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Construction of Interactive Teaching Mode of Academic English from the Perspective of AIGC

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Abstract

English for General Academic Purpose (EGAP) is one of the important ways to cultivate high-quality innovative talents by cultivating students' ability to use English for work and scientific research. At present, the teaching practice in the era of artificial intelligence has undergone a qualitative change, and human-computer collaborative teaching is an inevitable trend of the integration of technology and education. Therefore, with the goal of cultivating students' academic literacy and academic ability, this study constructs a teaching model of "one- core, three- orders and seven- synergies". Based on the project-based learning (PBL) method and the integration of the wisdom of the three main bodies of human teachers, computers and students, so as to extend the time and space of academic English teaching and learning infinitely, in order to provide theoretical and practical guidance for human-computer collaborative teaching, so as to improve the quality of education and teaching.

Keywords

EGAP, artificial intelligence, collaborative teaching.

1. Introduction

The response of the foreign language teaching to new AI advances has been swift and positive. However, the research on the use of generative AI to empower the teaching of EAP courses is relatively rare, the research is not in-depth, and there is no unified policy guidance. The path of AI-enabled interactive EAP teaching is not clear enough, and the empirical research is relatively insufficient. Based on the connotation of human-computer collaborative teaching and the role positioning of human teachers and intelligent machines, this study aims to cultivate students' academic literacy and academic ability, and constructs a human-computer collaborative teaching model for academic English courses in the era of artificial intelligence.

2. Literature Review

Relatively speaking, the theoretical and practical discussions on generative AI have been carried out earlier in the field of language education at home and abroad, mainly focusing on three aspects:

(1) Macro-thinking and interpretation of the opportunities, challenges and countermeasures faced by foreign language education under artificial intelligence (Guo Qian, Feng Ruiling, Hua Yuanfang 2023; Zhou Jing, Xiang Zhang Yujie, Liu Kanglong2023; Zhang Zhenyu, Hong Huaqing 2023, Hu Jiasheng & Qi Yajuan 2023). At present, the focus of scholars' research has shifted from "whether AI should be used" to "how to use AI effectively". Sun Youzhong and Tang Jinlan (2022) proposed the concept of "four-new" and the "four-wheel" drive model to explore the construction path of foreign language teachers in Chinese universities in the era of artificial intelligence. Wen Qiufang and Liang Maocheng (2024) focus on cultivating students' human-computer interaction and negotiation ability to improve the efficiency of AI application.

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(2) Meso-focus on the mode and effect of generative artificial intelligence empowering foreign language teaching. The research mainly focuses on the use of AI tools such as ChatGPT to explore teaching practices such as writing, reading, speaking, and translation, and to construct new teaching models, such as: second language reading in the ChatGPT environment (Cai Wei 2023), oral language teaching (Wu Jianhao, Zhou Wanting, Cao Chao 2024), college English writing teaching (Wei Shuang, Li Luyao 2023; Chen Mo, Lü Mingchen 2024). Researchers agree that the interactive environment created by generative AI technology can help learners get more authentic interactions, which in turn improves language skills, which provides a new way for English language teaching.

(3) To explore the path and method of generative AI-assisted academic English writing teaching practice at the micro level. Applying AI writing tools can improve self-efficacy, engagement, and emotion in the EFL environment and can be an effective writing aid in English academic writing. For example, ChatGPT provides writing assistance in generating writing outlines, enriching writing ideas, reading literature, and polishing essays (Guo Qian, Feng Ruiling, Hua Yuanfang 2023); Students with different academic training backgrounds showed different results when they engaged in human-computer collaborative academic writing with ChatGPT, that is, the role played by ChatGPT was affected by the students' academic training background, and the overall characteristics were "stronger when strong, weaker when weak" (Li Yan, Jin Haoyue, Yang Yuhui 2023); AI tools can help improve students' research experience and promote project-based learning (Wu X, Li F., Hu Y., 2024).

3. Methodology

3.1. Research methods

(1) Literature reading method: Based on the literature, fully understand the connotation of the teaching concept, deeply internalize its application rationale, comprehensively analyze its advantages and disadvantages, and comprehensively evaluate the possibility and feasibility of generative AI to empower interactive EAP teaching.

(2) Comparative research method: Through questionnaire surveys and interviews with students and teachers, the advantages of interactive and collaborative teaching are comprehensively evaluated by comparing the differences between traditional teaching and human-computer collaborative teaching in terms of teaching philosophy, teaching mode, classroom teaching mode, teaching evaluation, etc.

(3) Action research method: Based on the principle of "learning by doing, learning by doing", continuously optimize the teaching concept and practice: (1) According to the actual teaching situation, develop a practical teaching design, be problem-oriented, summarize experience, collect information, and find problems; (2) Observation and analysis, focusing on problems, self-reflection, and analysis of causes; (3) Re-self-examination, based on practice, put forward new ideas to solve problems, on the basis of which hypotheses are put forward and new implementation plans are formulated; (4) Put the proposed hypotheses and new teaching plans into teaching practice, verify the rationality according to the results, and take the new problems found as the content of a new round of reflective teaching practice.

3.2. Research subjects

This course focuses on the content involved in academic paper reading and academic paper writing, including research topics, data search, academic integrity, literature reading, paraphrasing overview, language use, title outline, research proposal, abstract introduction, method results, discussion conclusions, and presentation statements.

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Chapter	Projects	Content	Objective
1	Proposal report	Determine the research topic, question and topic	Cultivate a sense of social responsibility and care for the world's problems
2	Academic Integrity Pledge	Paraphrase, quote, summarize	Cultivate an honest and realistic style
3	Literature review	Conduct literature searches and readings	Develop critical thinking skills
4	Abstract &Introduction	Analyze the five elements of the abstract and the introduction in three language steps	Develop the ability to summarize through review writing
5	Interim Defence	Collect and analyze data and write method results	Improve observation and analysis skills through chart writing
6	Conclusion report	Write research conclusions and conduct research discussions	Develop cooperative skills through peer assessment
7	Academic Language Presentation	Nominalization, passive voice, impersonal structure	Develop intercultural communication skills through language refinement
8	Final defense	Academic Presentation Elements and Strategies	Develop intercultural communication skills through academic presentations

3.3. Research model

This project adopts PBL project-based teaching, and under the integration of the wisdom of the three main bodies of people, teachers, pilots, and students, a digital learning ecology of "pilot-student-teacher" is organically interconnected, forming a division of labor and collaboration, multi-dimensional symbiosis, and technology empowerment. And finally form a "student-centered, teacher-led, machine-based intelligent learning partner" online and offline organic integration, human-machine collaborative teaching mode. In this model, students' initiative can be fully explored and brought into play, and they become active inquirers and reflectors. Teachers play the role of organizing, helping, evaluating, and promoting the "scaffolding" of learning, which plays a key supporting role for students' comprehension and in-depth learning. Whether it is pre-class teaching preparation, in-class teacher teaching or after-class student development, the intelligent machine accompanies teachers in teaching and student learning throughout the whole process, and carries out collaborative preview, collaborative lesson preparation, collaborative teaching, collaborative assessment, collaborative tutoring, collaborative review and collaborative evaluation.

(1) Human-computer collaboration in pre-class teaching preparation mainly includes two links: collaborative preview and collaborative lesson.

In the collaborative preview with the intervention of artificial intelligence, the teacher first publishes the preview task on the intelligent guidance platform according to the students' previous learning conditions. In the process, the intelligent system will collect real-time statistics on student participation, exercise accuracy and other information in teaching

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activities, and feedback these learning data to teachers for accurate teaching design. In addition, based on technologies such as big data learning situation analysis, digital portraits, and intelligent evaluation, machine intelligence can differentiate teaching design, which greatly reduces teachers' lesson preparation time and helps teachers devote more time and energy to creative teaching activities and their own professional development.

(2) The teaching of teachers in the class includes two links: collaborative teaching and collaborative assessment.

In the collaborative teaching process, the intelligent machine acts as the imparter of solidified knowledge, and appropriately provides students with multi-modal explanations of knowledge points, which can bring students a new sensory experience. Teachers are mainly responsible for educating people, and complete the cultivation of students' core literacy in the process of promoting the achievement of teaching goals. In the collaborative evaluation process, the intelligent machine realizes the functions of real-time evaluation, statistics, recording and feedback. Teachers use real-time feedback from machines to conduct accurate evaluations and adjust teaching strategies in a timely manner.

(3) The development stage of after-school students mainly includes three links: collaborative tutoring, collaborative review and collaborative evaluation.

In the collaborative tutoring session, teachers need to release relevant learning resources (such as self-learning micro-lessons, MOOCs or assisted tests, etc.) on the intelligent platform in advance, and then students can complete them independently, and if students encounter problems, they can ask questions to the pilot, and artificial intelligence provides learners with timely automated guidance and Q&A. In the collaborative marking session, the objective questions in students' homework or quizzes can be judged by machines, while the subjective questions with personal intention and openness can be judged by teachers. Such a collaborative division of labor not only reduces the burden of teachers' homework correction, but also improves students' learning efficiency by receiving timely feedback. In the collaborative evaluation process, teachers and intelligent machines work together to realize the diversified and comprehensive evaluation of learners' behavior, psychology, performance, interaction, emotion and other data, breaking the single evaluation method of merit-only theory in traditional teaching.

4. Conclusion

This project takes students as the core, follows the project-based teaching concept, fully integrates artificial intelligence tools and academic English teaching practices, clarifies the interaction and collaboration relationship between teachers, students and intelligent machines, reconstructs the three stages of "before", "in-class" and "after-class", refines the interactive and collaborative content of each stage, and creates a "seven synergistic" and efficient learning environment of collaborative preview, collaborative lesson preparation, collaborative teaching, collaborative assessment, collaborative tutoring, collaborative review and collaborative evaluation. This model forms a process framework for human-computer collaborative EAP teaching, which is highly operable and is a positive response to the needs of EAP education in the era of artificial intelligence.

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References

[1] Mo.Chen, Mingchen.Lv:Teaching of College English Writing in the Environment of ChatGPT[J].Contemporary Foreign Language Research,2024(2).

[2] Qian.Guo, Ruiling.Feng, Yuanfang.Hua:Application and potential problems of ChatGPT in English academic paper writing and teaching[J].Foreign Language Electronic Teaching,2023(2).

[3] Wentao.He,Mengli.Zhang,Xing.Lu,Chongtao.Song:Construction of human-computer collaborative teaching mode from the perspective of artificial intelligence[J].Modern Distance Education,2023(2).

[4] Yu.Huang:Application of PBL Teaching Model in College English Teaching[J]. Shaanxi Education (Higher Education), 2019(6).

[5] Jiasheng.Hu, Yajuan.Qi:Chinese Foreign Language Education in the Era of ChatGPT:Seeking Change and Adaptation[J].Foreign Language Electronic Teaching,2023(1).

[6] Guangwei.Li , Lingling.Ge:Research on the Construction and Application of Academic English Flipped Classroom Teaching Model Based on Corpus[J]. Foreign Languages, 2020.

[7] Yan.Li, Haoyue.Jin, Yuhui,Yang:Research and Enlightenment of Human-Computer Collaborative Academic Writing Practice of Graduate Students Based on ChatGPT[J]. Journal of Distance Education, 2023(5).

[8] Rahman, M.M., & Watanobe, Y. ChatGPT for Education and Research: Opportunities, Threats, and Strategies. Applied Sciences 2023.

[9] Richards, M., Waugh, K., Slaymaker, M., Petre, M., Woodthorpe, J., & Gooch, D. Bob or Bot: Exploring ChatGPT's Answers to University Computer Science Assessment. ACM Transactions on Computing Education, 2023,24, 1 - 32.

[10] Sahu, P. K., Benjamin, L. A., Singh Aswal, G., & Williams-Persad, A：ChatGPT in research and health professions education: challenges, opportunities, and future directions. Postgraduate medical journal, 2023,100(1179), 50–55.

[11] Sánchez-Ruiz, L.M., Moll-López, S., Nuñez-Pérez, A., Moraño-Fernández, J.A., & Vega-Fleitas, E：ChatGPT Challenges Blended Learning Methodologies in Engineering Education: A Case Study in Mathematics. Applied Sciences 2023.

[12] Shorey, S., Mattar, C.N., Pereira, T.L., & Choolani, M: A scoping review of ChatGPT's role in healthcare education and research. Nurse education today, 2024, 135, 106121 .

[13] Wayne H，Maya B:Artificial Intelligence In Education: Promises and Implications for Teaching and Learning［M］. The United States of America:Artificial Intelligence in Education，2019