

A Study on Innovation in the Model for Cultivating Digital and Intelligent Foreign Language Talent at Private Universities in the Context of the “Belt and Road” Initiative

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Abstract

The 15th Five-Year Plan explicitly calls for better mechanisms for high-quality, collaborative development of the Belt and Road Initiative, which imposes new demands on the cultivation of interdisciplinary foreign language talent. At present, foreign language programmes at private universities face a structural supply-demand mismatch: on the one hand, the Initiative urgently needs applied foreign language professionals who combine linguistic proficiency, digital and AI literacy, and sector-specific knowledge; on the other hand, existing training systems lag significantly behind industry needs in terms of programme objectives, curriculum content, and competency frameworks. Meanwhile, rapid advances in artificial intelligence are opening fresh possibilities for transforming foreign language education in private institutions. Drawing on a systematic review of relevant domestic and international studies, this paper analyses in depth the practical difficulties confronting foreign language talent development in private universities. It then constructs a “digital-intelligent empowered” cultivation model that integrates five core components—training objectives, curriculum systems, teaching methods, practical platforms, and evaluation mechanisms—across three analytical levels: demand profiling, empowerment pathways, and model design. The paper further proposes a “three-chain synergy” implementation route, aiming to offer both theoretical insights and practical guidance for serving the Belt and Road Initiative and boosting regional economic development.

Keywords

Belt and Road Initiative; private universities; digital-intelligent empowerment; foreign language talent cultivation; model innovation.

1. Problem Statement

The 15th Five-Year Plan explicitly calls for improving the mechanisms for high-quality joint construction of the Belt and Road and for establishing a high-standard pilot zone for Silk Road e-commerce cooperation. Against this backdrop, China’s economic and trade collaboration with partner countries continues to deepen, placing higher demands on foreign language talent in both quantitative and qualitative terms. Located at the heart of the Northeast Asian economic circle, Liaoning Province serves as a key maritime and land gateway connecting Northeast Asia with the Eurasian Land Bridge. With a comprehensive industrial base and a well-developed manufacturing system, the province urgently needs to cultivate a pool of application-oriented foreign language professionals who can meet the needs of emerging industrial clusters and thereby support regional economic development.

However, there remains a significant gap between the current state of foreign language education in private universities and this demand. The knowledge that students acquire in class often lacks practical applicability, making it difficult for them to be “work-ready upon graduation[1].” The co-existence of graduate unemployment and employer recruitment

difficulties reflects a structural misalignment between talent cultivation and industrial needs. At the same time, generative AI, represented by ChatGPT, is advancing at an astonishing pace. Automation is likely to replace certain lower-skilled language positions, rendering traditional training models increasingly obsolete. Digital and intelligent transformation has become a key driver of higher education reform in China. How to harness digital and AI technologies to empower talent development and reshape the cultivation chain has thus emerged as a critical issue in rebuilding the educational ecosystem.

In this context, the present paper focuses on foreign language talent development in private universities from the perspective of digital-intelligent empowerment. It explores mechanisms for aligning enterprise needs with institutional education, constructs an innovative empowerment-driven cultivation model, and aims to provide both theoretical and practical support for the Belt and Road Initiative.

2. Review of the Current State of Research and Key Issues

2.1. Research on Foreign Language Talent Development in the Context of the Belt and Road Initiative

The ongoing implementation of the Belt and Road Initiative has provided new strategic direction for the development of foreign language disciplines. Existing studies have approached this topic from various angles. Pan Yue and Luo Jin (2018) analysed the causes of the supply-demand imbalance between language education and employment needs within the policy context, suggesting that this dilemma could be resolved by strengthening university-industry collaboration and international exchanges. Li Xi et al. (2022), drawing on the realities of business communication cultures in Belt and Road countries, explored new models for foreign language teaching. Wang Jing (2025) conducted an in-depth analysis of the necessity of transforming foreign language education and reforming training approaches under the Initiative, and elaborated on pathways and methods for cultivating internationalised, multidisciplinary language professionals[2].

With regard to private universities, existing research has emphasised that these institutions should adapt to new social trends and seize the opportunities presented by the New Silk Road Economic Belt to optimise their talent development models. Some scholars have explored pathways such as the internationalisation of educational stakeholders and teaching practices from the perspective of cultivating internationally oriented Russian language talent. Other studies have outlined training strategies from the perspectives of curriculum optimisation, industry-university cooperation, and the application of information technology. Nevertheless, the existing literature has not yet adequately characterised the specific competency requirements for foreign language talent in private universities, nor has it systematically examined concrete pathways for digital-intelligent empowerment.

2.2. Research on Digital and Intelligent Empowerment in Foreign Language Teaching

The rapid development of artificial intelligence and big data has provided entirely new perspectives for transforming foreign language instruction. Overseas research on digital and intelligent teaching began relatively early; as early as 1952, the American psychologist Sidney Pressey conducted experimental explorations with teaching machines. In recent years, empirical research focusing on AI-enabled teaching has grown explosively. Fang and Han (2025) point out that ChatGPT demonstrates significant advantages in personalised learning support, real-time feedback, and the generation of teaching materials. Wan Yee Winsy Lai et al. (2024) found that conversational AI has a positive impact on both learners' emotional and cognitive skills.

In China, the concept of “digital-intelligent empowerment” in teaching can be traced back to Qian Xuesen’s “Dacheng Wisdom” philosophy proposed in 1997. Tang Aining (2025) focuses on constructing intelligent foreign language teaching scenarios within the context of artificial intelligence, exploring how technology can address pain points in traditional teaching, such as lack of personalisation and insufficient interaction. Xu Ling et al. (2024) explored pathways for digitally empowered foreign language teaching from dimensions such as technological characteristics, resources, and challenges. However, most existing research has centred on public universities or macro-level theoretical discussions, with insufficient attention paid to the differentiated pathways for digital-intelligent empowerment in private universities.

2.3. Key Issues in Foreign Language Talent Development at Private Universities

Against the dual backdrop of digital-intelligent transformation and the development of the “New Liberal Arts,” private universities have carried out relevant explorations. Li Qinlang (2025), using Chengdu Neusoft University as a case study, explored pathways for constructing an “Foreign Language + IT” ecological teaching model. Zhong Guiling and He Xi (2025) explored new models for vocabulary instruction by integrating corpus tools with generative AI large models. Some studies have pointed out that private universities face issues such as unclear direction in foreign language talent cultivation, severe homogenisation, and relatively outdated models.

Overall, current research still faces several key challenges. First, the competency requirements for “digital-intelligent empowered” foreign language talent among small and medium-sized enterprises (SMEs) in Northeast Asia—using Liaoning Province as an example—have not yet been clearly defined, and the current training system remains disconnected from industry needs in terms of objectives, content, and competency structure. Second, given the relatively limited resources of private universities, it remains unclear whether “digital-intelligent empowerment” should focus on “embedding digital skills into the curriculum” or on “integrating AI technology throughout the entire teaching process,” and the effective pathways and differentiated competitive advantages of these approaches have yet to be established. Third, the deep integration of digital and intelligent technologies may pose the risk of an imbalance between human and technological value; how to uphold a humanistic foundation amidst technological empowerment is a question that urgently needs to be addressed.

3. Practical Challenges in Foreign Language Talent Development at Private Universities

3.1. Mismatch Between Supply and Demand: Structural Imbalance Between Training Objectives and Market Needs

The cyclical nature of education creates a time lag between the knowledge and skills acquired in the classroom and their application in real-world work settings. Meanwhile, against the backdrop of the Belt and Road Initiative, the competency requirements for foreign language talent among SMEs are rapidly evolving alongside industrial upgrading and technological change. This cyclicity on the supply side and dynamism on the demand side together create a structural mismatch, making it difficult for curriculum content to keep pace with job requirements. A survey of 11 institutions in Shandong Province found that most universities suffer from insufficient diversification of majors, inadequate optimisation of faculty structures, and lagging alignment with industry employment needs. Foreign language graduates tend to have a narrow knowledge base and lack interdisciplinary skills; as their linguistic advantages gradually diminish, their professional competence and overall capabilities also fail to meet market demands. This mismatch is particularly pronounced in private universities, which, due

to limited educational resources and inadequate mechanisms for industry collaboration, find it even more difficult to promptly identify and respond to market changes.

3.2. Technological Challenges: Unclear Pathways to Digital and Intelligent Empowerment and Value Risks

The deep integration of digital and intelligent technologies may bring dual risks. On the one hand, students' over-reliance on AI tools may weaken their ability to think independently and demonstrate cross-cultural empathy; on the other hand, instructors' over-reliance on technological tools may strip teaching of its human touch, undermining the cross-cultural understanding and humanistic care that foreign language education is meant to foster. How to strike a balance between technological tools and humanistic values is a fundamental issue that must be addressed in the digital-intelligent empowerment of foreign language talent development. Furthermore, the choice of the path toward empowerment itself poses a challenge: should the focus be on "embedding digital skills into the curriculum" or on "integrating AI technology throughout the entire teaching process"? Different paths will lead to distinctly different training models, and there is still a lack of sufficient practical exploration and theoretical guidance on how private universities can make optimal choices under conditions of limited resources.

3.3. Faculty Bottleneck: Structural Shortage of Multidisciplinary Faculty

Constrained by limited educational resources and faculty recruitment mechanisms, private universities generally lack multidisciplinary faculty members who possess digital and intelligent literacy, industry experience, and foreign language teaching capabilities. Most faculty members struggle to handle the multidisciplinary teaching tasks that combine "language, specialised knowledge, and digital-intelligent skills." Against the backdrop of digital-intelligent transformation, foreign language faculty at private universities face an urgent need to transition from traditional teaching methods to digital teaching. The coordinated enhancement of the faculty's digital-intelligent literacy and industry knowledge has become a critical challenge in ensuring the successful implementation of these models. Research indicates that the digital-intelligent transformation of faculty is no longer a choice but a matter of survival. This faculty bottleneck is not merely a quantitative issue but also one of competency structure and training mechanisms, which requires resolution through a systematic faculty development framework.

4. Constructing a Digital and Intelligent-Empowered Foreign Language Talent Development Model

In response to the aforementioned challenges, this paper proposes the construction of a digital-intelligent empowered foreign language talent cultivation model based on the logical framework of "needs profiling—empowerment pathways—model construction."

4.1. Needs Assessment: Precisely Defining the Competency Model

Needs profiling aims to resolve the core issue of misalignment between training objectives and market demands. Taking Liaoning Province and the Northeast Asia region as the research context, and focusing on the practical language needs of small and medium-sized enterprises (SMEs) "going global," this study employs methods such as questionnaire surveys, in-depth interviews, and job analysis to systematically collect data on enterprises' competency requirements for multidisciplinary foreign language talent. Based on this, a "Digital-Intelligent Empowered Foreign Language Talent Competency Model" is constructed, encompassing three dimensions: language proficiency, digital-intelligent literacy, and comprehensive literacy.

Specifically, the language proficiency dimension includes core foreign language skills—listening, speaking, reading, writing, and translation—as well as cross-cultural communication abilities; the digital-intelligent literacy dimension covers the ability to apply digital tools, data analysis skills, and the ability to utilise AI-assisted work; and the comprehensive competence dimension includes knowledge of specific countries and regions, industry understanding, innovative thinking, and teamwork skills. This three-dimensional competency model provides a precise basis for private universities to establish differentiated educational objectives, shifting talent development from a “supply-driven” to a “demand-driven” approach.

4.2. Empowerment Pathways: Technology-Driven Educational Transformation

Based on the competency requirements revealed by the demand profiles, pathways for digital-intelligent empowerment are explored across three dimensions: resource integration, scenario construction, and assessment innovation.

In terms of resource integration, generative AI is utilised to develop a “language-specialty integration” teaching resource repository that automatically generates authentic language data and case studies based on industry scenarios, thereby addressing the disconnect between textbook content and job requirements. By integrating with corporate job skill maps via APIs, internal corporate job standards, business processes, and real-world case studies are packaged into teaching resources.

In terms of scenario construction, virtual reality technology is used to build virtual training scenarios such as business negotiations and cross-border e-commerce, allowing students to practice core job skills in simulated environments. Immersive technology provides students with a work experience close to reality, addressing the lack of practicality in traditional classrooms[3].

In terms of assessment innovation, an intelligent evaluation system based on learning behaviour data is designed, converting corporate KPIs into teaching metrics to enable dynamic monitoring and precise feedback on students’ job competence. By combining formative data tracking with summative assessment, a closed-loop ecosystem of “resources—instruction—assessment” is formed.

4.3. Model Construction: Systematic Integration of Five Key Elements

By integrating the findings of needs analysis and pathway research, we have constructed a talent development model encompassing five key elements: educational objectives, curriculum system, teaching methods, practical training platforms, and evaluation mechanisms.

The educational objectives are defined as “proficiency in foreign languages, expertise in specialised fields, strength in digital-intelligent competencies, and an emphasis on practical experience.” This objective not only embodies the core value of foreign language disciplines but also addresses the competency requirements for multidisciplinary talent under the Belt and Road Initiative, while highlighting the distinctive applied educational orientation of private universities.

The curriculum system is designed as a four-in-one matrix comprising “Language Core + Professional Track + Digital-Intelligent Literacy + Regional and Country Studies.” Language core courses solidify students’ foundational foreign language skills; professional track courses align with industry needs (such as cross-border e-commerce, logistics, and energy); digital-intelligent literacy courses cultivate students’ ability to apply digital tools and analyse data; and regional and country studies courses broaden students’ international perspectives and cross-cultural understanding.

Teaching methods establish a smart educational ecosystem featuring a three-way interaction among “instructors, technology, and students.” Instructors are responsible for instructional design, value guidance, and student well-being; intelligent technology provides personalised

learning support, real-time feedback, and resource generation; and students achieve knowledge construction and skill enhancement through human-machine collaboration. This framework aims to address the issues of diminished independent thinking and a loss of human touch resulting from the deep integration of AI.

The practical training platform establishes a four-dimensional, integrated system comprising “on-campus training + off-campus practice + virtual simulation + international collaboration.” On-campus training focuses on language skills and digital-intelligent tool training; off-campus practice provides job experience through university-industry partnerships; virtual simulation offers immersive workplace scenario simulations; and international collaboration expands students’ opportunities for cross-cultural practical experience[4].

The evaluation mechanism establishes a diversified assessment system that integrates process and outcomes, human-machine collaboration, and on-campus and industry certifications. By incorporating corporate job standards into evaluation metrics, the system enables a scientific assessment of students’ professional adaptability and job competence.

5. Practical Pathways for Implementing the Model

5.1. Synergy of the Three Chains: Establishing a Closed-Loop Mechanism for Industry-Education Integration

The effective implementation of this model requires establishing a collaborative mechanism that integrates the “industrial chain, educational chain, and talent chain.” Specifically, a full-chain empowerment mechanism is established following the process of “enterprises defining challenges—platforms building databases—teaching applications.” Enterprises transform real-world job requirements and business cases into teaching assignments; schools and enterprises jointly build intelligent corpora and teaching resource platforms; instructors convert enterprise resources into teaching content; and students enhance their capabilities by solving real-world problems. The core of this mechanism lies in incorporating enterprise talent demand standards into the training process early on, thereby achieving dynamic alignment between talent development and industry needs.

5.2. Faculty Development: Addressing the Shortage of Multidisciplinary Faculty

To address the faculty bottleneck, the solution involves two-way mobility between schools and enterprises and the cultivation of dual-qualified faculty. On one hand, faculty members are selected to gain practical experience in enterprises to enhance their industry knowledge and digital-intelligent literacy; on the other hand, industry experts are recruited as part-time instructors to bring cutting-edge industry knowledge and practical experience into the classroom. At the same time, a digital-intelligent training system for faculty is established to systematically improve their capabilities in applying artificial intelligence and designing digital teaching. Some private universities have already begun exploring a development path centred on “faculty transformation and digital-intelligent empowerment,” viewing the digital-intelligent transformation of faculty as the institution’s path to breaking through current challenges.

5.3. Dynamic Iteration: Continuous Optimisation Driven by Action Research

The construction of a talent development model cannot be achieved overnight; it requires continuous testing and optimisation through practice. It is recommended that typical private universities be selected to conduct action research, using a cyclical “design–implementation–reflection–redesign” process to validate and refine the model design. During implementation, AI-assisted tools should be introduced to collect and analyse classroom interaction data and student learning behaviour data in real time, dynamically monitoring teaching effectiveness and providing data support for the model’s continuous improvement.

6. Conclusion

The in-depth advancement of the Belt and Road Initiative and the accelerated iteration of artificial intelligence technologies have brought unprecedented opportunities and challenges to foreign language talent development in private universities. Based on a systematic review of domestic and international research, this paper conducts an in-depth analysis of the three practical challenges facing foreign language talent cultivation in private universities: the mismatch between supply and demand, technological constraints, and faculty shortages. It constructs a data- and AI-enabled foreign language talent cultivation model—encompassing five key elements: educational objectives, curriculum systems, teaching methods, practical platforms, and evaluation mechanisms—across three dimensions: “demand profiling,” “empowerment pathways,” and “model construction.” The paper also proposes an implementation pathway based on “three-chain synergy.”

The core value of this model lies in the following: First, it resolves the structural contradiction between training objectives and market demands through precise demand profiling; second, it achieves the deep integration of digital and intelligent technologies into the entire teaching process via systematic empowerment pathways; third, it addresses the fundamental issue of balancing human and technological value through a “teacher-machine-student” tripartite interaction framework; and fourth, it establishes a practical pathway for industry-education integration through a closed-loop mechanism of “three-chain synergy.” Future research could further focus on the empirical validation and effectiveness evaluation of this model. By employing action research methodologies, the model’s effectiveness can be verified in specific private universities, and differentiated application strategies can be explored across different regions, language disciplines, and industry sectors, thereby providing a more robust theoretical and practical foundation for advancing the high-quality development of foreign language education in private universities.

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