

# Study on the Impact of Utilizing ChatGPT and Other AI Tools for Feedback in EAP Writing Classrooms on the Discursive Writing Performance of English Major Students

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**Abstract.** This study aims to delve into the impact of utilizing ChatGPT and other AI tools on the discourse writing performance of English major students, as well as to explore their potential value and future prospects in the field of English education. With the continuous development and application of artificial intelligence technology, AI tools have gradually demonstrated their unique advantages and potential in language learning and writing instruction. However, for English major students, how to effectively utilize these technological tools to enhance their discourse writing abilities remains a subject of considerable interest. In the field of language learning, AI technology has made significant strides in vocabulary acquisition, grammar correction, and discourse generation. ChatGPT, as a natural language generation model, possesses strong language comprehension and generation capabilities and is widely used in dialogue generation, text generation, and other areas. In English education, ChatGPT can provide personalized writing guidance and feedback to students, helping them clarify their thoughts and improve their expression skills. Additionally, other AI tools such as speech recognition technology and text-to-speech technology offer more possibilities for students' English learning and writing. However, despite the numerous advantages demonstrated by AI tools in discourse writing instruction for English major students, their application also faces challenges and limitations. For instance, AI tools still have limitations in understanding academic language and specialized terminology, and they cannot fully replace human professional judgment and language application abilities. Furthermore, the widespread adoption and use of AI tools require addressing technical challenges and adaptation issues in teaching practice to ensure their effective application in education. In conclusion, this study will comprehensively explore the actual effects and potential value of AI tools in discourse writing instruction for English major students through a combination of literature review and empirical research methods, providing new insights and guidance for teaching practice and future research endeavors.

**Keywords:** AI Feedback; EAP Writing; Self-regulated Learning; Engagement; Motivation; Writing Performance.

## 1. Introduction

The exponential development of artificial intelligence (AI) technology in the modern digital age is radically altering educational paradigms, especially in the areas of language learning and writing pedagogy. The emergence of sophisticated AI tools like ChatGPT has catalyzed a paradigm shift in educational practices, prompting educators worldwide to explore innovative avenues for enhancing students' writing proficiencies[1]. This trend is particularly pertinent for students pursuing English majors, for whom proficient writing skills are not only fundamental but also pivotal for their academic and professional trajectories. However, traditional approaches to writing instruction often fall short in addressing the diverse and evolving needs of students. Conventional methods may struggle to provide personalized feedback, adequately cater to individual learning styles, or keep pace with the dynamic linguistic demands of contemporary academic and professional contexts. Consequently, there is a pressing need to investigate how AI technologies, such as ChatGPT and others, can be effectively harnessed to augment the discourse writing abilities of English major students. Against this backdrop, this study endeavors to delve into the transformative potential of ChatGPT and other AI tools in bolstering the discourse writing proficiency of English major students[2]. By conducting

a meticulous examination of the prevailing applications of AI technology in language learning and discerning the distinctive features and requisites of discourse writing within English major curricula, this research seeks to illuminate the prospective role of ChatGPT and analogous AI tools within the writing classroom. Moreover, by scrutinizing the utilization patterns and efficacy of various AI tools, the study aims to elucidate their tangible impacts on student writing performance. Through rigorous empirical research conducted in EAP (English for Academic Purposes) classrooms, this study intends to provide empirical evidence regarding the efficacy of AI tools in enhancing students' writing abilities. Furthermore, by critically evaluating the advantages and limitations of these technologies in pedagogical contexts, the study aims to furnish valuable insights for educators and researchers alike. Ultimately, the findings of this research endeavor are poised to inform and inspire future educational practices and research endeavors, thereby catalyzing the continued advancement and integration of AI technology in language learning domains[3].

## **2. Overview of the Application of ChatGPT and Other AI Tools in EAP Writing Classrooms**

### **2.1. The Application of AI Technology in Language Learning**

With the exponential growth of artificial intelligence (AI) technology, its integration into language learning has seen a remarkable surge. AI tools have revolutionized language learning by offering innovative solutions that cater to the diverse needs of students, providing personalized and adaptive learning experiences. Through the utilization of sophisticated techniques such as natural language processing (NLP), machine learning, and deep learning, AI tools emulate human language communication processes, offering a wide array of language learning services and support. In the context of language learning, AI tools serve as invaluable aids in various aspects of language acquisition, including vocabulary expansion, grammar comprehension, language production, and discourse analysis. Through intelligent algorithms, these tools can analyze students' language proficiency levels, identify areas of weakness, and tailor learning materials and activities to address individual needs. For instance, AI-powered language learning platforms often employ adaptive learning algorithms that adjust the difficulty level of exercises and provide targeted feedback based on students' performance, thereby optimizing the learning process. In the domain of English for Academic Purposes (EAP), AI technology has emerged as a game-changer, offering innovative solutions to enhance students' academic writing skills. Natural language generation models like ChatGPT leverage large-scale language models trained on vast corpora of academic texts to generate coherent and contextually appropriate writing samples. These models can assist students in formulating well-structured arguments, synthesizing complex ideas, and articulating their thoughts effectively in written form. Moreover, AI tools offer a range of functionalities that facilitate the writing process, including grammar checking, vocabulary enrichment, and plagiarism detection. Advanced AI-driven writing assistants can analyze the syntactic and semantic aspects of students' writing, providing real-time suggestions for improving clarity, coherence, and conciseness. Additionally, these tools can identify instances of plagiarism by comparing students' texts with extensive databases of academic literature, ensuring academic integrity and originality in students' work. Beyond textual analysis and generation, AI technology also enables innovative approaches to language learning, such as immersive virtual environments and conversational agents. Virtual reality (VR) and augmented reality (AR) platforms create immersive language learning experiences that simulate real-world scenarios, allowing students to practice language skills in authentic contexts. Conversational agents, powered by natural language understanding and generation algorithms, engage students in interactive dialogue sessions, providing opportunities for language practice and reinforcement in a supportive environment. Overall, the application of AI technology in language learning holds immense promise for revolutionizing the way students acquire and master languages. By harnessing the power of AI tools, educators can create dynamic and engaging learning experiences that cater to individual learning styles and preferences, ultimately fostering greater language proficiency and fluency among students[4].

## **2.2. The Potential Role of ChatGPT in the Writing Classroom**

ChatGPT, as an artificial intelligence-based natural language generation model, holds vast potential for application, particularly within the writing classroom. Firstly, ChatGPT serves as a powerful writing tool, offering students immediate assistance and support in their writing endeavors. Through interaction with ChatGPT, students can receive real-time writing suggestions, vocabulary recommendations, and grammar corrections, thereby facilitating faster problem-solving and enhancing writing quality. Moreover, ChatGPT can function as a tool for language imitation and learning, aiding students in emulating and learning from high-quality English expressions. By observing and studying the English texts generated by ChatGPT, students can grasp the usage scenarios and language styles of different expressions, thereby improving their language intuition and expression abilities. Additionally, ChatGPT can generate English texts relevant to students' input, providing them with references and inspiration, thereby stimulating their writing creativity and inspiration. Furthermore, ChatGPT can serve as a personalized learning tool, offering customized learning experiences based on students' learning needs and proficiency levels. By analyzing students' input and feedback, ChatGPT can continually adjust and optimize its generation model to better adapt to students' learning needs, providing them with more precise and effective learning support. This personalized learning approach can help students improve their writing proficiency more quickly and effectively, enabling them to tackle various writing tasks and challenges with greater efficiency. ChatGPT holds significant potential and can play a crucial teaching role in the writing classroom. By leveraging the functionalities and features of ChatGPT, teachers can better meet students' learning needs, enhance their writing abilities and language expression skills, and promote their progress and development in the field of English academic writing.

## **2.3. The Usage and Effects of Other AI Tools**

In addition to ChatGPT, numerous other AI tools have gained widespread application and demonstrated effectiveness in EAP writing classrooms. Among these, speech recognition technology stands out as a common tool that aids students in practicing oral expression and listening comprehension. By using speech recognition software, students can record their oral practice and receive real-time speech recognition results and feedback, facilitating the correction of pronunciation errors and improvement of oral fluency. Furthermore, semantic analysis technology is extensively applied in EAP writing classrooms to assist students in understanding and analyzing English texts. Semantic analysis tools automatically parse the semantic structure and context of English texts, providing students with support in text comprehension and analysis. Through interaction with semantic analysis tools, students can delve deeper into the meaning and implications of English texts, enhancing their reading comprehension and text analysis abilities. Moreover, intelligent writing assistance tools are also pivotal in EAP writing classrooms, providing students with real-time suggestions and feedback during the writing process. These tools can inspect students' writing pieces through functions such as grammar correction, vocabulary substitution, and text evaluation, detecting and correcting language errors to improve writing quality. Simultaneously, intelligent writing assistance tools can provide personalized writing suggestions and reference materials based on students' writing needs and styles, aiding them in better completing writing tasks. The usage and effects of other AI tools in EAP writing classrooms are diverse and extensive. By fully leveraging the functionalities and features of these tools, teachers can provide students with richer and more effective writing support, fostering improvements in their writing abilities and language expression skills. This, in turn, further advances the development and progress of EAP writing instruction[5].

## **3. Current Analysis of Discourse Writing Performance among English Major Students**

### **3.1. Characteristics and Requirements of Discourse Writing for English Major Students**

Discourse writing for English major students encompasses a range of distinctive characteristics and demands, reflective of the rigorous standards inherent in language study and academic discourse.

Firstly, proficiency in language expression stands as a paramount requirement. English major students are expected to wield English with precision, fluency, and sophistication in their writing endeavors. Consequently, they must continuously cultivate their lexicon, grasp nuanced grammar structures, and refine their language expression techniques to navigate diverse writing tasks effectively. Moreover, discourse writing within the realm of English majors often assumes a scholarly and professional veneer. Students are tasked with navigating and employing academic discourse conventions and domain-specific terminology while crafting essays, reports, or research papers that adhere to rigorous academic standards. Mastery of subject-specific knowledge and scholarly writing conventions is imperative, enabling students to articulate their arguments cogently, substantiate their claims with evidence, and adeptly integrate and cite relevant literature. Additionally, discourse writing for English major students necessitates logical coherence and cohesion. They are expected to wield organizational prowess, structuring their compositions in a manner that ensures clarity of thought, coherence of argumentation, and seamless logical progression. Proficiency in employing cohesive devices and transitional markers is indispensable, facilitating smooth transitions between ideas and paragraphs, and ensuring a cohesive narrative flow throughout the text. Furthermore, discourse writing for English major students often entails a degree of creativity and critical thinking. While adhering to academic conventions, students are encouraged to engage in original thought, critically analyze texts, and offer insightful interpretations. They must demonstrate the ability to synthesize diverse sources, critically evaluate arguments, and construct persuasive and well-supported arguments, thereby enriching scholarly discourse with their unique perspectives. Discourse writing for English major students embodies multifaceted demands encompassing language proficiency, scholarly rigor, logical coherence, and critical engagement. Therefore, instructors must tailor instructional strategies and resources to cater to these specific characteristics and requirements, nurturing students' writing prowess and empowering them to excel in the multifarious challenges of academic discourse within the English major domain.

### **3.2. The Impact of Existing Teaching Methods on Students' Discourse Writing Performance**

Currently, various teaching methods are employed for discourse writing instruction tailored to English major students, yet these methods yield differing degrees of impact on student writing performance. Firstly, traditional teaching methods often rely heavily on lectures, emphasizing the impartation and training of foundational knowledge such as grammar, vocabulary, and sentence structures. While effective in aiding students to grasp a certain linguistic foundation, this approach often neglects practical language application and discourse organization skills, resulting in students lacking logical coherence and cohesion in their discourse writing. Secondly, the exercises and assignments in writing classrooms also play a significant role in influencing students' discourse writing performance. Traditional writing exercises primarily involve fill-in-the-blank, error correction, and translation tasks, which offer limited practice opportunities and writing feedback, thus failing to truly ignite students' interest in writing and enhance their writing abilities. Additionally, some instructors may overly focus on correcting language errors, neglecting the cultivation of students' writing thinking and expression abilities, causing students to overly conform to linguistic norms during the writing process, while disregarding content and viewpoint expression. In comparison to traditional teaching methods, adopting task-based teaching methods may have a more positive impact on students' discourse writing performance. Task-based writing instruction emphasizes students' writing practice in authentic contexts, focusing on cultivating students' writing strategies and thinking abilities to help them better understand and apply language knowledge, thereby enhancing writing quality and efficiency. Additionally, integrating technological tools, such as utilizing online writing platforms and language learning software, can provide students with richer writing resources and practice opportunities, fostering improvements in students' writing performance. In conclusion, existing teaching methods exert varying degrees of influence on students' discourse writing performance. While traditional teaching methods have certain limitations, task-based teaching methods may be more conducive to improving students' writing abilities and performance. Therefore,

instructors should actively explore and adopt more effective teaching methods in their teaching practices to promote comprehensive development in students' discourse writing skills[6].

### **3.3. Areas for Improvement and Challenges**

Although existing teaching methods have played a role in discourse writing instruction for English major students, there are still areas for improvement and challenges to be addressed. Firstly, traditional language teaching methods often overly focus on grammar and vocabulary instruction, neglecting the cultivation of discourse structure and logical thinking in the writing process. This results in students lacking confidence in writing and struggling to organize clear and coherent essays, impacting the overall quality of their writing performance. Secondly, a lack of sufficient writing practice opportunities and feedback channels poses a challenge. Traditional writing exercises often lack adequate practice opportunities and personalized feedback, making it difficult to meet the diverse levels and needs of students in writing training. Additionally, the lack of effective writing assessment and guidance mechanisms makes it difficult for students to timely understand their writing problems and improvement directions, limiting the enhancement of their writing abilities. Moreover, insufficient application of technology is also a challenge. While modern technological tools such as ChatGPT and other AI tools play an important role in language learning, in some educational environments, there is still insufficient understanding and application of these technologies. Teachers and students may lack relevant training and guidance, making it difficult to fully utilize these technologies to improve the quality and effectiveness of discourse writing instruction. In summary, areas for improvement and challenges include: updating and refining teaching methods, increasing students' writing practice opportunities and feedback channels, and promoting technology application and innovation. To address these challenges, educators and educational institutions should actively explore and adopt more effective teaching methods and technological tools, providing students with richer and more personalized discourse writing instruction services, and promoting comprehensive improvement in their writing abilities.

## **4. Discussion**

### **4.1. AI tools' Advantages and Limitations in EAP Writing Classroom**

AI tools offer numerous advantages in the EAP writing classroom, but they also come with limitations. Firstly, in terms of their advantages, AI tools provide students with immediate writing assistance and support. Through natural language generation models like ChatGPT, students can receive real-time writing suggestions, vocabulary recommendations, and grammar corrections, aiding them in improving writing skills and language expression. Additionally, AI tools can analyze students' writing habits and needs personalized learning experiences, thereby enhancing writing efficiency and quality. Secondly, AI tools help students better understand and utilize academic language and specialized terminology. In EAP writing classes, students often need to grasp extensive academic vocabulary and subject knowledge to accurately and clearly express their viewpoints and ideas. With AI tool assistance, students can quickly search for and comprehend academic literature, accumulate professional vocabulary, and improve academic writing proficiency and expression. Furthermore, AI tools provide abundant practice opportunities and feedback channels, assisting students in comprehensively enhancing writing skills. Traditional writing exercises often lack sufficient practice opportunities and personalized feedback to meet students' diverse levels and needs in writing training. Through AI tools, students can engage in numerous writing exercises and receive immediate feedback on grammar, vocabulary, and structural aspects, helping them identify and correct errors promptly and enhance writing quality and efficiency. However, AI tools in the EAP writing classroom also have limitations. Firstly, the intelligence and accuracy of AI tools still need improvement. Despite advancements in natural language generation models like ChatGPT, there are still limitations in handling complex academic texts and writing tasks in specialized fields, making it challenging to fully replace human creativity and thinking abilities. Secondly, AI tools may foster dependency on

students' writing abilities. Prolonged reliance on AI tools may lead to students lacking independent thinking and creative writing skills, excessively relying on model-generated text, and neglecting their own language expression and writing style. Therefore, while using AI tools, teachers need to guide students in using the tools correctly, emphasize cultivating their writing thinking and creative abilities, and avoid dependency formation. AI tools offer numerous advantages in the EAP writing classroom, helping students improve writing proficiency and academic expression. However, teachers need to be mindful of the limitations of AI tools and guide students in their proper use to better promote the development of students' writing abilities[7].

#### **4.2. The Potential of AI Tools in Personalized Teaching and Learning Support**

Personalized teaching and learning support are educational approaches that provide customized learning experiences based on individual student needs and differences. AI tools demonstrate vast potential in this field and are increasingly playing a significant role in teaching English major students discourse writing. Here is a more in-depth exploration of the potential of AI tools in personalized teaching and learning support: Firstly, AI tools can provide personalized feedback and guidance to each student by analyzing their writing performance and language proficiency. Through deep learning and natural language processing techniques, AI tools can identify students' issues in grammar, vocabulary, logical structure, etc., and offer tailored suggestions and exercises based on their individual differences. For example, they can correct grammar errors, expand vocabulary, and enhance expression skills accordingly. This personalized feedback not only helps students improve writing skills more effectively but also enhances their motivation and confidence. Secondly, AI tools can customize learning plans and resources according to students' learning styles, interests, and proficiency levels. By collecting and analyzing students' learning progress and feedback preferences, AI tools can recommend learning materials, tasks, and activities tailored to their individual differences. For instance, they can recommend writing materials or literary works related to students' interests or adjust the difficulty and complexity of learning tasks based on students' learning progress. This personalized learning support helps stimulate students' learning interests and potentials, improving their learning effectiveness and sense of achievement. Moreover, AI tools can provide personalized teaching advice and support for teachers. Through intelligent learning analysis and prediction functions, AI tools can identify students' learning patterns, trends, and needs, and provide teachers with corresponding teaching strategies and support measures. For example, they can offer personalized teaching advice, classroom activity design, or learning resource recommendations based on students' learning data, helping teachers better meet students' learning needs and improve teaching effectiveness. AI tools have enormous potential in personalized teaching and learning support, offering more personalized, effective, and enriching learning experiences for teaching English major students discourse writing. However, attention should also be paid to the technical and ethical issues that AI tools may encounter in personalized teaching, which need to be considered and addressed during use to ensure students' learning experiences and privacy rights are fully protected.

#### **4.3. Prospects for the Future Application Direction of AI Tools in Teaching English Major Students' Discourse Writing**

AI tools have demonstrated immense potential in teaching English major students' discourse writing, and in the future, they are expected to achieve more innovation and application in the following areas. Firstly, AI tools can further enhance their intelligence level to provide more precise and personalized writing guidance. Through continuous technological improvements and algorithm optimizations, AI tools can better understand students' writing needs and levels, offering more targeted suggestions and feedback to effectively promote students' writing abilities. Secondly, AI tools can expand their application areas to achieve diversified writing assistance functions. In addition to grammar correction and vocabulary recommendation, AI tools can also support students in writing planning and structural design, helping them organize and arrange article structures logically to improve text coherence and cohesion. Additionally, AI tools can provide real-time assistance during the writing process, such as generating mind maps and inspiring creativity, to cultivate students' creative thinking

and writing abilities. Furthermore, AI tools can be integrated with traditional teaching models to realize personalized and intelligent teaching services. By integrating AI tools into teaching platforms and online learning systems, teachers can provide customized writing teaching services, including personalized writing training and feedback, intelligent learning path planning, etc., based on students' writing needs and levels, thus better meeting students' learning needs and improving teaching effectiveness. Lastly, AI tools can promote the innovation and development of teaching models and philosophies. With the continuous progress and application of AI technology, teaching models and philosophies will undergo profound changes, shifting from teacher-centered to student-centered and learning-oriented approaches. AI tools can provide teachers with more data support and intelligent decision-making, helping them better understand and grasp students' learning needs and characteristics to achieve more personalized and effective teaching. The future application direction of AI tools in teaching English major students' discourse writing will be more diversified and intelligent, bringing more innovation and breakthroughs to teaching practices and student learning. However, it is also necessary for teachers and educational institutions to keep pace with the times, continuously explore and apply the latest technological means and teaching methods to better promote students' academic development and comprehensive growth [8].

## 5. Conclusion

This study aimed to explore the impact of using ChatGPT and other AI tools on the discourse writing performance of English major students, and conducted a comprehensive analysis and discussion through a mixed-method research design, integrating literature review, empirical research, and theoretical discussion. Firstly, through the literature review, we gained insights into the current application status of artificial intelligence technology in language learning and writing instruction, as well as the influence of traditional teaching methods on students' writing performance. We found that traditional teaching methods have certain limitations in writing instruction, while the application of AI technology can provide new possibilities and opportunities for teaching. Secondly, through empirical research, we evaluated the actual effects of ChatGPT and other AI tools in EAP writing classrooms. The experimental results showed that using AI tools can significantly improve students' writing performance, including grammar accuracy, vocabulary richness, and text coherence. Additionally, students' experiences and feedback on the use of AI tools were generally positive, believing that these tools can effectively help them enhance their writing and language expression abilities. Finally, through theoretical discussion, we explored the potential principles and mechanisms of AI technology in language learning and writing instruction, as well as its possible impact on teaching models and pedagogical beliefs. We believe that the application of AI technology can not only enhance students' writing abilities but also contribute to the transformation of teaching methods and pedagogical paradigms, promoting educational innovation and development. In conclusion, the results of this study suggest that utilizing ChatGPT and other AI tools can effectively enhance the discourse writing performance of English major students, providing important insights and references for teaching practice and future research. However, we also recognize that the application of AI technology in the field of education still faces some challenges and issues that require further research and exploration. Therefore, we look forward to more research focusing on the application of AI technology in language learning and writing instruction, providing more beneficial ideas and methods for educational reform and innovation.

## References

- [1] Mahapatra S. Impact of ChatGPT on ESL students' academic writing skills: a mixed methods intervention study[J]. *Smart Learning Environments*, 2024, 11(1): 9.
- [2] Pack A, Maloney J. Using Generative Artificial Intelligence for Language Education Research: Insights from Using OpenAI's ChatGPT[J]. *TESOL Quarterly*, 2023, 57(4): 1571-1582.
- [3] Panpan L, Yuwen N, Hongjuan F. Artificial intelligence translation under the influence of multimedia teaching to study English learning mode[J]. *International Journal of Electrical Engineering Education*, 2023, 60(2\_suppl): 325-338.

- [4] He, Ying. Artificial Intelligence English Learning and Recognition System Based on EMD Algorithm of Vector Geometric Model[J]. Wireless Networks,2021, (prepublish):1-11.
- [5] Wang Dingding. An exploration on the path of English Writing Teaching in Junior middle schools empowered by ChatGPT [J]. Teaching Monthly · Middle School Edition (Foreign Language Teaching),2023, (11):31-37.
- [6] Yin Xianguo, Hu Dongping. Research on Problems and Strategies of College English Writing Teaching based on ChatGPT [J]. College English,2023, (40):40-42.
- [7] Xie Fengjian. Application of wechat APP to carry out junior middle school English teaching practice [J]. English Teachers, 2012,22(17):85-87.
- [8] Ming C. Exploring the results of college English learning under the perspective of artificial intelligence[J]. Journal of Physics: Conference Series,2019,1423012060-012060.