Research on a Human-AI Collaborative Teaching Model for French Graduation Thesis Writing Using ChatGPT

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ABSTRACT

As a representative of the latest advancements in artificial intelligence (AI), ChatGPT has captured widespread attention from all sectors of society and has invigorated foreign - language writing teaching. This paper analyzes the incorporation of ChatGPT into the teaching of French graduation thesis writing at the university level. It explores how teachers can employ ChatGPT at each stage of the writing teaching process, ranging from pre-class teaching preparations including collaborative lesson - preparing and diagnostic evaluations, to in-class AI-assisted learning involving intelligent tutoring and collaborative studies, and to post - class precise evaluations covering collaborative guidance, grading, and assessment. Meanwhile, to prevent the risks related to technological alienation, teachers must play the roles of AI users and trainers, evaluators and filters of AI - generated texts, defenders against AI - related risks, and executors and guides of reflective activities.

Keywords: French Graduation thesis writing instruction, ChatGPT, Human-AI collaborative teaching.

1. INTRODUCTION

The rapid advancement of language intelligence technology and the emergence of large - scale language models have kindled hopes for achieving general artificial intelligence. Faced with increasingly powerful intelligent technology, it is urgent to re-assess the relationship between humans and AI and explore new teaching methodologies. In recent years, scholars have investigated intelligent learning (Ai Xing, 2020), smart learning spaces (Zhu Zhiting, 2016), AI - combined - with - teachers (Holstein K, 2018; Yu Shengquan, 2019), and teachers' digital literacy (Xu Yafeng, 2020) from the perspective of human - AI collaboration[1].

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1. Human-machine collaboration refers to the "cooperation" between "humans" and "machines". In the era of artificial intelligence, human-machine collaboration means that human intelligence and machine intelligence can be perfectly coupled like gears, making progress together, giving play to the advantages of their respective intelligences, and collaborating in analysis, decision-making, and evaluation to obtain problem solutions efficiently and accurately and promote the generation of innovation and creativity. Source: Zhang Mengli. *Research on the Construction and Practice of Human-computer Cooperative Teaching Mode in the era of Artificial Intelligence*[D]. Zhejiang Normal University, 2023:22.

However, research on human - AI collaborative classroom teaching models and practical case studies remains scarce. Specifically, only six papers related to teaching applications in elementary - level language writing instruction have been found, and thesis writing instruction, which has been heavily affected by generative AI tools like ChatGPT, has scarcely been discussed. The development of AI - generated content technologies is causing disruptive changes to the thesis writing environment, providing unprecedented convenience while also giving rise to a series of legal and ethical risks. On August 28, 2023, the "Degree Law (Draft)" submitted for the first reading by the Standing Committee of the National People's Congress defined AI - assisted thesis writing as academic misconduct. The question of how to effectively promote thesis writing in the new technological context and gain public trust and support merits in - depth consideration.

Therefore, this paper aims to use ChatGPT as an auxiliary tool, in combination with case studies from French thesis writing classes at universities, to construct a human-AI collaborative classroom teaching model. The goal is to offer suggestions for

the harmonious coexistence and development of humans and AI.

2. EMPOWERING FRENCH GRADUATION THESIS WRITING INSTRUCTION WITH CHATGPT

2.1 Feasibility of ChatGPT - Assisted Foreign Language Writing Instruction

The advent of conversational AI technologies like ChatGPT has triggered significant responses in both educational and academic arenas. To investigate the empowering impacts of ChatGPT on foreign language thesis writing instruction, it is essential to assess the feasibility of integrating it into instructional activities. The key factors are as follows: Firstly, ChatGPT can interact with users in natural language and understand intentions based on broader contextual cues, thereby fulfilling the fundamental requirements for human - AI collaborative language learning. Secondly, ChatGPT possesses comprehensive language capabilities and can undertake various tasks such as writing, translation, and proofreading in multiple languages, exhibiting features of general AI. Thirdly, the input and output modalities of ChatGPT (text and images) render it highly suitable for writing instruction. Fourthly, although ChatGPT is adept at tasks such as information retrieval, content generation, and reorganization, its creative and emotional faculties are inferior to those of humans. Consequently, using ChatGPT as an auxiliary tool rather than a substitute or competitor can scientifically facilitate the integration of AI and human intelligence in learning.

2.2 Potential Applications of ChatGPT in French Thesis Writing Instruction

The "French Graduation Thesis Guidance" course, which is a compulsory course in French programs at universities, integrates theory with practice to assist students in mastering the general procedures of conducting academic research and acquiring the ability to present research findings in standardized written French reports. However, prior investigations have revealed several challenges in teaching French thesis writing, including a lack of data support, difficulties in differentiating assignments, an inability to accurately evaluate learning progress, and low classroom efficiency. The advent of AI writing tools like ChatGPT provides assistance to thesis writers, particularly

non - native French - speaking students. What are the potential applications of ChatGPT in French thesis writing and instruction?

2.2.1 Potential Uses in Thesis Writing

ChatGPT can endow French learners' self - directed learning in thesis writing with capabilities in several respects:

- Comprehending research trends and hotspots: When exploring new topics, learners can utilize ChatGPT to discern research trends and crucial issues, thereby better refining research concepts and formulating cutting - edge research questions.

- Generating writing outlines: Upon forming a general concept, learners can prompt ChatGPT to produce an outline to improve their writing structure.

- Expanding ideas and content: After an outline is formulated, ChatGPT can help learners expand the content.

- Accelerating literature reading speed: ChatGPT can summarize research papers, enabling learners to determine which literature to focus on.

- Improving writing quality: ChatGPT can assist learners in refining language, enhancing spelling, word choice, grammar, structure, and style, rendering their theses more logical and concise.

2.2.2 Potential Uses in Thesis Writing Instruction

ChatGPT can function as a potent assistant for teachers apart from being a writing tool for students. Specifically:

- Swiftly understanding students' research fields. French thesis writing instructors frequently lack specialized knowledge regarding students' interdisciplinary topics. ChatGPT can assist teachers in quickly grasping the current trends in a specific field, breaking down disciplinary barriers and helping them understand student theses, thereby providing better feedback.

- Providing feedback and suggestions. ChatGPT can serve as an automated essay - grading tool, offering feedback on students' assignments and thesis drafts.

- Creating teaching materials. Teachers can utilize ChatGPT's feedback to generate classroom teaching materials, guiding students to critically evaluate and respond to ChatGPT's suggestions.

Based on ChatGPT's language abilities and text generation functions, this study selects ChatGPT as a tool to initiate human-AI collaboration in French thesis writing instruction.

3. CHATGPT-ASSISTED FRENCH THESIS WRITING TEACHING MODEL

The human-AI collaborative classroom adheres to the "student-centered learning" concept and focuses on cultivating talents with high-order thinking abilities, proficiency in autonomous and collaborative learning, and the capacity to solve complex problems in the new era. By integrating the ideas of human-AI collaborative classrooms and learning communities [2], this study constructs a ChatGPT-supported human-AI collaborative classroom model for French thesis writing courses. The aim is to promote personalized and socialized learning while liberating teachers from mechanical teaching activities. The classroom is divided into three stages: pre-class teaching preparation, in-class AI-assisted learning, and post-class precision evaluation. In each stage, students participate in the learning process as a community. Teachers can freely combine the stages according to their instructional needs.

3.1 Pre-Class Teaching Preparation Stage

Pre-class teaching preparation in human-AI collaboration mainly consists of two aspects: collaborative lesson planning and collaborative diagnostic learning.

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2. A learning community comprises shared visions, group collaboration, learning activities, and resources. A shared vision refers to the collective goals or mission of the community members. Group collaboration is the basic mode of learning, where learners engage in activities through collaborative communication. Learning activities, such as thematic inquiry tasks and contextual problems, form the foundation of communal learning. The learning resources supporting this community include human resources like teachers and tutors, as well as online resources and study materials. Source: Gao Qiong. The Construction and Practical Cases of Human-Machine Collaboration Teaching Mode in the Era of Artificial Intelligence[J]. *Journal of Distance Education*, 2021(04): 24-33.

3.1.1 Collaborative Lesson Planning

In the pre-writing stage, the teacher is both the designer of classroom activities and the source of the target language and its associated culture. After ChatGPT is integrated into writing instruction, some of these roles can be partially assumed by ChatGPT. On one hand, teachers can obtain rapid and efficient responses from ChatGPT through prompts, including listing common theories and instructional methods, providing additional explanations or examples, comparing the advantages and disadvantages of different teaching methods, and generating lesson outlines or plans. On the other hand, ChatGPT can search and integrate knowledge in one step based on prompts, enabling teachers to access a large number of authentic, native-level French texts more conveniently, providing background knowledge and model essays for writing instruction. Consequently, teachers' responsibilities for instructional design, target language, and cultural output are reduced, while the requirement for mastering prompt engineering with ChatGPT is increased.

However, it should be noted that ChatGPT has limitations when providing input materials in the pre-writing stage. For example, it lacks real-world contextual information, and the difficulty level of materials is difficult to control. ChatGPT is trained on diverse sources, which may sometimes result in inaccurate or biased content or generate language styles unsuitable for classroom teaching. Therefore, teachers must act as evaluators and filters for the plans and texts generated by ChatGPT.

3.1.2 Collaborative Diagnostic Learning

Pre-class intelligent diagnostic learning refers to diagnosing students' learning situations after they complete online guidance tasks to improve teaching content. In the diagnostic learning stage of traditional classrooms, teachers can only understand students' learning conditions by correcting students' guidance assignments. In the "diagnostic learning" of the human-AI collaborative classroom supported by ChatGPT, it is completed through human-AI cooperation. ChatGPT collects and analyzes students' learning data completed on the learning platform, forms individualized diagnostic reports for each student's strengths and weaknesses, and sends them to teachers. Based on these reports, teachers further refine classroom content, improve instructional tasks, and formulate personalized guidance plans.

3.2 In-class AI-assisted Learning Stage

The in-class AI-assisted learning stage consists of two components: intelligent tutoring and collaborative research.

3.2.1 Intelligent Tutoring

In the intelligent tutoring phase, students work in groups to explore and discuss key issues. In traditional classrooms, group discussions are usually led by more active members, focusing on identifying and correcting mistakes from pre-class assignments. This type of discussion often limits the scope of student engagement and lacks varied or related exercises. In the ChatGPT-supported thesis writing classroom, the "tutoring" process is a collaborative effort between students and ChatGPT. Personalized tutoring tasks, designed jointly by the teacher and ChatGPT, are distributed to students. Through group cooperation, students engage in independent exploration and problem-solving.

During the tutoring phase, the teacher provides individualized guidance, helping students address more challenging issues from the pre-class tasks. Additionally, based on student feedback submitted to the platform, the teacher assigns research tasks for each group to facilitate smoother research phases.

3.2.2 Collaborative Research

The collaborative research phase occurs after students have completed the tutoring tasks. Each group presents and explains their work based on the tasks assigned by the teacher. In traditional classrooms, teachers typically assign research tasks after evaluating group discussions. However, in a human-AI collaborative classroom, research tasks are collaboratively designed by both ChatGPT and the teacher. ChatGPT analyzes the issues raised by the group during the tutoring phase and generates individualized research tasks for each group. The teacher can refine and optimize these tasks before distributing them to the students. The research tasks, designed jointly by ChatGPT and the teacher, present multiple forms of exercises on the same topic or different exercises on varying topics. This structure caters to the learning needs of students at different levels, increasing the level of challenge and attention during the research phase. Additionally, during group presentations where research results are shared with the entire class, other students can provide timely feedback. ChatGPT can respond to common issues raised by students, offering supplementary explanations, extensions, and expansions, which help the teacher facilitate the progression of in-person classroom discussions.

3.3 Post-class Precision Evaluation Stage

The integration of AI technology enables seamless post-class support, including tutoring, answering questions, reviewing assignments, grading exams, and summarizing evaluations. This makes it possible for students to resolve learning inquiries in real-time, even in the absence of teachers. The post-class student development phase comprises three primary stages: collaborative tutoring, collaborative grading, and collaborative evaluation.

3.3.1 Collaborative Tutoring

As mentioned earlier, during post-class writing exercises, ChatGPT can function as an online dictionary, translator, and encyclopedic knowledge resource. According to OpenAI's evaluation, compared to ChatGPT-3.5, ChatGPT-4 has an 82% reduction in non-responses and a 42% increase in factual accuracy, providing better tools for students. Since ChatGPT interacts with students in a conversational manner, it not only serves as a tool but also partially takes on the role of a tutor, overseeing the input and output of the target language and culture, which alleviates some of the teachers' workload. Consequently, this also increases the responsibility of teachers to train students on how to effectively use ChatGPT.

3.3.2 Collaborative Grading

In the grading stage, teachers are traditionally responsible for evaluating students' post-class writing exercises. With ChatGPT incorporated into the teaching activities, teachers can now guide students to use ChatGPT to review their initial drafts. ChatGPT can identify spelling, punctuation, and grammatical errors, detect issues with coherence, paragraph structure, and argument support, and offer suggestions for word choice, style, and tone.

Additionally, ChatGPT can handle grading for objective questions in post-class assignments or quizzes, while teachers evaluate subjective questions that involve personal expression or independent thinking. In this collaborative grading process, ChatGPT and teachers work together, each handling different aspects of the grading. This

division of labor reduces the grading workload for teachers and enhances the efficiency of post-class learning for students.

3.3.3 Collaborative Evaluation

The post-class collaborative evaluation phase is divided into three parts: in-class evaluation, post-class evaluation, and reflective teaching.

In-class evaluation involves peer feedback after group presentations. First, students evaluate the "strengths, doubts, and points of contention" for each presentation. The teacher then summarizes the feedback and encourages deeper thinking among students. At the end of the class, an in-class test is administered. In traditional classrooms, in-class tests are pre-prepared by the teacher, making it difficult to adapt them based on the real-time progress of the students. In a human-AI collaborative classroom, ChatGPT dynamically generates test questions based on diagnostic results and real-time issues identified by the teacher, making the testing process more scientifically sound.

Post-class evaluation assesses students' learning outcomes after completing classroom instruction. In the AI-supported classroom, ChatGPT generates personalized post-class assignments based on data collected during the diagnostic, tutoring, and research phases. Teachers refine these assignments by addressing both common and individual issues that arise during class, helping students consolidate their knowledge and resolve any unanswered questions from the lesson, thus achieving personalized learning goals. This collaborative division of labor between ChatGPT and teachers allows for a multi-faceted evaluation of students' behavior, performance, interactions, and emotional responses.

Of course, teachers are still the primary facilitators and guides of reflective activities. Teachers need to continuously reflect on their experiences when using new AI tools and accumulate insights during the teaching process. After completing writing tasks, teachers should also guide students to reflect on the entire process. The entire writing journey — starting from the preparation stage, which includes literature reviews, topic selection, thesis formulation, and outline generation, and then proceeding to independent writing and feedback evaluation — is supported by ChatGPT and intertwined with the teacher's reflective practices throughout the process.

4. REFLECTIONS ON THE HUMAN-AI COLLABORATIVE TEACHING MODEL

Technology is inherently neutral; however, humans often impose their personal biases and values on technology, thereby introducing the risk of technological alienation. The alienation of technology can cause humans to become subservient to the technological tools they have invented, gradually losing their creativity and independence. This runs counter to our initial hopes for applying technology in teaching. While people are amazed by the powerful capabilities that ChatGPT brings to assist in foreign language thesis writing instruction, it is also a must to be aware of the potential risks, such as incorrect text information generation, inaccurate citation formats, falling into the traps of academic misconduct, and weakening of students' critical thinking abilities.

To prevent the risk of technological alienation, in the human-AI collaborative teaching model, the identity and role of teachers are endowed with new connotations. Teachers should be users and trainers of artificial intelligence technology, evaluators and filters of ChatGPT-generated texts, defenders against the risks associated with AI usage, and facilitators and guides of reflective activities. It is necessary to cautiously use ChatGPT and similar products as auxiliary tools, insisting that humans, rather than artificial intelligence, remain the main body of teaching. Academic integrity must be emphasized, guiding students to maximize the benefits of these tools while avoiding their potential negative consequences. Students should use AI tools honestly, transparently, and responsibly, taking responsibility for the content of their theses and enhancing their academic writing abilities in the process of using these tools.

5. CONCLUSION

The rapid development of artificial intelligence technology brings new possibilities for addressing the problems existing in traditional classroom teaching, such as untimely understanding of students' learning situations, difficulties in stratified assignments, untimely feedback, and low teaching efficiency. This study, with the help of artificial intelligence tool ChatGPT and combined with teaching case studies of French thesis writing classes in colleges and universities, has constructed a human-AI collaborative teaching model consisting of three stages: pre-class teaching

preparation (collaborative lesson planning and diagnostic learning), in-class AI-assisted learning (intelligent tutoring and collaborative research), and post-class precision evaluation (collaborative tutoring, grading, and evaluation). The relevant research conclusions can provide specific teaching models and case references for front-line teachers to carry out human-AI collaborative teaching. However, this study still has limitations, such as the need to further improve the empirical teaching data. In the future, more empirical exploration and theoretical improvement of human-AI collaborative teaching need to be carried out.

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