phased strategy prompts, and intelligent assistance in this process, helping students conduct effective language analysis and information integration in translation tasks, while cultivating their ability for self-correction and strategy application. In summary, these three theories provide solid theoretical support for the instructional design of the AIAS model, enabling it to organically combine student attention focus, language interaction, strategic feedback, and personalized support in English writing and translation teaching, thereby promoting a systematic improvement in language output ability.

3. Research Design

3.1. Research Subjects

This study selects the writing and translation teaching module of the English course at Jining Normal University as the research context, aiming to observe students' language output behavior and learning performance before and after the intervention of the AIAS model in a real teaching environment. The research subjects are undergraduate students participating in the course, covering different grades and majors to ensure sample diversity and representativeness of the research results. In terms of teaching context setting, the study revolves around two core tasks: writing and translation, including argumentative writing, practical writing, and Chinese-English translation exercises, with task difficulty appropriate to students' language proficiency. The study is conducted simultaneously in classroom teaching, homework assignments, and self-study sessions, focusing on students' attention distribution, interactive participation, strategy application, and task completion under the intervention of the AIAS model, providing rich observational materials and practical evidence for subsequent analysis of the model's application effects. This context setting not only reflects the real state of students' language output but also helps to reveal the specific impact of the AIAS model on learning behavior and strategy use in different teaching stages.

3.2. Research Methods

This study employs various qualitative research methods to comprehensively observe and analyze the application effects of the AIAS model in English writing and translation teaching. First, classroom observation was used to record students' classroom participation, writing and translation revision behaviors, and teacher-student or peer interactions under the guidance of the AIAS model. Through behavioral observation in natural settings, changes in student learning behavior and strategy application were captured. Second, text analysis compared students' draft writing with their revised translations, analyzing language revision patterns, text structure adjustments, and the application of translation strategies to reveal the impact of the AIAS model on language output quality. Third, semi-structured interviews were used to understand students' learning experiences, perceived abilities, and cognitive changes in task completion strategies before and after model intervention, providing firsthand data for qualitative analysis. Finally, teaching logs were used by teachers to record observations, problems, and reflections during classroom implementation, summarizing the actual effectiveness of teaching steps and providing systematic and traceable data support for the research. The combined use of multiple methods ensures that the research not only focuses

on student behavior but also reveals the internal mechanisms of learning experiences and strategy application.

3.3. Teaching Implementation Process

The teaching implementation process is designed to closely correspond to the four mechanisms of the AIAS model, ensuring the systematic application of the model and improving students' language output abilities. First, in the initial introduction phase, the attention mechanism guides students to clarify learning objectives, task priorities, and output strategies, stimulating learning motivation and focusing on language points. Then, in the task implementation phase, the interactive mechanism provides students with multi-dimensional opportunities for communication and demonstration, including peer review, real-time teacher guidance, and intelligent system prompts, enabling students to actively generate language output in practice. Next, in the revision and improvement phase, the evaluation mechanism provides formative feedback on the written and translated texts, allowing students to identify problems, self-correct, and develop strategic awareness. Finally, in the consolidation and extension phase, the support mechanism provides personalized resources and guidance, such as vocabulary prompts, translation strategy references, and writing templates, helping students overcome language output barriers and achieve high-quality task completion. The entire process emphasizes process-oriented learning and strategic training, forming a complete closed loop between classroom and after-school teaching using the AIAS model.

3.4. Data Processing and Analysis Methods

This study primarily employed thematic analysis to process and analyze data. Classroom observation records, interview texts, text revision processes, and teaching logs were coded and categorized to identify students' behavioral patterns, strategy usage, and ability changes in writing and translation. Through systematic analysis, the specific roles of the AIAS model in teaching practice-focusing attention, interactive participation, evaluation feedback, and personalized support-were summarized. The model's promotional effects on students' language output in different teaching stages were also extracted. Furthermore, a cross-sectional comparison of student feedback and teacher observations was conducted to analyze the model's overall impact on learning experience, task completion, and strategic learning, providing sufficient qualitative evidence for the research findings analysis in Chapter Four.[4]

4. Research Results and Analysis

(1) Changes in Learning Behavior

Classroom observations and interviews revealed significant changes in students' learning behavior under the intervention of the AIAS model. Students generally showed greater concentration, actively focusing on language points, sentence structures, and text logic, rather than being distracted by the complexity of the task. Many students indicated that during interactions with the AI system or discussions with peers, they were more willing to proactively ask questions, try different expressions, and reflect on their language use during communication. This interaction not only enhanced their learning motivation but also cultivated self-monitoring awareness. Students began to consciously check the accuracy, coherence, and suitability of their expressions in writing and translation tasks. Observations revealed significant

improvements in students' classroom participation and independent exploration behavior.[5] In addition to teacher guidance and system feedback, they were able to independently find resources, revise drafts, and try various language expression strategies, indicating that the AIAS model effectively stimulated students' learning initiative and inquiry.

(2) Improvement in Writing Performance

In writing tasks, students' text organization and language expression were significantly improved. Students generally reported that, guided by the AIAS model, they were able to plan the article structure more clearly, the paragraph logic was more reasonable, and the central idea was expressed more clearly. Analysis of the drafts showed that students not only focused on the accuracy of language but also made multiple self-revisions in content development, argumentation order, and paragraph connection, demonstrating a gradual formation of writing strategy awareness. [6]For example, some students first outlined their work during the drafting stage, then wrote in sections according to prompts, adjusting sentence structure or word choice through AI feedback during revisions. This process-oriented operation enabled them to gradually learn to simultaneously consider language, structure, and logic in their writing. Students generally stated that previously, writing was prone to "stagnation" or "being unable to continue," but now, with the step-by-step guidance and feedback provided by the model, they can complete writing tasks more smoothly and gain a sense of accomplishment and confidence with each revision, making their writing experience more proactive.

(3) Changes in Translation Performance

In translation tasks, students' strategy application and text comprehension abilities also significantly improved. Observations and interviews showed that they were able to use vocabulary more reasonably, adjust sentence structure to make the translation more natural and readable, and actively pay attention to semantic coherence and cultural adaptability. Students generally reported that they previously struggled to understand longer or more complex sentences.[7] However, guided by the AIAS model and aided by strategies for semantic segmentation and overall discourse comprehension, they were able to process source text information step-by-step and gradually complete the translation. Some students also indicated that interacting with peers or the system allowed them to discover differences in various expressions, enabling them to compare and select the best translation. This process enhanced their self-reflection abilities and strategic decision-making awareness. Overall, students demonstrated greater autonomy and creativity in translation practice, moving beyond simply mechanically referring to dictionaries to making comprehensive judgments and expressing themselves flexibly based on context and cultural factors.

(4) Learning Experience Analysis Interviews and teaching logs revealed that students had a very positive overall learning experience with the AIAS model. They generally felt that the model helped them quickly get into task mode, clarify task priorities, and reduce anxiety caused by task complexity. Students indicated that, supported by the interaction and evaluation mechanisms, they could promptly identify problems and receive improvement suggestions, giving them a greater sense of direction and control in the writing and translation process. The personalized prompts and resources provided by the support mechanisms, such as model essays, vocabulary suggestions, and translation strategy guidance, prevented students from feeling lost when encountering

difficulties, enabling them to complete tasks independently using strategies and tools. Many students reported that this experience not only improved learning efficiency but also enhanced self-efficacy and confidence in language output, leading to more proactive exploration, innovative attempts, and self-reflection during the learning process. Overall, the AIAS model, through the synergistic effect of its four mechanisms, significantly improved students' behavior, abilities, and psychological experience, providing a feasible and specific operational reference for the teaching practice of English writing and translation.

5. Conclusion

This study explored the pathway for cultivating language output ability supported by artificial intelligence by applying the AIAS model in college English writing and translation teaching. The results show that the AIAS model can effectively improve students' learning behavior, enhance writing and translation performance, and improve the learning experience, providing new theoretical and practical references for college English teaching. First, from the perspective of student learning behavior, the model, through four mechanisms-attention, interaction, evaluation, and support-enables students to maintain high concentration during tasks, actively participate in classroom activities, and enhance self-monitoring awareness and strategic learning abilities. Students are not only able to promptly identify and correct their own language problems, but also continuously optimize their expression through interaction with peers and the intelligent system. This indicates that the AIAS model has a significant effect on stimulating learning initiative and promoting autonomous exploration.

Second, regarding the improvement of writing ability, the study found that students' text organization, paragraph logic, language accuracy, and sentence diversity all showed significant improvement. Through phased writing tasks and immediate feedback, students were able to effectively self-revise their content development, argumentation order, and language expression, gradually forming strategic awareness and process-oriented thinking. The AIAS model's step-by-step guidance, example-based instruction, and personalized support help students overcome the stagnation and anxiety they previously experienced in writing, making the writing process smoother and more efficient, while also enhancing their sense of accomplishment and confidence. The AIAS model also demonstrates positive effects in developing translation skills. Students are able to use vocabulary more appropriately, adjust sentence structure, improve the naturalness and readability of their translations, and proactively focus on semantic coherence and cultural fit. Through features such as semantic group segmentation, overall discourse comprehension, and strategy prompts,

students develop an initial strategic awareness during the translation process and are able to make independent corrections and optimize their texts. Interviews show that students are gradually moving away from mechanically referring to dictionaries and are able to flexibly judge and express themselves based on context and cultural factors, improving their language analysis skills and cognitive processing levels.

Finally, from a learning experience perspective, the AIAS model provides students with a more positive and controllable learning environment. Students generally feel that the model's guidance on task status, timely directional feedback, and personalized support resources significantly alleviate anxiety in writing and translation, enhancing their confidence and efficiency in self-directed learning. Through the synergistic effect of the model, students not only improve in behavior and ability, but also show positive changes in psychological experience, strategy application, and learning initiative. In conclusion, the AIAS model, as an artificial intelligence-enabled teaching tool, can organically combine theory and practice in college English writing and translation teaching, promote the systematic improvement of students' language output ability, and provide a sustainable and replicable practical paradigm for the digital transformation and teaching model innovation of higher education English education.

References

- [1] Feng Yali, Zhang Xiaohui. (2024). Strategies for improving college students' English writing ability based on POA theory. *English Square* (9).
- [2] Li Jia. (2023). Collaborative evaluation between teachers and students based on intelligent peer evaluation system and improvement of college students' English writing ability. *University* (4).
- [3] Li Yuxian. (2022). Cultivation of college students' English writing ability based on OBE concept. *Western Quality Education* (3).
- [4] Yin Xiaoji, Li Yujie, Li Ying. (2024). An empirical study on the impact of chunk learning on college students' English writing ability under the background of big data. *Overseas English* (5).
- [5] Zhang Yizhe. (2025). Exploration of strategies for improving college students' English writing ability driven by English translation. *Overseas English* (7).
- [6] Putra, A. S., Rohim, A., & Zanzali, N. A. A. (2025). Exploring peer review as a pedagogical tool to enhance paragraph-writing skills in university students. *JEES (Journal of English Educators Society)*, 10(2), 198-205.
- [7] Hongxia, H., & Razali, A. B. (2025). Impact of ChatGPT on English academic writing ability and engagement of Chinese EFL undergraduates. *International Journal of Instruction*, 18(2), 323-346.