

Exploration of AI-Driven Cultivation Pathways for International Communication Translation Talents in Jilin Province's Ice-Snow Tourism under the "Ice-Snow Silk Road" Initiative

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Abstract: *This study aims, against the backdrop of the "Ice-Snow Silk Road" initiative and focusing on the pressing demand for translation talents in Jilin Province's ice-snow tourism industry, to explore AI-empowered cultivation pathways for translation talents in this sector. It seeks to clarify how to leverage AI technology to enhance the professional competence, intercultural communication skills, and technological application capabilities of ice-snow tourism translation talents, thereby providing human resources support for the international development of Jilin Province's ice-snow tourism industry. Through empirical research, this study reveals the influencing factors of the cultivation model for international communication translation talents, analyzes the mechanism of their influence, and offers theoretical foundations and practical support for the application of this talent cultivation model in college English teaching.*

Keywords: *Ice-Snow Silk Road; AI-driven; ice-snow tourism; cultivation of international communication talents*

1. Research Background

With the vigorous development of China's ice-snow tourism industry, Jilin Province, leveraging its abundant ice-snow resources, has emerged as a popular destination for both domestic and international tourists. Under the strategic backdrop of pursuing the goals of "cultural-tourism integration" and "international development," the quality of international communication translation for ice-snow tourism, which serves as a crucial bridge for cross-cultural communication, directly influences the international image and market appeal of Jilin's ice-snow tourism. The "Ice-Snow Silk Road," as an extension of the "Belt and Road" initiative into the fields of ice-snow economy and cross-border cultural tourism, not only aligns with the strategic direction of deepening the national "Belt and Road" construction, but also precisely anchors the locational advantages of Jilin Province as a core area for ice-snow tourism in Northeast Asia (such as its connectivity to ice-snow tourism resources in China, Russia, South Korea, Mongolia, and other countries).

Foreign research on the integration of international communication translation and AI technology began relatively early, with a rich accumulation of both theoretical and practical knowledge. In *Upgrade Learning* (2019), John Couch and Jason Tow propose that AI technology can reshape educational scenarios and provide personalized learning pathways for the cultivation of translation talents, offering insights for innovating training models in international communication translation. In *The Deep Learning Revolution* (2019), Terrence Sejnowski points out that deep learning, as a core driving force of artificial intelligence, can be applied to fields such as intelligent translation, providing theoretical support at the technical level for AI-empowered translation talent cultivation. Within the context of international cooperation similar to the "Ice-Snow Silk Road," foreign scholars emphasize research on cross-cultural international communication translation. For example, in studies related to ice-snow economic cooperation among countries along the Arctic routes, research highlights that international communication translation must balance language conversion with cultural adaptation. Moreover, the role of AI tools in processing multilingual international communication texts is becoming increasingly prominent, with applications such as intelligent corpora and machine translation assistance systems already widely used in the field of tourism promotion.

Domestically, research on the integration of artificial intelligence and the cultivation of international communication translation talents has progressively deepened in recent years. Hu Kaibao, in *Artificial Intelligence and Foreign Language Disciplines* (Issue 6, 2024), analyzes the impact of AI technology on foreign language disciplines, including the field of international communication translation, and points out that technology empowerment is a crucial direction for cultivating talents in this area. Chen Feng and Wang Xiaojing, in *A Visual Analysis of AI-Enabled English Teaching Research in China over the Past Decade Based on CiteSpace* (Issue 10, 2025), note that domestic research on AI-enabled translation teaching focuses on reform directions and involves contexts such as international communication translation, yet lacks sufficient specificity. Chen Ling, in *Artificial Intelligence Driving the Reconfiguration of University English Teachers' Roles* (April 12, 2024), emphasizes that in the AI era, teachers of international communication translation must transform into "technology integrators" and "cross-cultural guides."

Relevant studies highlight that the advancement of the Belt and Road Initiative and the "Ice-Snow Silk Road" requires a large number of translation talents who are not only proficient in language but also familiar with the cultures and industries of countries along the routes, particularly in fields with frequent international exchanges such as tourism. However, research that integrates the perspective of the "Ice-Snow Silk Road," AI technology, and the cultivation of ice-snow tourism translation talents in specific regions such as Jilin Province remains relatively scarce. Currently, studies focusing on the cultivation of ice-snow tourism translation talents in Jilin Province predominantly concentrate on traditional textual analysis and curriculum design, with even fewer addressing how to leverage AI technology in alignment with the demands of the "Ice-Snow Silk Road" initiative to construct targeted and innovative training models.

2. Research Significance

This study integrates the perspective of the "Ice-Snow Silk Road," AI technology, and the cultivation of translation talents for ice-snow tourism in Jilin Province, constructing a "One Core, Two Lines, Six Wings" cultivation model. This enriches the theoretical framework for translation talent cultivation and provides new perspectives and insights for research in related fields. By delving into the application mechanisms of AI technology in the cultivation of translation talents, it expands the research scope of integrating artificial intelligence with education, offering theoretical support for the reform and development of translation education in the AI era. Focusing on the cultivation of translation talents for the specific field of ice-snow tourism in Jilin Province, this research addresses a gap in studies concerning cultivation models that combine AI technology under the "Belt and Road" framework, thereby providing a reference for the cultivation of translation talents in other regionally distinctive industries.

This cultivation model can precisely align with the demand for translation talents in Jilin Province's ice-snow tourism industry from the perspective of the "Ice-Snow Silk Road." It aims to cultivate more professionals with solid language proficiency, rich knowledge of ice-snow tourism, strong cross-cultural communication skills, and the ability to apply AI technology, thereby meeting the urgent needs of industrial development. This will help enhance the international competitiveness of Jilin Province's ice-snow tourism industry, promote exchanges and cooperation with countries along the "Belt and Road" in the field of ice-snow tourism, attract more international tourists, and drive regional economic development.

Furthermore, it provides practical references for the teaching reform of English translation talent cultivation in Jilin's higher education institutions. It promotes in-depth collaboration between universities, enterprises, and industries, achieves seamless alignment between talent cultivation and market demand, and improves the quality and employment rate of translation talent cultivation. Finally, it facilitates the further application and promotion of AI technology in the field of education, advances the process of educational informatization, and enhances the efficiency and effectiveness of teaching.

3. Research Plan

The research plan will unfold in the following aspects:

3.1 Research Content

This project takes the cultivation of international communication translation talents for ice-snow tourism in Jilin Province as its research object and assembles a research team focusing on "tourism + foreign languages." It adopts a mixed-methods approach combining quantitative and qualitative research. Through tools such as the Questionnaire Star APP, interviews, literature review, and experimental studies, the project will analyze the factors influencing the cultivation of such talents in Jilin Province. Subsequently, an empirical research method will be applied in practice. The research subjects will be divided into a control group and an experimental group to test the "One Core, Two Lines, Six Wings" cultivation model for international communication translation talents. The research team will investigate various theoretical and practical issues that arise during the implementation process.

3.2 Research Design Model

The model designed for this research is the "One Core, Two Lines, Six Wings" cultivation model for international communication translation talents. The "One Core" refers to "Ice-Snow Silk Road AI + International Communication Translation Interdisciplinary Talents," which focuses on the core demands for talent in cross-border international communication scenarios under the "Ice-Snow Silk Road" framework. It aims to construct a "Three-Dimensional Competency System": at the foundational level, talents should possess solid multilingual international communication translation skills in languages such as Chinese, Russian, Korean, and Mongolian, and be proficient in the specialized terminology of the ice-snow tourism field (e.g., "rime landscape," "ice-snow sports equipment," etc.); at the technical level, they should master the application of AI tools for international communication (e.g., intelligent corpus retrieval, machine translation proofreading, practical operation in virtual international communication scenarios, etc.); at the strategic level, they should demonstrate "Ice-Snow Silk Road" cross-cultural international communication capabilities (e.g., adapting to the cultural customs of countries along the routes, formulating international communication strategies, mitigating risks in international communication, etc.). The core objective is to break through the limitations of traditional translation talents, who are confined to "mere language conversion," and to cultivate "solution providers" in international communication translation who can adapt to the demands of "technology empowerment + cross-border collaboration."

The two lines refer to the AI Technology Empowerment Line and the Cross-Cultural Collaboration Line.

Technology Empowerment Line: This involves using AI to reconstruct the entire process of cultivating international communication translation talents. It includes generating personalized learning paths through AI (such as recommending targeted case studies for weak areas like "promotional materials for Russian Ice and Snow Festivals") and intelligent proofreading of international communication texts (automatically identifying cultural mistranslations and terminology errors). Additionally, an "Ice-Snow Silk Road International Communication Platform" will be established to simulate scenarios such as translating speeches for international ice and snow forums or providing multilingual live-streaming commentary for tourist attractions, with AI providing real-time feedback on translation effectiveness and communication suitability.

Cross-Cultural Collaboration Line: This entails collaborating with the Jilin Provincial Department of Culture and Tourism, ice-snow tourism enterprises, and universities to jointly establish an "International Communication Translation Practical Training Base." The base will undertake real-world international communication projects, such as updating multilingual official websites for the Changbai Mountain International Resort.

Six Wings: Six Implementation Pathways to Support the Execution of the Two Lines.

Wing One: Restructuring the curriculum system, such as developing micro-courses for "International Communication Translation" (e.g., "Building Terminology Databases for Winter Olympics Promotion" or "Subtitle Translation for Short Video Promotional Content"), tailored to the needs of different international communication scenarios.

Wing Two: Establishing an integrated virtual and practical training platform. On-campus, an "AI International Communication Translation Laboratory" will be set up, equipped with multilingual corpus systems and virtual host training tools. Off-campus, "Corporate Training Positions" will be established, allowing trainees to participate in real international communication activities such as ice-snow tourism

festivals and cross-border tourism promotion events, with AI simultaneously recording practical data and generating competency profiles.

Wing Three: Strengthening the teaching faculty. In-house instructors will enhance their practical skills through initiatives like "AI Technology Workshops" and "Field Assignments in Ice-Snow Enterprises." Additionally, a part-time teaching team will be formed by recruiting corporate international communication directors, AI translation engineers, and foreign cultural experts.

Wing Four: Driving training through international communication projects, such as translating multilingual versions of the Jilin Province Ice-Snow Tourism White Paper, or organizing students to participate in international communication competitions (e.g., the "Northeast Asia Ice-Snow Culture Communication Translation Competition") to foster learning through competition.

Wing Five: Empowering dynamic and multifaceted evaluation. AI technology will be leveraged to enhance both formative and summative assessments, such as automatically monitoring the quality of international communication texts (accuracy, communication suitability) and incorporating evaluations from corporate mentors (project contribution).

Wing Six: Ensuring a full-chain system support. "Customized Training Agreements" will be signed with ice-snow tourism enterprises to achieve a closed loop of "learning—practice—employment."

3.3 Research Subjects

3.3.1 Participant Composition

The subjects participating in this empirical study are non-English major undergraduates enrolled in 2025 from our university. Their respective majors are Tourism Management (Ice-Snow Tourism Specialization), Artificial Intelligence (Ice-Snow Intelligent Technology and Application Specialization), and Visual Communication Design (Ice-Snow Cultural and Creative Design Specialization), totaling 132 students. Additionally, six college English instructors from the same institution are also included as participants.

3.3.2 Proficiency Levels

At the time of the empirical study, all 132 students were first-year college English learners, but their English proficiency levels varied considerably. Among them, the 58 students majoring in Tourism Management (Ice-Snow Tourism Specialization) demonstrated relatively higher English proficiency. The 23 students majoring in Artificial Intelligence (Ice-Snow Intelligent Technology and Application Specialization) exhibited intermediate English proficiency. The 51 students majoring in Visual Communication Design (Ice-Snow Cultural and Creative Design Specialization) had relatively weaker English proficiency. This distribution broadly reflects the overall language competence of the participants in the empirical study.

3.4 Research Innovations

3.4.1 Focusing on Regional Demands to Achieve Precise Alignment Between "Talent Cultivation" and "Industry Needs"

Integrating the demands of Jilin Province's ice-snow tourism industry into the entire process of translation talent cultivation addresses the disconnect between general translation talents and the specific needs of the regional industry.

3.4.2 Strengthening Technology Empowerment to Construct a "Deeply Integrated AI + Translation" System

Breaking through the technical barriers of traditional translation teaching, this approach incorporates AI translation tools, corpora, and intelligent assessment throughout the entire teaching process, thereby enhancing the intelligent level of talent cultivation.

3.4.3 Emphasizing Dual-Line Drive to Refine the Cultivation Pathway of "Professional Knowledge + Technical Competence"

Through the parallel integration of the "Ice-Snow Tourism Professional Knowledge Line" and the "AI Translation Technology Line," supported by the development of a structured teaching faculty, the goal of cultivating interdisciplinary talents is achieved.

4. Data Collection and Analysis Results

We employed the principal component method from statistical analysis to measure and analyze the collected data, which effectively tested the validity of the data. Simultaneously, it allowed for an efficient observation of the relationships among the statistical variables.

4.1 Current Status of Demand for International Communication Translation Talents in Jilin's Ice-Snow Tourism

The core competency requirements highlight a pronounced demand for "interdisciplinary" expertise. The survey indicates that the talent capabilities enterprises value most are, in order: professional knowledge of ice-snow tourism (85 percent), accuracy in international communication translation (82 percent), proficiency in applying AI translation tools (78 percent), cross-cultural communication skills (75 percent), and communication and coordination abilities (68 percent). Among these, professional knowledge of ice-snow tourism encompasses areas such as scenic spot introductions, terminology for ice-snow sports, and interpretation of folk culture. AI application skills focus on practical abilities like machine translation post-editing (MTPE) and the construction and management of corpora.

There exists a significant mismatch between talent supply and demand: Current university translation programs primarily focus on general translation theory, with ice-snow tourism-related courses covering less than 10 percent of the curriculum. Instruction in AI translation technology is mostly limited to sporadic lectures, lacking systematic practical training. Students commonly exhibit weaknesses such as "insufficient professional knowledge, unfamiliarity with AI tool application, and inadequate targeting in international communication translation," making it difficult for them to meet the actual needs of enterprises.

Enterprises exhibit a strong demand for AI-empowered cultivation: 78 percent of the surveyed companies indicated that they hope universities will strengthen the integration of AI translation technology with international communication translation in their teaching. Additionally, 65 percent expressed willingness to participate in university-industry collaboration by providing practical positions and real-world translation projects.

4.2 Current Application Status and Integration Pathways of AI Technology in Translation Talent Cultivation

Current Application Status: The application of AI translation technology in university translation education currently focuses on areas such as machine translation-assisted translation, corpus construction, and intelligent assessment. However, issues such as "superficial application, weak integration with specialized fields, and a lack of standardized teaching systems" persist, preventing the technology from fully realizing its empowering potential.

Integration Pathways: Clarify three major integration points between AI technology and the cultivation of international communication translation talents: first, AI serves as a "tool for empowerment," enhancing translation efficiency and accuracy (e.g., MTPE practical training, intelligent error correction); second, AI functions as a "resource platform," constructing ice-snow tourism international communication corpora and virtual simulation training scenarios; third, AI acts as an "evaluation tool," enabling personalized assessment and feedback on translation competence.

4.3 Key Implementation Initiatives for the Future

Optimization of the Curriculum System: Specialized courses such as "Introduction to Ice-Snow Tourism," "Translation of Ice-Snow Sports Terminology," and "Cultural Tourism International Communication Translation" will be added. Technical courses including "Application of AI Translation Tools," "Machine Translation Post-Editing," and "Corpus Construction and Application" will be introduced, accounting for over 30 percent of the total course hours.

Faculty Development: Teacher competency will be enhanced through three pathways— "industry-academia personnel exchange," "specialized training," and "research collaboration." This includes appointing senior corporate international communication professionals as part-time instructors to provide training in ice-snow tourism professional knowledge; organizing university teachers to participate in AI translation technology workshops; and encouraging teachers to collaborate with enterprises on research projects related to international communication translation. The goal is to build

an interdisciplinary teaching team proficient in "translation + ice-snow tourism + AI technology."

Establishment of Practical Platforms: A tripartite practical platform integrating "on-campus training, enterprise practice, and virtual simulation" will be constructed. On campus, an AI Translation Training Center will be established, incorporating professional tools such as Trados and DeepL. In collaboration with ice-snow tourism enterprises, practical bases will be jointly built, where students will be arranged to participate in tasks such as translating promotional materials for scenic areas and receiving international tourists. Virtual simulation scenarios for international communication will be developed to replicate real-world translation situations encountered in cross-cultural communication.

Innovation in Evaluation Mechanisms: A multi-dimensional evaluation system incorporating "formative assessment, summative assessment, and corporate assessment" will be adopted. Formative assessment will account for 50 percent of the total evaluation, encompassing classroom performance, AI practical assignments, and corpus development outcomes. Summative assessment will constitute 30 percent, based on practical tests in international communication translation. Corporate assessment will make up the remaining 20 percent, derived from performance evaluations during practical placements.

5. Conclusion

Based on the demands arising from the construction of the "Ice-Snow Silk Road" and the development of Jilin Province's ice-snow tourism industry, this study has, through systematic investigation and practical exploration, constructed and validated an AI-driven "One Core, Two Lines, Six Wings" cultivation model for international communication translation talents in ice-snow tourism. Centered on interdisciplinary competency, with professional knowledge and AI technology as its dual main strands, this model has effectively enhanced the quality of talent cultivation and its alignment with industry needs through the coordinated efforts of its six supporting systems. The research results indicate that strengthening the integration of ice-snow tourism professional knowledge and the development of a structured teaching faculty are key to improving the relevance of talent cultivation, while the deep integration of AI technology provides an efficient pathway for nurturing translation talents. This model not only offers practical reference for the specialized and application-oriented transformation of university translation programs but also provides talent support for the international development of regional cultural tourism industries. It holds significant importance for promoting cultural communication and economic cooperation within the framework of the "Ice-Snow Silk Road" initiative.

Fund Projects

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