# Research on Strategies for Enhancing AI Literacy of University Foreign Language Teachers

**Yue Huang\*, Yu Huang**

Chengdu College of Arts and Sciences, Chengdu 610401, Sichuan, China

*\*Corresponding author: Yue Huang, ivy330@foxmail.com*

**Abstract:** With the deep integration of artificial intelligence (AI) technology and foreign language education, the role of university foreign language teachers is shifting from traditional knowledge transmitters to learning facilitators and human-AI collaborators. Their level of AI literacy directly impacts the quality and effectiveness of the digital transformation in education. This paper, based on the connotation and dimensions of AI literacy, systematically constructs pathways to enhance AI literacy for foreign language teachers from personal, organizational, and societal perspectives, incorporating characteristics of foreign language disciplines and teaching practices. Strategies include autonomous learning, interactive communication, systematic training, scientific evaluation, policy support, and social resource sharing, aiming to provide theoretical references and practical guidance for the professional development of foreign language teachers and the construction of an intelligent education ecosystem.

**Keywords:** AI literacy; university foreign language teachers; enhancement strategies; digital literacy; human-AI collaboration

## 1. Introduction

Artificial intelligence is reshaping the educational landscape, and foreign language education, due to its emphasis on language interaction and cross-cultural communication, has become a critical area for AI applications. The rapid development of generative AI, speech recognition, machine translation, and other technologies provides personalized, intelligent, and contextualized support for foreign language teaching. Simultaneously, it imposes new demands on teachers' competencies. The Education Power Construction Plan Outline (2024–2035) explicitly calls to mprove standards for digital literacy of teachers and students, and deepen the use of artificial intelligence to boost the development of teachers. As gatekeepers of technology application, the AI literacy of university foreign language teachers determines whether technology can genuinely empower teaching, optimize learning experiences, and enhance educational quality.

However, significant gaps remain in university foreign language teachers' understanding, application, evaluation, and ethical awareness of AI technology[1]. Existing research primarily focuses on general digital literacy or universal AI literacy, lacking systematic studies tailored to the characteristics of foreign language disciplines and teachers' professional development. Therefore, this paper addresses the practical needs of foreign language teaching by combining empirical research and policy analysis to construct a multi-level, multi-dimensional strategy system for enhancing AI literacy among

university foreign language teachers in the intelligent era.

# 2. Connotation and Dimensions of AI Literacy

AI literacy, an extension and expansion of digital literacy in the intelligent era, emphasizes not only technical operational skills but also critical thinking, ethical awareness, and human-AI collaboration capabilities[2]. Based on the characteristics of foreign language education, AI literacy for university foreign language teachers can be defined as: the ability and attitude of teachers to understand, apply, evaluate, and ethically use AI technology effectively and compliantly in foreign language teaching, research, and professional development. Its core dimensions include:

Understanding and Cognitive Ability of AI Technology: Mastering basic AI principles, such as natural language processing (NLP), speech recognition, and machine translation, and their application logic in foreign language teaching

Human-AI Collaborative Teaching Design Ability: Integrating AI tools (e.g., intelligent writing assistants, virtual speaking partners, cross-cultural communication simulation platforms) into teaching design and implementation.

Data-Driven Teaching Decision-Making Ability: Utilizing learning analytics tools to assess student learning behaviors and implement personalized teaching interventions and feedback.

Ethical and Cross-Cultural Critical Ability: Identifying algorithmic biases, data privacy issues, and cultural representation problems, and guiding students to critically use AI tools.

Continuous Learning and Professional Development Ability: Possessing awareness of autonomous learning and collaborative reflection to adapt to technological iterations and teaching innovations.

# 3. Pathways to Enhance AI Literacy for University Foreign Language Teachers

The rapid development of AI technology is profoundly changing the ecology and paradigm of foreign language education. As key actors in educational transformation, the AI literacy level of university foreign language teachers directly affects the depth and effectiveness of technology-enabled education. Based on theories of teacher professional development, the Technological Pedagogical Content Knowledge (TPACK) framework, and the concept of human-AI collaborative education, this study systematically constructs pathways to enhance AI literacy from personal, organizational, and societal perspectives[3].

## 3.1. Personal Level: Stimulating Endogenous Motivation and Building Autonomous Growth Pathways

Teachers themselves are the main agents of literacy enhancement, and their awareness and capacity for self-development are the internal drivers of continuous AI literacy development. The enhancement pathways at the personal level mainly include autonomous learning and interactive communication.

### 3.1.1. Autonomous Learning Pathways

Autonomous learning is the process by which teachers actively seek knowledge, skills, and value updates based on their professional development needs[4]. In the AI era, foreign language teachers' autonomous learning should systematically cover the following dimensions:

Theoretical Foundation: Teachers need to grasp the basic principles of AI, especially concepts such as natural language processing (NLP), speech recognition and synthesis, machine learning, and affective computing, which are closely related to language teaching. Additionally, they need to understand the application paradigms of AI in foreign language teaching, such as intelligent writing assistance, automated oral evaluation, personalized reading recommendations, and cross-cultural communication scenario simulations[3].

Technical Operation: Teachers should become proficient in using mainstream intelligent teaching tools, such as Grammarly, ChatGPT, and iFLYTEK speech recognition tools[5]. They also need data literacy skills, including learning data analysis, visual interpretation, and data-driven teaching decision-making methods[6].

Ethical Awareness: Teachers must develop algorithmic critical awareness to identify cultural biases in machine translation, regional discrimination in speech recognition, and ethical risks in content generation, and guide students to establish responsible technology use concepts[4].

In terms of autonomous learning methods and strategies, teachers can develop personalized learning plans with short- and long-term goals, use MOOC platforms (e.g., Coursera, edX, Chinese University MOOC) to take courses on AI and educational technology, track the latest research results through professional journals (e.g., Foreign Language Audio-Visual Teaching, Modern Educational Technology) and academic public accounts, and keep personal teaching reflection journals to record experiences and lessons in technology application[7].

To ensure the effectiveness of autonomous learning, a multi-dimensional evaluation mechanism should be established. Teachers can regularly check their progress through self-assessment scales; obtain skill certifications through micro-credentials; demonstrate learning outcomes through teaching achievements (e.g., intelligent teaching design schemes, teaching video cases); and understand the practical effects of technology application through student feedback. This multi-dimensional evaluation system helps teachers maintain learning motivation and continuously improve.

### 3.1.2. Interactive Communication Pathways

Interactive communication is an important way for teachers to promote professional growth through community interaction, knowledge sharing, and collaborative construction The development of AI literacy is not only an individual cognitive process but also a socio-cultural practice that requires the establishment of diverse interaction mechanisms.

Virtual Community Interaction is an effective way to break time and space constraints. Teachers can join WeChat or QQ groups for foreign language education technology, professional forums (e.g., "Foreign Language Education Technology" community), and academic social platforms (e.g., ResearchGate, Academia.edu) to share AI application cases, discuss technology usage issues, and seek peer help[8]. For example, some teacher groups have established an "AI Foreign Language Teaching Practitioners" community, regularly organizing online seminars to share experiences using intelligent tools for essay grading and oral training[9].

Inter-School Collaborative Exchange promotes complementary resource advantages. Universities can establish foreign language teacher AI education alliances to carry out cross-school teaching and research activities, such as joint lesson preparation, teaching observations, and case studies. This collaboration is particularly helpful for teachers from universities with relatively weak resources to gain technical support and development opportunities. For example, several universities in a province jointly conducted a series of workshops on "AI and Foreign Language Teaching Integration," inviting technical experts and frontline teachers to discuss strategies for applying intelligent technology in all aspects of listening, speaking, reading, writing, and translation.

Cross-Disciplinary Dialogue and Cooperation is an important way to broaden horizons. Foreign language teachers should actively engage in dialogue with experts in computer science, educational technology, AI, and other fields to deeply understand technical principles and application potential. Communication with enterprise engineers and product managers can also help teachers stay updated on the latest technological trends and product design concepts, and even participate in the development and improvement of educational technology products[6].

To enhance the effectiveness of interactive communication, incentive mechanisms can be established, such as incorporating teachers' contributions to the community into performance assessments; regularly selecting and promoting excellent practice cases; and organizing teaching technology application competitions. At the same time, an open, inclusive, and mutually trusting community culture should be fostered to encourage teachers to share their failures and confusion, forming a good atmosphere of mutual growth.

## 3.2. Organizational Level: Strengthening Institutional Support and Building a Systematic Training System

University organizations provide institutional guarantees and environmental support for teachers' professional

development. Through systematic training systems and scientific evaluation mechanisms, they can effectively promote the comprehensive improvement of teachers' AI literacy.

### 3.2.1. Training Pathways

Training activities at the organizational level are an important guarantee for improving teachers' AI literacy. Universities should build a hierarchical, classified, and phased training system to meet the differentiated needs of different teacher groups.

The training content system should be designed around the characteristics of foreign language teaching (**Table 1**), including: Technology (AI) Foundation Module (key technical concepts and use of typical tools), Disciplinary Integration Module (specific applications of intelligent technology in listening, speaking, reading, writing, and translation teaching), and Ethics and Security Module (Algorithmic bias identification, privacy protection, and academic integrity maintenance), and so on. Training content should focus on the combination of theory and practice, including both technical principle explanations and rich frontline teaching cases.

**Table 1.** AI Training Content System for University Foreign Language Teachers

| Training Module | Main Content | Target Audience | Implementation Form |
|---|---|---|---|
| Awareness Launch Module | AI education concepts, development trends, typical cases | All teachers | Special lectures,visits to famous schools for observation |
| Technical Foundation Module | Common AI tool operation, teaching platform use | Novice teachers | Workshops, practical training |
| Disciplinary Integration Module | AI and language skill teaching integration strategies | Subject teachers | Case studies, parallel lesson design |
| Innovative Practice Module | Intelligent teaching design, research project development | Key teachers | Project learning, action research |
| Ethics and Security Module | AI ethical issues, governance strategies, team leadership | Managers/leaders | Advanced seminars, forums |

Training formats should adopt a blended model, combining online and offline, synchronous and asynchronous, theory and practice, and other methods. Specific forms include inviting domestic and foreign experts to give special lectures on cutting-edge trends in AI education applications, organizing workshops and practical training to help teachers master the use of specific tools, conducting case studies and parallel lesson design activities to promote the exchange of teaching experiences, implementing project-based learning to encourage teachers to carry out intelligent teaching innovation practices in teams, and training resource construction is the foundation for ensuring training effectiveness.

Universities should develop AI training resource libraries suitable for foreign language teachers, including training materials, video courses, teaching cases, and tool guides. At the same time, a training expert database should be established to integrate internal and external expert resources and form a stable training faculty. In addition, cooperation with educational technology enterprises to establish training bases can provide teachers with opportunities to access the latest technologies and products.

### 3.2.2. Evaluation Pathways

A scientific and effective evaluation mechanism is an important guarantee for promoting the development of teachers' AI literacy. Universities should build a multi-agent, multi-dimensional, and multi-method evaluation system to comprehensively assess teachers' AI literacy levels.

The formulation of evaluation standards should be guided by the Teacher Digital Literacyeducation industry

standards, combined with the characteristics of foreign language disciplines, to develop a detailed AI literacy evaluation index system. The index system should include dimensions such as technical understanding, teaching application, ethical cognition, and innovative development, with specific indicators under each dimension and clear level standards for teachers at different development stages (novice, proficient, expert).

The choice of evaluation methods should be diversified, including: Test Evaluation (assessing teachers' mastery of AI knowledge and skills through knowledge tests and skill assessments), Performance Evaluation (assessing the effectiveness of teachers' application of AI in actual teaching through teaching observations and student evaluations), Work Product Evaluation (avaluating teachers' innovation capabilities through teaching design schemes, teaching resources, and research results), and Portfolio Evaluation (collecting various materials from teachers' professional development process to fully reflect their growth trajectory).

The use of evaluation results should focus on developmental functions, using the results as a reference for teachers' professional development to provide personalized improvement suggestions and development directions. At the same time, AI literacy evaluation results can be linked to teacher performance assessments, professional title evaluations, awards, and other incentives. In addition, an evaluation feedback mechanism should be established to regularly reflect on and adjust the evaluation system itself to ensure its scientificity and effectiveness.

## 3.3. Societal Level: Integrating Resource Advantages and Creating a Favorable Development Ecology

The societal level is the macro-environment and resource guarantee for the development of teachers' AI literacy. Through policy support and social resource sharing, a favorable development environment and atmosphere can be created for teachers.

### 3.3.1. Policy Support Pathways

Policy support is a key force in promoting the development of teachers' AI literacy. Governments and education authorities at all levels should strengthen top-level design to provide institutional guarantees for improving teachers' AI literacy[10].

Standard formulation is the foundation of policy support. Education departments should develop AI literacy standards for university foreign language teachers, clarifying the connotation, dimension division, and ability requirements of literacy to provide guidance for teachers' professional development. At the same time, ethical guidelines for AI education applications should be formulated to regulate teachers' technology use behavior and prevent technical risks.

Funding guarantee is the core of policy support. Governments should set up special funds to support universities in carrying out teacher AI training, curriculum construction, teaching reform, and other work. At the same time, universities should be encouraged to increase investment, improve intelligent teaching environments, and build smart classrooms, language laboratories, virtual simulation experiment centers, and other facilities to provide hardware support for teachers' application of AI technology.

Project demonstration and leadership serve as key drivers for policy support. Education authorities may launch pilot initiatives to harness AI in enhancing teacher development, selecting exemplary universities and projects to explore effective pathways for improving teachers 'AI literacy. By summarizing and promoting these pilot experiences, replicable models and practices can be developed to drive comprehensive improvements in foreign language teachers' AI competencies across Chinese universities nationwide.

Evaluation incentive mechanism is the guarantee of policy support. Education departments should incorporate AI literacy into teacher qualification certification, post employment, and evaluation index systems to guide teachers to value and actively improve their AI literacy. At the same time, special awards should be set up to recognize and reward teachers and teams who have achieved outstanding results in AI education applications, forming a good demonstration effect.

### 3.3.2. Social Resource Pathways

Social resource sharing is an important support for the development of teachers' AI literacy. By integrating resources

from enterprises, universities, research institutions, and other parties, an open and shared resource platform can be built to provide teachers with rich learning resources and support services.

Resource platform construction is the foundation of social resource sharing. A national foreign language education resource sharing platform should be built to gather AI teaching tools, high-quality course resources, typical case libraries, training materials, etc., to provide teachers with one-stop resource services. The platform should use intelligent recommendation technology to push personalized resources according to teachers' characteristics and needs, improving resource utilization efficiency.

Deepening school-enterprise cooperation is the key to social resource sharing. Universities should strengthen cooperation with educational technology enterprises to jointly carry out technology research and development, product design, teacher training, and other work. By establishing school-enterprise joint laboratories, training bases, and other forms, teachers can gain an in-depth understanding of the forefront of technological development, participate in product iteration and optimization, and even jointly develop AI tools and resources suitable for foreign language teaching.

Building research communities is an extension of social resource sharing. Universities, research institutions, industry associations, etc., should be encouraged to establish AI education research communities to carry out collaborative research, academic exchanges, results promotion, and other activities. By regularly holding academic conferences, publishing research reports, and releasing best practice cases, the dissemination and application of research results can be promoted, providing theoretical guidance and practical reference for the improvement of teachers' AI literacy.

Expanding international exchanges is a supplement to social resource sharing. Cooperation with international organizations should be strengthened to introduce advanced AI education concepts, technologies, and resources from abroad. At the same time, teachers should be encouraged to participate in international academic exchanges to learn from the experiences and practices of foreign counterparts and enhance their international perspective and cross-cultural ability. In addition, more learning opportunities and development space can be provided for teachers by offering international online courses and organizing international training programs.

# 4. Conclusion and Outlook

Enhancing the AI literacy of university foreign language teachers is a systematic project that requires the collaboration of individuals, organizations, and society. Future work should further deepen the following aspects:

(1) Strengthening the development and implementation of AI literacy standards for foreign language teachers.
(2) Promoting empirical research on the deep integration of intelligent technology and foreign language teaching.
(3) Building a monitoring-evaluation-feedback cycle mechanism to achieve continuous optimization of literacy enhancement.
(4) Focusing on technological ethics and cultural diversity to guide teachers in establishing the value concept of technology for good.

Through multi-path and multi-level strategy integration, university foreign language teachers will be better able to respond to the educational challenges of the AI era and promote the development of foreign language education towards intelligence, personalization, and globalization.

# Funding

## Disclosure statement

The author declares no conflict of interest.

## References

[1] Ni Q, Chen J, 2025, Research on AI Literacy of Foreign Language Teachers from an International Perspective: Comparative Analysis and Enhancement Paths. Foreign Language World, (4): 81–87.

[2] Unesco, 2024, AI Competency Framework for Teachers. Paris: UNESCO.

[3] Ni Q, Chen J, 2025, Research on AI Literacy of Foreign Language Teachers from an International Perspective: Comparative Analysis and Enhancement Paths. Foreign Language World, (4): 81–87.

[4] Li Y, Sun L, Jiang Q, et al., 2025, AI Literacy of University Teachers and Enhancement Strategies. Open Education Research, 31(1): 23–33.

[5] Yan J, 2025, Enhancement Path of Intelligent Education Literacy for University Teachers in the AI Era—Based on an Empirical Survey of University Teachers in Jilin Province. Education Science, (15): 114–117.

[6] Liu B, Yin H, 2024, AI Empowers the Enhancement of Teachers' Digital Literacy: Strategies, Scenarios, and Evaluation Feedback Mechanisms. Modern Educational Technology, 34: 24–32.

[7] Wu D, Gui X, Zhou C, et al., 2023, Teacher Digital Literacy: Connotation, Standards, and Evaluation. E-Education Research, 44(8): 110–116.

[8] Luo T, 2021, Analysis of the Development Path of AI-Assisted Future Teacher Information Literacy—Based on an Empirical Study of an Online Teaching Questionnaire. Journal of Gansu Normal Colleges, 26(5): 91–95.

[9] Shan J, Zhu H, 2024, Research on the Enhancement of Intelligent Literacy of University Foreign Language Teachers in the AI Era. Journal of Heilongjiang University of Technology (Comprehensive Edition), 24: 12–16.

[10] Li L, Zuo C, 2024, Enhancement Path of Primary and Secondary School Teachers' Digital Literacy Based on Artificial Intelligence. China Development, 24(1): 54–59.