

Field Dilemmas and Path Reconstruction: An Action Research on Improving Digital Literacy of Foreign Language Teachers in Ningxia Universities

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ABSTRACT

Against the backdrop of educational digitalization, this study focuses on the development of digital literacy among foreign-language teachers in higher-education institutions located in ethnic-minority regions of western China. Taking foreign-language teachers in Ningxia as participants, the research employs action-research methodology to systematically examine the field dilemmas they encounter in digital teaching. Based on the standards for *Teachers' Digital Literacy* and the characteristics of foreign language disciplines, the study constructs a five-dimensional competence framework covering cross-cultural digital communication, digital resource integration, digital teaching innovation, digital assessment, and professional sustainable development, and proposes a path for improving digital literacy of foreign language teachers in western universities characterized by resource construction, technology empowerment, and data-driven practice. The research results provide a referential theoretical framework and operational paradigm for the professional development of foreign language teachers in western universities, and have practical and far-reaching significance for accelerating the digital transformation of regional higher education and promoting the digital international communication of ethnic cultures.

1. Background

In recent years, emerging technologies characterized by digitalization and intelligence, particularly artificial intelligence and big data, have been reshaping human modes of production, educational paradigms, and social structures with unprecedented breadth and speed¹. In April 2025, nine national ministries including the Ministry of Education issued the *Guidelines on Accelerating Educational Digitalization*, aiming to integrate AI technologies throughout all elements and processes of teaching and learning^[1]. Subsequently in July of the same year, the General Office of Ministry Education in China released

the notice on *Organizing and Implementing the Digital Empowerment Initiative for Teacher Development*^[2], establishing new requirements for the comprehensive enhancement of teachers' digital literacy. As the digital transformation of education continues to deepen, teachers' digital competence has become a crucial indicator for measuring the success of this transformation. Ningxia, located in China's western region and serving as an important gathering area for ethnic minorities, demonstrates distinctive characteristics in its higher education system, including relatively small scale, distinctive features, and comparatively weak digital infrastructure.

Against this backdrop, enhancing the digital literacy of

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foreign language faculty in Ningxia's universities assumes particular significance. As a vital component of higher education in western China, foreign language education not only bears the responsibility of cultivating internationally competent talent but also shoulders the mission of promoting cross-cultural exchange of ethnic minority cultures. However, constrained by factors such as inadequate regional digital infrastructure and limited high-quality resources, foreign language faculty in Ningxia face significant challenges in adopting emerging approaches like AI-assisted language instruction and cross-cultural digital communication.

Given this context, this study employs action research methodology and focuses on foreign language faculty in Ningxia's universities as research subjects. Through systematic "planning-action-observation-reflection" cycles, it thoroughly investigates the practical difficulties and underlying causes encountered during their digital teaching transformation. It then constructs a regionally adaptive pathway for enhancing digital literacy, aiming to provide both theoretical reference and practical guidance for the professional development of foreign-language teachers in western China's higher-education institutions.

3. The Necessity of Enhancing Digital Literacy among University Foreign Language Faculty

3.1 Aligning with Ningxia's Digital Education Transformation

In September 2023, the General Office of the People's Government of Ningxia Hui Autonomous Region issued the *Ningxia Hui Autonomous Region Education Digitalization Strategic Action Plan (2023-2027)* (hereinafter referred to as the plan)^[3]. The Plan outlines eight major tasks, including the creation of smart learning environments, optimization of resource services, innovation in education and teaching, enhancement of digital literacy, and promotion of lifelong learning. These initiatives aim to integrate digital technologies with education and teaching, accelerate the exploration of new models that embody both digital education characteristics and Ningxia's distinctive features, and provide talent support, intellectual resources, and innovative leadership for building a modern socialist and beautiful Ningxia.

As a crucial node in the Belt and Road Initiative, Ningxia has an urgent demand for digitally competent foreign language professionals with global perspectives. Enhancing the digital literacy of foreign language faculty is a fundamental prerequisite for ensuring the quality of talent

cultivation. Simultaneously, as a region with concentrated ethnic minority populations in China, Ningxia's unique cultural heritage also requires digital channels for international dissemination. Against the strategic backdrop of China's efforts to enhance its cultural soft power, strengthening foreign language teachers' digital communication capabilities—enabling them to effectively share Ningxia's stories and cultural essence with global audiences through modern information technologies.

Therefore, improving the digital literacy of university foreign language faculty is not only a concrete measure to implement the autonomous region's digital strategy but also an inevitable choice for serving Ningxia's socioeconomic development, promoting the international dissemination of ethnic cultures, and narrowing the educational gap between eastern and western China.

1.2 Aligning with Disciplinary Characteristics and Cutting-Edge Developments

The enhancement of digital literacy among university foreign language faculty aligns with both the intrinsic pedagogical features of foreign language education and contemporary developmental trends. With the rapid advancement of generative artificial intelligence technologies, foreign language instruction is undergoing profound paradigmatic transformations. Faculty members are now required to master digital competencies such as utilizing intelligent writing assistance systems and machine translation quality assessment tools to innovate language teaching methodologies. Concurrently, the integration of emerging technologies—including virtual reality and multi-modal corpora—with language pedagogy presents novel challenges while optimizing instructional design. Foreign language educators must develop dual capabilities: the ability to effectively integrate digital technologies with language teaching, and the enhancement of cross-cultural digital communication competencies. Only through such comprehensive development can they effectively guide students toward multidimensional language proficiency through technology-enhanced learning approaches. This transformation not only complies with the requirements outlined in the Ministry of Education's "Teacher Digital Literacy Standards," but more importantly represents a critical pathway for advancing innovation in foreign language education and meeting the talent cultivation demands of the digital era. The convergence of technological integration and pedagogical expertise is reshaping the fundamental paradigms of language instruction, necessitating continuous professional adaptation and growth.

2 The Connotation of Digital Literacy for Foreign Language Faculty in Higher Education

Digital literacy constitutes a comprehensive concept that dynamically evolves with technological advancements. It has progressed through developmental stages including media literacy, computer literacy, and information literacy^[4]. Gilster initially defined it as the ability to comprehend and utilize digitally presented resources and information, emphasizing the critical evaluation of digital information—a distinct difference from traditional literacy^[5]. Eshet-Alkalai subsequently expanded this conceptual framework to encompass five key dimensions: photo-visual literacy, reproduction literacy, information literacy, branching literacy, and socio-emotional literacy^[6].

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Within China's educational context, digital literacy cultivation has gained increasing policy attention. The Ministry of Education's 2022 "Teacher Digital Literacy Standards" systematically established an evaluation framework for educators' digital competencies. This framework delineates five core dimensions (digital awareness, technical knowledge and skills, digital application, digital social responsibility, and professional development), and is further elaborated into 13 secondary indicators and 33 specific observation points, providing scientific assessment standards and implementation guidelines for teacher digital-capacity building at all levels.

While digital literacy among teachers of different disciplines shares common features, it must also reflect disciplinary distinctiveness. For foreign language education, and especially within the unique context of universities in western China, this study proposes that foreign language faculty's digital literacy should encompass five core dimensions: cross-cultural digital communication competence, digital resource integration competence, digital pedagogical innovation competence, digital assessment competence, and professional sustainable development competence. Specifically, in the context of digital transformation, foreign-language teachers' digital literacy has moved beyond basic technical operation; it now requires teachers to achieve the organic integration of digital technology, language teaching, and cultural transmission within the framework of second-language acquisition theory, thereby constructing a discipline-specific digital pedagogical paradigm.

3 Pathways to Enhance Digital Literacy of Foreign-Language Teachers in Western China's Universities

3.1 Transcending Time and Space for Intercultural Empowerment

The ability to use digital technologies for intercultural communication and instruction is a core dimension of foreign-language teachers' digital literacy. It demands not only proficient operation of various digital communication tools but also the pedagogical acumen to convey cultural information effectively and resolve cultural conflicts within virtual environments. To achieve this, a systematic strategy can be constructed along three axes: resource development, international collaboration, and technological empowerment. First, efforts should center on the systematic construction of an intercultural digital resource repository that curates high-quality, multilingual short videos and VR cultural scenes from countries along the Belt and Road, thereby forming a standardized cluster of digital cultural-teaching resources. Second, AI and virtual-simulation technologies can be leveraged to enable scenario-based training: by harnessing AIGC's situational-simulation capabilities and VR environments, teachers can immerse themselves in typical intercultural settings—such as business negotiations or international conferences—thereby honing their adaptive and communicative skills in digital intercultural contexts.

3.2 From "Resource Accumulation" to "Precise Adaptation"

Digital resource integration capability represents a critical dimension of foreign language teachers' digital literacy. It primarily refers to teachers' ability to systematically screen, deeply process, and pedagogically reorganize foreign language digital teaching resources (including corpora, MOOC platforms, AI tools, and multilingual databases), with its essence lying in achieving organic unity between "resource quality evaluation" and "teaching objective alignment."^[7] Specifically, at the macro level, teachers are expected to establish a trinity model of "needs-resources-evaluation" grounded in China Standards of English Language Ability (CSE) and the university-based talent-cultivation program. Centering on instructional adaptability and taking curriculum standards and learner diversity into account, they must clarify the alignment of resource difficulty, topics, and skill-training objectives. A cross-reference table linking "teaching objectives-learner profile-resource attributes" enables the precise filtering of high-quality resources from an ocean of possibilities. At

the meso level, teachers should adeptly deploy meta data tags, knowledge graphs, and semantic-search technologies to conduct multi-dimensional indexing of open educational resources and self-built corpora, thereby creating reusable and evolvable “micro-resource packages.” At the micro level, emphasis is placed on second-order processing informed by second-language acquisition theory: employing AI-driven corpus cleaning, difficulty leveling, and task-based scripting to convert raw resources into situated learning tasks tailored to specific instructional contexts—such as intercultural communication or academic writing.

3.3 Deep Integration of Technology and Pedagogy

Innovating digital teaching methods is another essential dimension of foreign-language teachers’ digital literacy. Its core lies in the organic fusion of emerging technologies with language-teaching theories to construct technology-enhanced pedagogical paradigms. First, intelligent, theory-driven activities should be designed within the framework of second-language acquisition. For listening-skills training, teachers can employ AI speech-evaluation tools such as iFlytek or English Liulishuo to create individualized pronunciation drills. For speaking-skills development, they may leverage virtual-simulation platforms such as Huaxia Hetu or Tencent Cloud Metaverse to build digital language scenarios—for example, virtual restaurants or job-interview settings—guiding students to complete immersive foreign-language production tasks. Second, teachers are encouraged to explore blended and intelligent instructional models. A “blended learning + digital tools” pattern can be implemented: prior to class, vocabulary micro-lessons are delivered via China University MOOC for autonomous preview; during and after class, AI-assisted modes are adopted—generative AI is used to create level-appropriate, personalized reading materials, while peer-assessment digital communities are established through FLTRP iWrite or U Campus to automatically match essays for reciprocal review, allowing the teacher to focus on elaborating high- and low-score exemplars.

3.4 From “Empirical Judgment” to “Data-Driven”

Digital-assessment competence for university foreign-language teachers refers to the capacity to use digital tools for both formative and summative evaluation, to analyse learning data, and to optimise instruction. In practice, teachers first need to broaden the application contexts of digital-assessment tools^[8]. For example, Wenjuanxing can be employed to design adaptive vocabulary quizzes

that provide automatic scoring and error attribution analysis; Chaoxing Learning Pass can deliver real-time classroom feedback such as visualised polls on difficult points; and a Chaoxing-based learning-process tracking system can be established. For innovative summative assessment, a “digital portfolio” model can be adopted: students create personal learning websites via Tencent Cloud WeSchool, integrating multimodal evidence—writing samples, audio recordings, and intercultural-project reports—while teachers apply preset rubrics for multidimensional scoring.

Simultaneously, teachers should master tools such as Excel and SPSS statistics to conduct longitudinal tracking and cross-sectional comparison of students’ item accuracy, knowledge-mastery curves, and resource-access duration. By transforming these core datasets into diagnostically actionable insights, teachers can provide an empirical basis for subsequent instructional adjustments.

3.5 Building a Lifelong-Learning Ecosystem for Digital Literacy

Sustainable professional-development competence for foreign-language teachers is the capacity to keep pace with evolving digital technologies and to continuously renew pedagogical concepts and skills. At the individual level, teachers should design a structured learning pathway—for example, a trinity checklist that aligns “technology tools–teaching scenarios–competence targets.” Through ongoing professional monitoring, they construct up-to-date knowledge graphs of frontier technologies and regularly compile trend reports on digital teaching.

At the community level, a collaborative development network is recommended: establish school-based digital teaching-and-research communities that share experience via technology workshops and instructional “problem clinics”; connect with national professional alliances to participate in cross-university digital-resource development projects.

At the practical level, a reflective-improvement loop must be instituted: optimize practice on the basis of evidence, and achieve paradigm upgrades in professional competence through the systematic transformation of teaching outcomes.

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