

Research on Enhancing the Intelligence Literacy of College Foreign Language Teachers in the Era of Artificial Intelligence

Nan Yang*

School of Foreign Languages, Baotou Teacher's College, Baotou, 014030, Inner Mongolia Autonomous Region, China

**Corresponding author*

Abstract: *With the rapid development of artificial intelligence technology, the education sector, especially foreign language teaching in universities, is facing unprecedented challenges and opportunities. The widespread application of artificial intelligence technology has changed teaching methods and learning modes, and has put forward new requirements for the teaching philosophy, teaching methods, and technical abilities of foreign language teachers in universities. Therefore, enhancing the intelligence literacy of foreign language teachers has become an important task to adapt to the educational reform in the era of artificial intelligence. This article is based on the educational background of the era of artificial intelligence, exploring the connotation and development trend of intelligent literacy of foreign language teachers in universities, analyzing the current problems in intelligent literacy of foreign language teachers in universities, and proposing corresponding improvement paths. Research suggests that universities should strengthen policy support, establish effective teacher training systems, motivate teachers to actively master and apply AI technology, and thereby improve teaching quality. At the same time, teachers should establish a lifelong learning concept and continuously improve their technical literacy and educational innovation ability. This article provides theoretical support and practical guidance for the reform of foreign language education in universities.*

Keywords: *artificial intelligence, foreign language teachers in universities, intelligent literacy, reform in education, lifelong learning*

1. Introduction

With the rapid development of artificial intelligence (AI) technology, the global education system is undergoing a profound transformation. The application of AI in the field of education is gradually penetrating into various aspects such as teaching, management, and evaluation, bringing about personalized, intelligent, and automated educational models. In this context, foreign language teaching, as a subject with high requirements for teaching methods and tools, has also begun to attempt to integrate AI technology into classroom teaching in order to enhance educational effectiveness and students' learning experience. However, despite the enormous potential of AI technology in foreign language teaching, the technical literacy of many foreign language teachers is still relatively low. The AI literacy of teachers not only affects their mastery of teaching tools, but also directly relates to their ability to effectively integrate AI technology with teaching content, thereby enhancing the effectiveness of classroom teaching. Therefore, enhancing the intelligence literacy of foreign language teachers in universities has become a key link in improving the quality of foreign language teaching.

The widespread application of artificial intelligence has brought enormous challenges and opportunities to foreign language teaching [1]. For foreign language teachers in universities, facing the ever-changing AI technology, they not only need to master new teaching tools, but also have the ability and thinking mode to flexibly apply these tools. Improving teachers' intelligence literacy can help them better adapt to changes in educational technology and achieve more efficient teaching. Studying the paths and strategies for improving the intelligence literacy of foreign language teachers in universities has important theoretical significance and practical value. From a theoretical perspective, it can enrich research in the fields of educational technology and teacher development, revealing the inherent connection between the application of AI technology and the improvement of teacher literacy; From a practical perspective, this research can provide targeted policy recommendations for universities to

design and implement more effective teacher training programs and intelligent teaching support systems, thereby improving the overall quality of foreign language teaching.

This study aims to explore the composition, current situation, and improvement path of the intelligence literacy of foreign language teachers in universities in the era of artificial intelligence. In order to explore these issues in depth, this article adopts a combination of literature review, questionnaire survey, and interviews. This study summarizes the current research results and theoretical framework on the intellectual literacy of foreign language teachers by analyzing relevant literature at home and abroad; Design a questionnaire and conduct a large-scale survey to understand the actual level of intellectual literacy and training needs of university foreign language teachers; Collect the experience and suggestions of frontline teachers through interviews, and explore practical ways to improve their intellectual literacy. The ultimate goal of this study is to provide scientific theoretical support and practical guidance for the improvement of the literacy of foreign language teachers in universities in the era of artificial intelligence, thereby promoting innovation and development in foreign language education.

2. Concept and framework of intelligent literacy for foreign language teachers

2.1 Definition of intelligent literacy

Intelligent literacy refers to the knowledge, abilities, thinking patterns, and problem-solving skills that individuals possess in the context of the increasing popularity of information technology and artificial intelligence, which are compatible with AI and related technologies. It not only involves the ability to use technological tools, but also includes comprehensive qualities such as individual understanding, evaluation, innovation, and critical thinking of artificial intelligence and its applications.

Intelligent literacy includes several core elements, firstly AI basic knowledge, involving the basic concepts, technical principles, and applications of artificial intelligence in various fields; Secondly, it refers to the ability to proficiently use intelligent tools for teaching, learning, and work management, especially in foreign language education, how to use AI technology for tasks such as language teaching, speech recognition, and automatic correction; In addition, it also includes critical thinking and innovation ability, which means being able to analyze and evaluate the rationality, effectiveness, and potential problems of AI technology in education, and possessing the ability to creatively apply AI technology; Finally, there is the awareness of human-machine collaboration, recognizing that artificial intelligence tools are not just auxiliary tools, but effective partners that can interact with teachers' professional judgment and students' learning processes.

On this basis, the intelligence literacy of foreign language teachers not only requires basic technical skills, but also requires the ability to reasonably evaluate the effectiveness of AI technology in classroom teaching and flexibly adjust teaching strategies according to students' learning needs.

2.2 Composition of intelligent literacy of foreign language teachers

2.2.1 Technical operational ability

Foreign language teachers first need to master the operational skills of common artificial intelligence tools, including language learning platforms, intelligent evaluation systems, speech recognition technology, translation software, etc. These tools can help teachers improve teaching efficiency, assist students in language training, and provide more personalized teaching in the classroom. For example, AI assisted speech recognition technology can correct students' pronunciation errors in real time, and an intelligent essay grading system can help teachers reduce the burden of grading.

2.2.2 AI teaching design capability

In an intelligent teaching environment, foreign language teachers not only need to operate tools, but also need to be able to design teaching plans based on AI technology. The ability of AI teaching design includes the intelligent organization of course content, the establishment of intelligent feedback mechanisms, and how to combine AI technology for personalized teaching adjustments. For example, teachers can use intelligent learning systems to analyze students' learning data, adjust classroom content and progress based on their learning situation, and provide accurate teaching services.

2.2.3 Data analysis capability

With the increasing amount of educational data, foreign language teachers also need to have certain data analysis skills to extract valuable information from students' learning data. By analyzing students' learning progress, difficulties, and weak links, teachers can optimize teaching strategies and provide precise guidance to students. For example, by analyzing students' language abilities, teachers can identify which language points students have poor mastery of, and provide targeted explanations and guidance accordingly.

2.2.4 Critical thinking and reflective abilities

Although the application of AI technology in teaching has brought many conveniences, there are also certain limitations and risks. Foreign language teachers need to have critical thinking and reflective abilities, and be able to evaluate the effectiveness and potential problems of AI technology applications. Teachers should be able to identify the shortcomings of AI in teaching, avoid blindly relying on technology, and maintain humanistic care and teacher-student interaction in the educational process.

2.2.5 Ethics and educational philosophy literacy

With the widespread application of artificial intelligence, teachers also need to consider ethical issues when using AI technology, such as privacy protection of student data and fairness of AI algorithms. Foreign language teachers should have a certain level of ethical awareness to ensure that AI assisted teaching does not harm students' rights, and always adhere to the original intention and goals of education in the process of using technology, that is, putting people first and promoting students' comprehensive development.

2.3 Characteristics of intelligence literacy of foreign language teachers

2.3.1 Interdisciplinary nature

The intelligence literacy of foreign language teachers is not limited to the field of language teaching, but also requires teachers to possess certain interdisciplinary knowledge, especially basic knowledge in information technology, artificial intelligence, and education. Foreign language teachers need to understand and apply the various possibilities of AI technology in foreign language teaching, which requires them to be able to cross the boundaries of language disciplines and effectively integrate technology with teaching content.

2.3.2 Dynamics and continuity

Due to the rapid development of AI technology, the intelligence literacy of foreign language teachers has strong dynamism and sustainability. Teachers must constantly update their technical knowledge and application skills to keep up with the pace of technological development. This continuous learning and self-renewal is one of the important characteristics of foreign language teachers' intellectual literacy.

2.3.3 Practicality and applicability

The intelligence literacy of foreign language teachers is more reflected in the actual teaching process. Teachers not only need to master AI technology, but also be able to flexibly apply it to the classroom to promote students' language learning and ability improvement. Therefore, the intelligence literacy of foreign language teachers has strong practicality and applicability, and the learning outcomes of teachers should ultimately be transformed into teaching behaviors and teaching effects.

2.3.4 Interactivity and collaboration

In an intelligent teaching environment, AI is not only a tool for teachers, but also an important partner in the learning process for students. Therefore, the intelligence literacy of foreign language teachers also requires strong interactivity and collaboration, which can effectively interact with students, AI tools, and other teachers to jointly promote the achievement of teaching goals. Teachers should fully utilize the advantages of AI technology to create an intelligent and interactive learning environment.

2.3.5 Personalization and flexibility

The intelligent literacy of foreign language teachers emphasizes the ability to flexibly adjust teaching strategies and methods according to the personalized needs of different students. AI

technology can provide teachers with multidimensional information about students through data analysis, and teachers should use this information to provide personalized learning resources and guidance for each student. Therefore, the intelligence literacy of foreign language teachers is largely reflected in their keen insight and flexible response to students' personalized learning needs.

In summary, the intelligent literacy of foreign language teachers is a complex and multidimensional concept, covering multiple aspects from technical operations to instructional design, from data analysis to ethical awareness. Today, as artificial intelligence increasingly permeates the field of education, enhancing the intelligence literacy of foreign language teachers is the key to promoting foreign language education reform and innovation.

3. Analysis of the current status of intelligent literacy of foreign language teachers in colleges and universities

3.1 Current situation research and data analysis

As "digital transformation" gradually becomes an important issue in the field of education, the ability of foreign language teachers to use digital technology in teaching has become an important component of their professional competence [2]. According to a nationwide survey data, about 85% of foreign language teachers agree with the importance of digital technology in foreign language teaching and express willingness to improve their digital application skills through training. However, despite this, there is still a significant gap in the application of digital technology by teachers in actual teaching.

3.1.1 Digital application capability

According to research results, 70% of foreign language teachers indicate that they use basic digital tools such as electronic whiteboards, projectors, and learning management platforms in their daily lesson preparation and classroom teaching; 50% of teachers utilize online resource repositories, academic databases, and other platforms for knowledge acquisition and sharing [3]. It can be seen that the use of digital tools has gradually become a part of foreign language teachers' teaching activities, but it is mostly limited to the application of auxiliary tools. For example, teachers often use PPT for teaching presentations or use video playback to assist teaching, but their frequency of use is lower in more complex applications of artificial intelligence technology.

In addition, over 60% of teachers indicate that although some digital tools are used in teaching, the digital application in student self-directed learning, assessment and feedback is still relatively weak. Survey data shows that only about 35% of teachers actively guide students to engage in self-directed learning through intelligent learning platforms, and provide real-time data analysis and feedback on students' learning. It can be seen that foreign language teachers still need to further strengthen their use of digital tools in teaching to enhance students' ability for self-directed learning.

3.1.2 The influence of external and internal factors

The improvement of foreign language teachers' intelligence literacy is not only closely related to their individual efforts, but also influenced by various factors. From an individual perspective, teachers' career development stage, educational background, and level of acceptance of digital technology are important factors that affect their intelligence literacy. For example, young teachers (especially those who have been employed in the past 10 years) have a greater advantage in the application of digital technology, with about 75% of young teachers stating that they are proficient in using various intelligent tools, while older teachers have a lower level of mastery in this area, with only 45% of older teachers stating that they are proficient in using digital technology.

External factors mainly include the support policies of schools, the guiding role of subject leaders, and the construction of teaching environments. Research shows that universities with digital teaching resources support generally have higher levels of intelligence literacy among foreign language teachers. About 80% of teachers say that digital teaching resources in schools can help them better use intelligent tools in teaching, while universities without digital teaching resources have slower improvement in teachers' intelligence literacy.

3.2 Main issues concerning the intelligence literacy of foreign language teachers

3.2.1 Low integration of digital applications and teaching

Although many foreign language teachers have started to use digital technology in their teaching, its deep integration with teaching is still insufficient. Most teachers still use digital tools as auxiliary tools in the classroom, rather than integrating them into various aspects of instructional design, especially in the construction of course content, selection of teaching methods, and teaching evaluation. The use of digital technology is still in its infancy. For example, research shows that less than 30% of teachers are able to effectively apply artificial intelligence technologies such as automated assessment systems or intelligent tutoring tools to students' personalized learning and assessment.

3.2.2 Uneven technical proficiency

There are significant differences in the ability of foreign language teachers to use digital technology, especially in the application of advanced technologies such as AI and big data analysis. According to a survey, about 40% of foreign language teachers stated that their understanding and use of artificial intelligence tools are very limited, and they can only make simple applications in teaching management; Approximately 25% of teachers have high technical proficiency, and they are able to proficiently use advanced technologies such as intelligent assessment tools and speech recognition systems to assist in teaching. The imbalance in the ability to use technology leads to differences in teaching effectiveness and affects students' learning experience.

3.2.3 Insufficient critical thinking and innovation abilities

Teachers often rely on traditional teaching methods and tools when applying digital technology, lacking innovative thinking. In the application of artificial intelligence and big data technology, many teachers still have weak analytical abilities regarding the rationality, effectiveness, and potential risks of these technologies in education. Research data shows that less than 20% of foreign language teachers regularly reflect on and evaluate intelligent tools, lacking critical thinking and innovative application abilities. In this way, foreign language teachers often cannot effectively evaluate the application effect of technology and find it difficult to fully utilize the advantages of intelligent technology in teaching.

3.2.4 Weak sense of collaboration

The application of artificial intelligence is not only about the use of tools, but more importantly, about effective collaboration between teachers and intelligent systems. However, research results show that over 50% of foreign language teachers have not fully recognized the auxiliary role of AI tools in teaching, viewing them as independent technological tools rather than partners in the teaching process. The lack of collaborative awareness has prevented the maximization of the role of artificial intelligence in teaching, affecting the effectiveness of human-machine collaboration.

In summary, although there has been some progress in the intelligent literacy of foreign language teachers in universities, there are still many problems in the deep integration of digital applications and teaching, technological usage ability, critical thinking and innovation ability, and collaborative awareness. To address these issues, universities should strengthen teacher training and support, promote the deep integration of digital technology and teaching, improve teachers' intelligent literacy level, and better adapt to the educational needs of the digital age.

4. Ways and strategies to enhance the intelligence literacy of foreign language teachers in universities

4.1 Strengthen the AI training system for teachers

The application of AI technology in education is gradually deepening, but there are still significant differences in the application and understanding of AI tools among foreign language teachers. Therefore, building a systematic and sustainable AI training system is the foundation for enhancing teachers' intelligence literacy. Universities should regularly organize training courses and seminars related to AI and educational technology to help foreign language teachers master the basic principles of artificial intelligence, AI application tools, and their specific application methods in foreign language teaching. Through training, teachers can learn how to use AI assisted teaching tools (such as intelligent speech recognition, automated translation, intelligent evaluation systems, etc.) to improve

classroom interactivity and teaching effectiveness. In addition, universities should establish multi-level training mechanisms and design personalized training courses for teachers with different levels and needs. Young teachers can focus on cultivating their practical application ability of AI technology, while older teachers should provide basic operation and technical enlightenment training to help them adapt to the digital teaching environment. In order to ensure the continuous growth of teachers, AI training should not be limited to short-term courses, but should also be combined with actual needs to establish a long-term learning support system. Through online learning platforms, resource libraries, and interactive communities, we regularly provide the latest developments in AI technology and teaching practice cases to help teachers continuously update their knowledge, enhance their intelligence literacy, ensure that teachers can flexibly apply AI tools in the teaching process, and continuously improve teaching effectiveness.

4.2 Building an intelligent teaching support environment

In addition to enhancing the personal abilities of teachers, universities should also create a better intelligent teaching support environment for teachers through technological means, which not only includes the construction of hardware facilities, but also involves the integration and application of software and platforms. Universities should provide advanced digital teaching facilities for foreign language teachers, such as intelligent classroom equipment, AI assisted tools, and cloud computing platforms. Through intelligent classrooms, teachers can more efficiently utilize AI technologies such as big data analysis, speech recognition, and automatic evaluation to improve classroom teaching efficiency and quality, and support diverse teaching forms such as online teaching and virtual foreign language practice. Universities should promote the intelligent development of teaching platforms and develop or introduce AI supported teaching management platforms. This intelligent platform can not only help teachers track students' learning progress in real time, but also provide personalized learning suggestions and resource recommendations based on student data, thus achieving differentiated teaching. In addition, the platform can also use an automated evaluation system to quickly correct students' assignments and tests, improving teaching efficiency. Finally, the intelligent teaching support environment should also include rich intelligent teaching resources, such as AI recommended learning materials, cross language translation tools, etc. These resources can help teachers improve lesson preparation efficiency and provide students with real-time and personalized learning support, stimulating students' learning interest and self-learning ability.

4.3 Encourage teachers' self-directed learning and innovation

Improving the intelligence literacy of foreign language teachers not only relies on external training and technical support, but also on their own initiative in learning and innovation. Universities should encourage teachers to establish a sense of self-directed learning and cultivate their habit of continuously learning new technologies and methods outside of teaching, such as organizing regular "learning sharing meetings" or "teaching innovation competitions" to stimulate teachers' enthusiasm for learning and share their experience and achievements in the application of AI technology. In addition, teachers can also utilize online learning platforms such as MOOCs to enhance their self-learning motivation and abilities. To support teachers' innovative practices, universities should establish innovative experimental platforms, such as the "Intelligent Teaching Innovation Project Fund", to encourage teachers to explore new applications of AI technology in teaching. These platforms provide teachers with opportunities for interdisciplinary collaboration, which can drive them to develop AI based language learning tools or teaching projects, enhancing their innovation capabilities. Universities should also promote interdisciplinary cooperation, encourage foreign language teachers to exchange and collaborate with teachers in computer science, data analysis and other disciplines, broaden teaching ideas, and deepen understanding of the principles and applications of AI technology. Through these measures, teachers can not only improve their intelligence literacy, but also stimulate innovative thinking in teaching, promoting the reform and development of foreign language education.

4.4 Policy support and incentive mechanisms

The ultimate goal of enhancing the intelligence literacy of foreign language teachers in universities is to improve the quality of education, and the construction of policy support and incentive mechanisms is crucial. Universities should formulate incentive policies, establish "Digital Teaching Excellence Awards" based on teachers' performance in intelligent teaching, and incorporate intelligent literacy into professional title evaluation and teaching assessment to stimulate teachers' enthusiasm for exploring

and applying AI technology in teaching. Universities should increase financial investment, provide financial support for intelligent education technology, purchase and maintain intelligent teaching equipment, develop teaching platforms, and provide technical training for teachers to ensure that they can smoothly use AI technology to improve teaching effectiveness. In addition, the education department should formulate and improve relevant policies to promote the long-term application of AI technology in foreign language teaching, develop teacher training plans and development roadmaps, and provide continuous support for teachers' intelligent literacy improvement. Administrative departments at all levels should also strengthen the evaluation and feedback of teaching quality, promote the update and improvement of intelligent teaching technology. To truly enhance the intelligence literacy of foreign language teachers, we cannot rely solely on training or technical support, but need to start from multiple aspects such as teacher ability improvement, intelligent teaching environment construction, teacher innovation incentives, and policy support. Through these measures, teachers can better adapt to the educational changes of the digital age and provide students with better quality foreign language education services.

5. Conclusion

With the rapid development of artificial intelligence technology, the field of education, especially foreign language teaching, is facing profound changes. The improvement of the intelligence literacy of foreign language teachers in universities is not only an inevitable requirement for responding to educational technology innovation, but also a key to enhancing teaching quality and achieving educational modernization. This article proposes multiple effective paths and strategies for improving the intelligence literacy of foreign language teachers in universities through research.

Firstly, universities should establish systematic policy support and incentive mechanisms to promote the continuous improvement of teachers' intelligent literacy. By formulating incentive policies, providing financial investment and resource support, teachers' enthusiasm for exploring and applying AI technology in the teaching process can be effectively stimulated. At the same time, education administrative departments should promote the construction of long-term mechanisms, formulate teacher training plans and development roadmaps, and provide continuous support and growth space for teachers. Secondly, the improvement of teachers' personal intelligence literacy not only relies on the support of external policies and resources, but also requires teachers' own active learning and practice. Teachers should establish the concept of lifelong learning, actively participate in the learning and application of intelligent technology, enhance their technical abilities and teaching level, so as to better adapt to the changes in the digital education environment. Finally, the improvement of intelligent literacy is not only the task of individual teachers, but also the shared responsibility of universities and society. Universities should create intelligent teaching environments and provide sufficient hardware and software resources, while society should promote technological innovation and promote fair distribution of educational resources.

Therefore, enhancing the intelligence literacy of foreign language teachers in universities is a systematic project that involves multiple aspects such as policy guidance, resource support, and teacher self-development. Through the implementation of comprehensive measures, teachers can better integrate into the era of artificial intelligence, achieve comprehensive improvement in teaching quality, and provide students with higher quality foreign language education.

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