



Research on International Chinese Education Informatization based on artificial intelligence Technology

Dan Lv, Jin'e Lv*

Shaanxi University of Chinese Medicine, Xi'an, China

*Email: 782988290@qq.com

Abstract. In today's era, artificial intelligence has become the most core technology in the field of computer science, which is widely used and developed in all walks of life. In the post-epidemic era, international Chinese education has gradually shifted its teaching focus and mode to online teaching, and become the darling of computer technology and big data communication. Due to the change of the global environment and the global economic downturn, and the worst impact on human health in hundreds of years, international Chinese education has been restricted through face-to-face teaching and communication. Therefore, by analyzing the application of artificial intelligence technology in international Chinese education, we will study how artificial intelligence technology ensures and improves the quality and level of international Chinese education and teaching. Finally, based on the correlation analysis, the technical challenges and countermeasures in the field of international Chinese education are proposed.

Keywords: artificial intelligence; international Chinese education; informatization

1 Introduction

International Chinese education was first known as "Chinese as a foreign language", and this concept has a long history in the Han Dynasty and flourished in the Tang Dynasty. At that time, there were thousands of foreign students studying classics and law or Chinese studies in monasteries. Whether looking up to Korea in the east, or to Tianzhu and Persia in the west, they all came to China to learn Chinese. According to historical records, since the Han Dynasty, some ethnic minorities have specially sent people to the Central Plains to learn the Chinese culture and Chinese language. In the Tang Dynasty, the country prospered, had strong economic, culture and technology, and attracted foreign scholars to China for study and exchange. The real international Chinese education and teaching should start from the first "Chinese Language Training class for Eastern European Exchange Students" established in Tsinghua University in 1950. With 1978 as the dividing line, the development of international Chinese education has changed from empirical to scientific. Thanks to the support of the reform and

opening up policy, it has made new development in the fields of economy, politics, culture and education. Artificial intelligence (Artificial Intelligence), or AI, is developing in all walks of life in an unimaginable way and speed. It is a branch of computer science that is widely used in the field of education and combined with Internet technology for innovative development models. The existing researches mainly start with the development and prospect of international Chinese education informatization, and analyze the favorable influence of informatization and new technology on international Chinese education.¹ In addition, the research based on Internet + background analyzes the influence of artificial intelligence and other technologies on the teaching mode, learning environment and learning methods of international Chinese education, and points out the corresponding space for development.²

Based on the above analysis, the combination of artificial intelligence and international Chinese education is the requirement of the development of The Times. In the face of emerging technologies such as Internet +, we should correctly guide the two technologies to develop together.

2 Application of artificial intelligence technology in international Chinese language education

2.1 Big data and cloud computing

According to the Development Plan of the New Generation of Artificial Intelligence issued by The State Council in 2017, the development of ARTIFICIAL intelligence technology will profoundly change the world and the social life of human beings. We should seize this opportunity, actively deploy development strategies, and walk at the forefront of The Times. The new generation of artificial intelligence is the artificial intelligence based on big data and cloud computing.³ Seize the new stage and new characteristics of big data and cloud computing, and apply them to the international Chinese education, to improve the education level, consolidate the education foundation, and innovate the education methods.

Big data technology means not only having and mastering a lot of data, but also having the ability to use, process, and transform that data. Through cloud computing, all visual resources are quantified into data and accurately stored in the cloud space. It can also extract any needed information from the terminal at will and timely, ignoring the time cost to the greatest extent, reflecting the characteristics of high speed, a large number and real.

In the international Chinese education, the individual differences of learners are one of the key factors affecting the teaching quality and learning level. Although there is a general rule in the secondary language acquisition, different learners will show different individual characteristics in physiology, cognition, emotion and other aspects. However, in the traditional classroom teaching, it is difficult for the teachers to pay attention to the individual differences of each learner, and to make teaching plans and teaching methods according to the individual differences. If big data and cloud computing are added to teaching, the differentiation of artificial intelligence is used to solve

the problems of traditional classroom, and the individual differences of learners and teachers' teaching behavior are analyzed by data, so that each learner can get timely and accurate feedback when facing different problems. This has changed the traditional sense of "teaching" and "learning", making the original only teaching knowledge into "intellectual teaching", and making the single learning into "intellectual learning".

2.2 Intelligent robot

We understand the intelligent robot in a broad sense, more people will mean it as "people", in fact, for now, the intelligent robot is just from the aspect of appearance and people, but far from as subtle as the real people. The core part of an intelligent robot is the "brain" that controls the overall function, namely the artificial intelligence chip, equivalent to a micro-calculator as the main operating program. At present, the intelligent robots that can be seen on the market are mostly designed for preschool children, aiming to attract children's interests, cultivate hobbies, and achieve the effect of preschool education.

For example, Mabot, an intelligent robot designed for children over the age of 6, aims to cultivate children's interest in learning and experience program programming through children's play process.⁴ In the context of international Chinese education, an intelligent robot can be developed and designed for the Chinese education of children. Its appearance is lively and lovely, and it is more favored by children. The intelligent robot applied to emotional computing can analyze the real situation with the help of algorithms, and will take corresponding specific measures to adjust to different learners. Chinese teaching belongs to language teaching, which requires a lot of context and real one-to-one communication. This kind of intelligent robot can create a real language environment and simulation exercises, so that intelligent robots and learners can talk in a second language. This interactive language design strengthens the core importance of language in international Chinese education, enabling the robot to simulate the language and learners.

2.3 Intelligent speech recognition

Intelligent speech recognition is the transformation of human language into machine-readable data input, which is a qualitative leap from physical sound to electronic data. Intelligent speech recognition in the current society is widely used, such as voice-to-text function in wechat chat, voice-to-text function in input software, and even voice password lock provided by some APP, etc., which are the use of intelligent voice recognition.

However, intelligent speech recognition is rarely used in the field of education, especially in international Chinese education. In the face of four skills teaching and four elements teaching for foreign students, the learning of "listening and speaking" skills and "pronunciation" elements is the foundation, which also runs through the whole process of Chinese language learning. In phonetic teaching, teachers can form a good interpersonal interaction with learners. However, different teachers treat learners' pronunciation errors, and there is no unified qualitative standard for learners' pronun-

ciation tone correction.⁵ Intelligent speech recognition can well solve the problem of speech standard, achieve the objective language ability feedback with learners for many times, and use the intelligent scene data to collect learners' personal bias and deficiency.

3 Innovative thinking of artificial intelligence technology in international Chinese education

Innovate the application method of "1 + N", among which "1" is the international Chinese education, including teaching content, teaching resources, teaching objects, etc., while "N" is a modern new technology with artificial intelligence as the core. With the new model of "1 + N", it highlights the application of artificial intelligence technology in the international Chinese education field, gives full play to the technological advantages, and provides new ideas and new methods for traditional education.

4 Challenges and countermeasures of AI technology in international Chinese education

4.1 Teachers' lack of technical literacy

In the face of intelligent information society, teachers should keep pace with The Times, adapt to the changes of social environment in advance, and improving the information literacy of teachers and students is the basis of conforming to the development of the information age. Chinese teaching in international Chinese education needs compound teachers, who should not only have enough solid Chinese teaching ability, be able to fully master modern Chinese knowledge, but also master certain basic Internet information technology. At present, teachers are not only resource providers, but also resource share. The subject of international Chinese education requires teachers to have strong learning ability to be able to adapt to new technologies and bring new thinking. Traditional teaching concepts have become the inertia of teachers and even students, and new changes will certainly bring new challenges. Therefore, teachers should not stay stuck in their own ways, blindly avoid difficulties, and actively learn the application of artificial intelligence technology.

In addition, the traditional classroom teaching has changed under the influence of the epidemic, and the technical support of the Internet and artificial intelligence is urgently needed to improve the teaching methods and quality of international Chinese education, and to promote teachers to adapt to the "cloud" classroom. Make full use of various online platforms to carry out online teaching, such as MOOC, Lingobus, Dingding, Tencent Conference, etc., adopt the mixed online and offline teaching mode, and complete high-quality teaching for students through comprehensive and systematic engineering such as classroom design, teaching methods and learning evaluation. Information technology support can to a large extent solve various problems caused by time, space and other uncertain factors, but also can enable international Chinese

education to walk in the forefront of the development of The Times, and make this subject scientific and forward-looking. Therefore, according to the international standard of Chinese teachers, it is very important to improve the subject teaching knowledge and ability of Chinese teachers in the integrated technology (Technological Pedagogical Content Knowledge, TPACK).

4.2 Lack of supporting learning resources and environment

At present, the application of artificial intelligence technology in the field of education has gradually entered a new stage. The state has issued a series of policies to support artificial intelligence technology, but there is still a shortage in the international application of Chinese education, and there is no detailed policy mechanism and the standards and forms of technology application. Therefore, in the formulation of artificial intelligence technology policy support, the country should consider the allocation and sharing of international Chinese education resources in many aspects. As the resources of major educational institutions and platforms of international Chinese education cannot be integrated and shared, resources are often wasted, which is not conducive to the formulation of application guidelines for ARTIFICIAL intelligence technology and the formation of a standardized resource system, and the complementary advantages and sustainable development of education platforms.

We should give full play to the advantages of artificial intelligence technology and build an international Chinese education technology network with low cost, easy technology and resource sharing in the process of storage and utilization of resource data. Based on the learning needs of Chinese learners, strengthen the effective integration of resources among all social strata, improve the resource utilization rate of teachers and learners, and cultivate the awareness of intellectual property protection.⁶ The state should also strengthen the top-level design, guide the international Chinese education institutions to actively respond to the call of the policy and actively participate in and construction. The three elements of traditional teaching include educators, learners and educational content. In the context of artificial intelligence, the rational allocation of the resources of the three elements of international Chinese education should ensure that learners achieve a certain effect in the process of learning and input. Whether it is pronunciation, grammar, vocabulary or Chinese characters, the teaching resources and teaching environment of all elements should be supported by artificial intelligence technology.

4.3 Regional differences in technological development

International Chinese education is booming across the country. Every year, volunteers sent by the country come from all over the country, which is an important foundation for the development of international Chinese education and going global. However, due to the unbalanced development of China's economy and education, there are great differences in the national industrial development level in artificial intelligence technology. The level of AI technology in eastern China is significantly higher than the overall development of western China. Even though the international Chinese educa-

tion teaching theory has been relatively mature, its teachers and learners still have deviations in the application of technology, and the teaching resources and teaching forms are better in the eastern region than in the western region. With the rapid development of Internet technology, economic benefits have promoted the innovation and practice of artificial intelligence technology industry, and also accelerated the development and layout of artificial intelligence in some regions.⁷

When promoting the application of artificial intelligence technology in international Chinese education, it should give full play to the unique advantages of each region in China, and guide the intelligent development of Chinese teaching with the help of the current situation of regional economic and cultural development and historical deposits. Considering the differences in regional development, the principle of overall planning and step by step should be adopted, actively promote the adoption of regional cooperation mode in regions with technical resources, and provide technical support and support to regions lacking artificial intelligence technology.

5 Conclusions

China's ARTIFICIAL intelligence technology has been at the world's leading level, but the technological foundation applied in education still needs to be improved, and the power of educational science and technology has gradually become an important factor in social development. At present, we should accelerate the entry of artificial intelligence technology into the international Chinese language education field, integrate resources and upgrade technologies on the existing basis, and promote the international Chinese language education into a new stage of development. This paper puts forward some new thoughts on the application of artificial intelligence technology in international Chinese education, and many problems faced by education informatization still need to be further solved. In a word, education cannot be separated from people, and international Chinese education cannot be separated from people. If we can combine people with technology, we will certainly promote the transformation and innovative development of international Chinese education.

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