

Exploring the Potential of AI-Supported Instructional Design and Multimodal Communication to Promote a Paradigm Shift in Chinese Language Education

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Abstract

This study addresses a crucial issue in Chinese language education in Japanese universities, emphasizing the need to innovate from traditional teaching paradigm towards technology-enhanced approaches. By integrating AI-supported instructional designs grounded in Task-Based Language Teaching (TBLT) principles, the study aims to enhance the learning experience for novice Chinese learners. The incorporation of AI and ICT tools such as online whiteboards, ChatGPT for dialogue writing and translation, automatic speech synthesis tools for pronunciation practice, and video editing applications demonstrates a forward-thinking approach to language education. These tools not only facilitate language learning but also promote intercultural understanding and practical application of language skills, particularly within the context of the tourism industry. The utilization of learner perspective surveys, peer assessments, and teacher observations for course evaluation provides a comprehensive understanding of the effectiveness of the instructional designs. The production of nine tourism promotion videos with Chinese subtitles and synthetic voices further illustrates the practical outcomes of the course. One notable finding is the ability of novice learners to self-regulate their extracurricular collaborative learning activities using AI and ICT tools, highlighting the potential of technology to compensate for deficiencies in language skills. However, the study also identifies future challenges, including the need for more detailed peer evaluation rubrics, authentic user assessments, and further

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investigations into perceptions of learning effectiveness and efficiency improvements. Overall, this study contributes valuable insights into the integration of AI and ICT tools in language education and underscores the importance of adopting innovative pedagogical approaches to meet the evolving needs of language learners in diverse educational contexts.

Keywords: TBLT (task-based language teaching), Chinese language education, Instructional design, ICT (information and communication technologies), AI (artificial intelligence)

Introduction

One of the major issues in Chinese language education in Japan is the inability to break away from traditional educational paradigms aiming at four language communication skills acquisition. A meta-analysis of papers and practical articles published over the past decade in *The Journal of the Chinese Language Education Association* (2011–2021) revealed that 50% of the content was related to linguistics, 25% to education, 6% to technology-enhanced education, and 19% to intercultural understanding and communication. The low percentage of technology-enhanced education is evident. With the evolution of generative AI, real-time multilingual translation has become automated. While language substitution abilities are a means of communication, the traditional educational concept that treats means as ends will soon be obsolete. Educational activities and learner behaviors are primarily defined by their environment (Ziglar, 2012; Elahi Shirvan & Taherian, 2022). Without transforming the goals of education from the perspective of broad instructional design, improvements in textbooks, materials, teaching methods, and examinations will only be temporary adjustments. There is a fundamental need to reconstruct instructional design for foreign language education suitable for the era of Web 3.0 and AI.

Methods

This study is action research targeting first-year Chinese language learners at universities. It devises an AI-assisted instructional design based on the principles of Task-Based Language Teaching (TBLT) (Ellis et al., 2019) and conducts qualitative analysis of the results and challenges based on educational practice data. The course, named “Basic Chinese for Tourism,” was set during the fall semester of 2023. The participants were 20 first-year university students who had studied Chinese for six months. They used BYOD (Bring Your Own Device), the university’s Wi-Fi, and a Moodle-based LMS in a regular

classroom setting. Two major tasks were set: (1) learning intercultural understanding and Chinese expressions for inbound tourism service, and (2) creating Chinese-language videos introducing local attractions from a resident's perspective. A textbook focusing on Chinese cultural understanding and tourist conversations was used in the first half of the course.

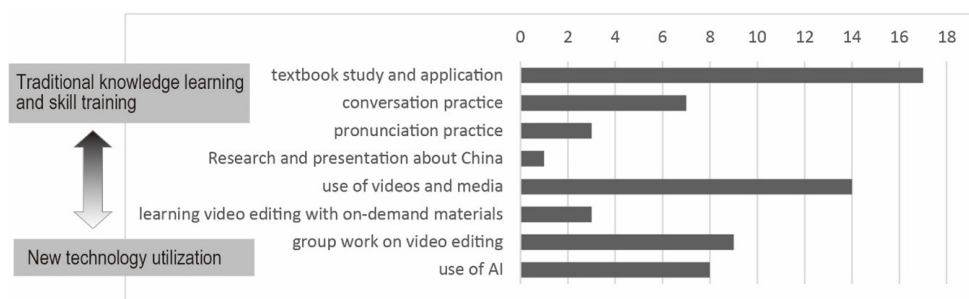
Throughout the learning process, new technologies and tools such as AI and ICT were utilized: (1) an online whiteboard was used for group work for investigating and sharing the results of intercultural understanding; (2) ChatGPT and multilingual translation apps were used for writing and translating descriptions of local information and attractions; (3) text-to-speech tools were used for pronunciation practice, in the context of customer service Chinese conversations and creating voice data for narrations; and (4) video editing apps compatible across PCs, smartphones, tablets, and operating systems were used in creating tourism promotion videos.

The course evaluation was conducted through learner surveys, peer evaluations of the videos, and teacher observations and evaluations of the learning process and the quality and quantity of the assignment outcomes.

Results and Discussion

The course evaluations from the learners' perspective were collected through online questionnaires. According to the responses, the course structure suit for understanding key points of intercultural understanding in the context of the tourism industry. The course was also highly rated for providing ample opportunities to utilize new technologies, which effectively supported learning. Interactions with teachers, discussions on intercultural understanding research about China, Q&A sessions with international students, tourism-related Chinese dialogue practice, pronunciation practice using apps, and video planning and production were particularly designed and provided (Figure 1). However, the learners required more practical Chinese conversation opportunity, face-to-face interactions and feedback with native speakers, increased assignments using vide materials and apps, and more collaboration with the tourism industry (Figure 2). Through the course, the learners were able to conduct simple travel conversations, express thoughts concisely, provide regional introductions, understand Chinese culture, and create promotion videos using Chinese.

Compared to teachers' instructional experiences in the era before AI, the use of new technologies improved the quality of manuscripts and reduced the workload of revisions and co-creation. Providing concrete and detailed feedback on video planning and multimodal expressions, beyond simple language norm corrections and tool operation explanations, enabled deeper learning.



(n = 19: one absence out of 20 participants, multiple-choice)

Figure 1. The course evaluations from the learners' perspective: helpful activities for learning.

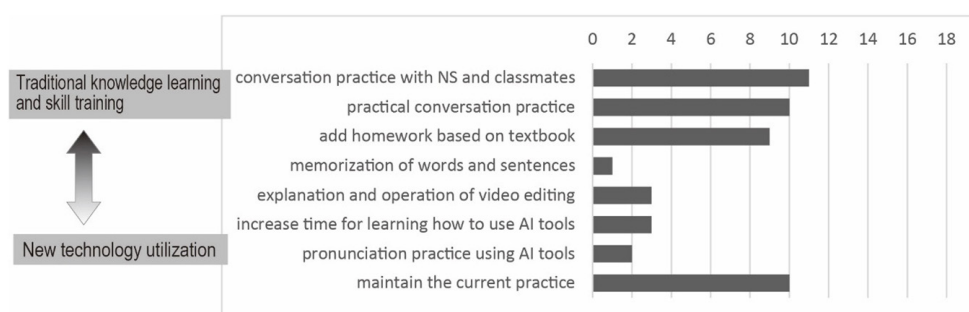


Figure 2. The course evaluations from the learners' perspective: activities that should be increased.

The final products included nine videos introducing local attractions, using Chinese subtitles and voice narrations generated with AI assistance. The top three evaluated works by students were videos themed “Top 3 Recommended Soup Curries,” “Local Residents’ Skating & Snowboarding,” and “Winter Sports Without Spending Money (Snowball Fight).”

Conclusion

The analysis revealed that even beginner Chinese learners could utilize AI and ICT tools to self-regulate collaborative learning outside of class, compensate for limited Chinese knowledge and skills, complete tasks of a certain quantity and quality, and produce multimodal outcomes. The course aims to explore “using Chinese in the local community,” enhance metacognition through collaboration, and provide knowledge and skill training. Specifically, (1) even with insufficient foreign language knowledge and skills, teams can achieve their goals with the support of various people and technologies; (2) given the spread of

micro-tourism, it is possible to create tourism promotion videos from the perspectives of local residents; (3) the learning process aims not only to improve individual language application skills but also to extend and expand their abilities using diverse learning resources.

Future challenges include developing more detailed rubrics and providing authentic user evaluation opportunities for instructional design evaluation. Additionally, there is a need for more detailed and quantitative data-based analysis to enhance the optimization of instructional design regarding the recognition of learning effectiveness and efficiency. In each step of instructional design, it is necessary to specifically consider what AI and ICT can do, what can be efficiently done by human teachers, and what is feasible in terms of time and resource allocation.

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