

An Intelligent Teaching Assistant Standard System for Ideological and Political Education in Japanese Based on Electronic Library

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Abstract

Addressing the issues of "Chinese cultural aphasia" and the forced integration of ideological education in Japanese language teaching, this study proposes the "Longjiang Paradigm", an intelligent teaching assistance system based on a four-tier framework. By integrating Heilongjiang's cultural resources with knowledge graphs and natural language processing, the system creates a bilingual digital library supporting intelligent retrieval, cultural comparison, and teaching material generation. It enables precise ideological mapping and intelligent teaching application, helping teachers with lesson preparation and students with personalized learning. The paradigm offers an innovative and scalable solution for integrating ideological education into foreign language teaching, providing a reference for the digital transformation of language education nationwide.

Keywords

Electronic library; Intelligent teaching assistant; Japanese ideological and political education; National cultural digitalization strategy.

1. Introduction

With the deepening implementation of the "Opinions on Promoting the Implementation of the National Cultural Digitalization Strategy," the digital preservation, revitalization, and innovative dissemination of cultural resources have become a national strategic priority. Concurrently, the advancement of "curriculum ideology and politics" in higher education emphasizes the integration of value shaping, knowledge acquisition, and skill development, aligning with the fundamental mission of "fostering virtue and nurturing talents." Against this dual backdrop, foreign language education—particularly Japanese language teaching—faces both new opportunities and challenges. While digital technologies offer potential for enriching teaching content and innovating pedagogical approaches, current Japanese language education often suffers from "Chinese cultural aphasia," superficial or forced integration of ideological elements, and insufficient connection with regional cultural resources.

As a key province in China's northeastern border region, Heilongjiang boasts rich cultural resources such as black soil farming culture, ice and snow culture, ethnic minority traditions, industrial heritage, and Sino-Russian border culture. These resources provide valuable material for narrating China's stories and showcasing Heilongjiang's unique identity. However, their application in Japanese language teaching remains fragmented and superficial, lacking systematic digital integration and pedagogical development. Thus, this study holds significant value. Theoretically, it explores the deep integration mechanism of cultural digitization and ideological education within foreign language teaching, proposing a "regional cultural digitization-ideological mapping-intelligent teaching" model. Practically, it aims to establish a standardized "Longjiang Paradigm" system that incorporates a digital resource library and an

intelligent matching engine, which will be translated into a bilingual digital library serving Japanese classroom instruction and offering a systematic solution to bridge ideological education and professional teaching.

Currently, the national cultural digitization strategy has achieved preliminary results in foreign language education. Some institutions have mitigated "Chinese cultural aphasia" by developing modular SPOC courses on Chinese culture and establishing multilingual practice bases. However, most efforts focus on English majors, with limited research on less commonly taught languages like Japanese, especially regarding deep integration with specific regional cultures. Many studies remain at the theoretical level or offer only introductory cultural themes, lacking systematic transformation of regional cultural resources into standardized, interactive, and assessable digital teaching assets.

In terms of intelligent technology-enabled teaching, tools such as AI lesson preparation systems and virtual simulation labs have begun to support ideological education. Some systems can recommend ideological cases based on keywords. Yet, existing tools exhibit clear limitations: they are often functionally fragmented, operating as standalone solutions rather than forming an end-to-end system covering "resource integration–teaching implementation–effect evaluation"; they lack cultural adaptability, with insufficient specialized corpora and algorithmic models for region-specific content, leading to inadequate accuracy and depth in intelligent recommendations; and they are poorly integrated with language skill training, failing to seamlessly embed ideological elements into listening, speaking, reading, writing, and translation exercises.

Although Heilongjiang has set up collaborative innovation bases and some universities have incorporated resources like red tourism and industrial heritage into translation training, these efforts are hampered by a lack of standardization and low technical integration. For instance, authoritative Japanese translation corpora for local cultural concepts such as the Longjiang dialect and the Hezhe ethnic Imakan are still underdeveloped, and the digitization of cultural resources progresses slowly with low reuse rates.

In summary, developing a systematic, intelligent, and deeply integrated Longjiang cultural digital platform for Japanese language teaching is essential to address existing research gaps and advance teaching reform. Current research tends to focus on macro-level concepts or isolated practices, lacking a holistic solution that spans the entire process from "resource collection–digital transformation–teaching adaptation–intelligent recommendation–effect evaluation." In particular, the digital use of Heilongjiang's cultural resources in Japanese language education is still nascent, hindered by the absence of unified standards and norms, which results in low resource reuse and superficial teaching applications. Therefore, a digital platform centered on Longjiang culture, powered by intelligent technology, and deeply integrated with Japanese language courses will establish a replicable and scalable "Longjiang paradigm." This approach will enhance the role of regional culture in foreign language education and effectively support the coordinated implementation of the national cultural digitization strategy and ideological education in the curriculum.

Still remains at the level of theoretical appeals or simple cultural theme introductions, lacking systematic work to transform regional cultural resources into standardized, interactive, and assessable digital teaching assets.

In terms of empowering teaching with intelligent technology, tools such as AI lesson preparation systems and virtual simulation laboratories have begun to be applied to ideological and political courses. Some systems can automatically push ideological and political cases based on keywords. However, existing tools have obvious limitations: fragmented functionality, mostly independent tools, and the inability to form a full chain solution covering "resource integration teaching implementation effectiveness evaluation"; Weak cultural adaptability, lack

of specialized corpora and algorithm models for specific regional cultures, and insufficient accuracy and depth of intelligent recommendations; The integration with language skills training is low, and ideological and political elements have not been seamlessly embedded into teaching processes such as listening, speaking, reading, writing, and translation.

Heilongjiang Province has established relevant collaborative innovation bases, and some universities have attempted to transform red tourism, industrial heritage, etc. into translation training materials, but are facing the dilemma of lack of standardization and low technical coupling. For example, authoritative Japanese translation corpora for cultural concepts such as Longjiang dialect and Hezhe ethnic Imakan have not yet been established, and the digitalization process of cultural resources is slow with low reuse rates.

In summary, building a systematic, intelligent, and deeply integrated Longjiang Cultural Digital Platform with Japanese language teaching is not only a need to fill existing research gaps, but also an urgent need to promote teaching reform practices. Specifically, current research mostly focuses on exploring macro concepts or scattered practical attempts, and has not yet formed a systematic solution covering the entire process of "resource collection digital transformation teaching adaptation intelligent recommendation effectiveness evaluation". Especially in the teaching of Japanese language majors, the digital integration of Longjiang's characteristic cultural resources is still in its infancy, lacking unified standards and norms, resulting in poor resource reuse and superficial teaching applications. Therefore, building a digital platform centered on Longjiang culture, driven by intelligent technology, and deeply integrated with Japanese language courses can provide a replicable and promotable "Longjiang paradigm" for empowering foreign language teaching with regional culture, and effectively serve the coordinated promotion of national cultural digitization strategy and curriculum ideological and political construction.

2. System Arcgutectyre

The Longjiang Paradigm Japanese Ideological and Political Intelligent Teaching Assistant Standard System is a multi-level, multi-module collaborative framework that integrates four core components—Longjiang cultural resources, technical standards, intelligent engines, and teaching applications—into an organic "four-in-one" architecture, as illustrated in Figure 1.

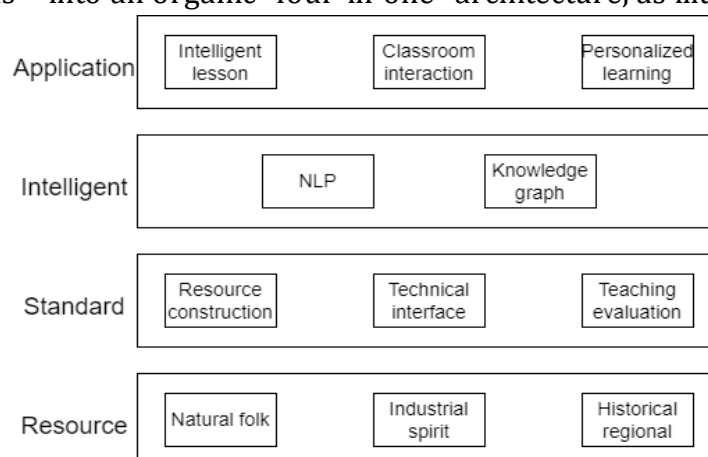


Figure 1. Teaching assistant system architecture diagram

The resource layer serves as the logical starting point and foundation of the system, focusing on the construction of a structured Longjiang cultural knowledge system. This involves systematically categorizing cultural assets—such as natural folk culture, industrial spiritual culture, and historical regional culture and developing a scientific cultural value evaluation matrix. Based on dimensions including historical significance, ideological relevance, and

pedagogical applicability, this matrix helps identify representative cultural content, laying the groundwork for digital transformation.

Above the resource layer lies the standard layer, which establishes guidelines to ensure system-wide standardization and generalizability. It encompasses resource construction standards, technical interface standards, and teaching evaluation standards. The resource construction standards define metadata specifications, such as themes, keywords, and ideological-political tags, for cultural resources. Technical interface standards facilitate seamless data exchange and interoperability among system modules. Innovatively, the teaching evaluation standards introduce a three dimensional quantitative scale "language proficiency*cultural interpretation*value identity" to comprehensively assess instructional effectiveness.

The intelligent layer acts as the core driving force of the system. Composed of key technological engines, it processes large-scale data from the resource layer and delivers intelligent support to upper layer applications. Central to this layer are a natural language processing (NLP) engine and a knowledge graph. The NLP engine interprets teaching intents and natural language queries, while the knowledge graph structurally links Longjiang cultural entities with Japanese language knowledge points, ideological-political elements, and Japanese cultural references, enabling intelligent retrieval, matching, and reasoning.

The application layer embodies the practical value of the system, providing teachers and students with intelligent tools such as lesson preparation support, interactive classroom features, and personalized learning assistance. Teachers can efficiently develop lesson plans infused with Longjiang cultural and ideological-political content, while students engage in comparative cultural analysis and exploratory learning—thus translating systemic capabilities into tangible teaching outcomes.

A key element in implementing this system is the development of a cultural intelligence correspondence program. This program not only epitomizes the resource layer but also serves as a comprehensive platform that harnesses the intelligent layer's technical capabilities, effectively bridging culture and pedagogy, resources and applications.

3. The Construcyion of Intelligent Electronic Libaray

The intelligent electronic library transcends the conventional concept of a digital repository by functioning as an advanced knowledge service system capable of cultural understanding, associative reasoning, and pedagogical support. Guided by a philosophy that shifts from a static "resource collection" to a dynamic "knowledge service entity," as illustrated in Figure 2, the library offers core functionalities including intelligent retrieval and navigation for multi-dimensional and precise searching, cultural comparison that automatically associates Longjiang cultural items with Japanese counterparts to highlight similarities and differences, automated teaching resource generation for lesson planning, and multi-modal resource presentation that integrates text, images, and other media to create an immersive learning experience.

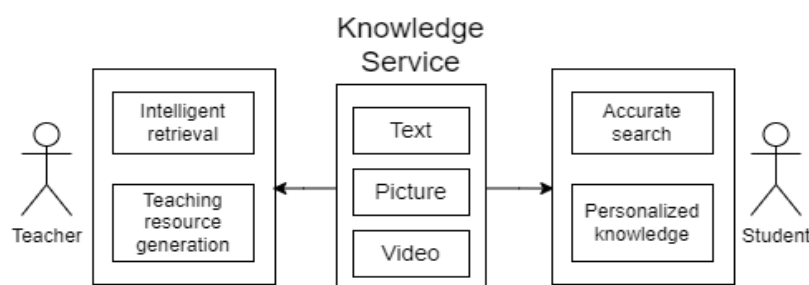


Figure 2. Schematic diagram of intelligent electronic library

The construction process, outlined in Figure 3, begins with resource digitization and knowledge annotation. This involves systematically collecting original materials from the ten major categories of Longjiang culture, followed by an interdisciplinary effort to produce accurate Japanese translations and cultural interpretations, resulting in a bilingual corpus. The third step entails deep knowledge annotation, where each resource entry is assigned structured labels to support advanced system functions.

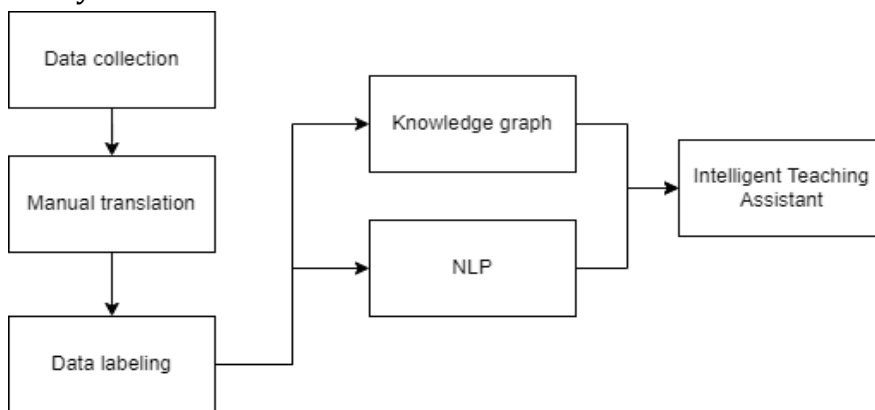


Figure 3. The construction process of electronic library

Technically, the backend system is built on the deep integration of knowledge graph and natural language processing (NLP) technologies. The knowledge graph is constructed through entity extraction, relationship definition, and the formation of semantic inference networks, while NLP enables intelligent matching and content generation, collectively enhancing the system's usability and effectiveness.

4. Condition Tests of Rougher Flotation

The intelligent electronic library serves as a powerful tool to enhance both teaching and learning processes. For teachers, it enables intelligent lesson preparation and facilitates precise integration of ideological and political education. For instance, when introducing Japanese sentence patterns, the system can automatically recommend relevant cases and background materials from Longjiang culture, while also providing comparative cultural content. This allows instructors to seamlessly combine grammatical instruction with cultural insights and value-based guidance.

For students, the platform supports personalized learning and in-depth cultural exploration. Those interested in ethnic minority cultures, for example, can independently access related resources and utilize the “cultural comparison” feature to examine similarities and differences between Chinese and Japanese cultural elements. Based on individual interests—represented visually in a word cloud as shown in Figure 4, the system recommends tailored learning materials and practical projects, thereby strengthening both language proficiency and cultural awareness.



Figure 4. Student interest word cloud map

Beyond direct teaching applications, the electronic library also contributes to a multidimensional teaching evaluation system by providing data-driven support through the analysis of student assignments, questionnaire surveys, and other metrics. However, the implementation of such a project is not without challenges. Key issues include ensuring the accuracy and depth of cultural representation, which will be addressed through the establishment of an interdisciplinary expert committee to conduct iterative evaluations. Technical complexities will be managed using an agile development approach, beginning with a basic prototype and proceeding with incremental enhancements. To improve teaching integration, teacher training workshops and a shared teaching case library will be established to encourage adoption and practical use.

Despite these challenges, the Longjiang paradigm holds significant potential for broader application. Its methodology and framework are designed to be transferable, offering a reference for other regions and language disciplines. By disseminating project outcomes through an open teaching resource platform and promoting its standard system nationwide, the approach can support the digital transformation and innovation of foreign language education across China.

5. Condition Tests of Rougher Flotation

Currently, the implementation of the national cultural digitization strategy in foreign language education shows promising progress, yet its deep integration with Japanese language programs continues to face significant challenges. While some institutions have taken steps to mitigate "Chinese cultural aphasia" through cultural education initiatives, the development of regional cultural resources for less commonly taught languages like Japanese remains inadequate, and standardized digital resource libraries are notably lacking. In the domain of ideological and political education, there persists a tendency toward "forced integration" of ideological content into Japanese language instruction, with insufficient utilization of Heilongjiang's distinctive cultural assets.

Although pedagogical explorations have been undertaken in Northeast China, the absence of standardized frameworks has resulted in slow digitization of cultural resources, low reuse rates, and a lack of quantifiable indicators for evaluating ideological education within the curriculum. Overall, current research still falls short in establishing clear integration standards for incorporating regional characteristics into the digital ideological and political practice of Japanese language and culture studies.

The Longjiang Paradigm Japanese Ideological and Political Intelligent Teaching Assistant Standard System developed in this study—along with its core outcomes—represents an innovative practice that deeply integrates the national cultural digitization strategy with ideological and political education in Japanese language majors. By digitizing cultural resources, leveraging intelligent technology, and establishing a standardized system, this initiative seeks to translate national strategies into practical classroom applications, transform local cultural resources into teachable content, and achieve meaningful integration of ideological education with the cultivation of Japanese language professionals.

Functioning as the "intelligent core" of the system, this framework addresses the disconnection between cultural resources and instructional needs, enriches teaching depth and engagement, and provides substantive support for cultivating a new generation of foreign language talent. As the project continues to be refined and promoted, the "Longjiang Paradigm" is poised to become a benchmark for digital transformation and characteristic innovation in foreign language education across the country.

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