Research on the Application and Influence of Digital Technology in International Chinese Language Education

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Abstract: Digital technology provides an important opportunity for the modernization of international Chinese language education. The technical logic followed by the practice of "digital technology+ international Chinese language education" has spawned new ideas, new systems, new forms and new methods. This paper analyses the application status of digital technology in international Chinese language education from three aspects, including application software in the process of Chinese learning, digital technology in the process of intelligent education evaluation, intelligent teacher assistant supported by digital technology, as well as the construction of comprehensive learning platform and intelligent teaching system of international Chinese language education. Then, it explores the multiple impacts of digital technology on international Chinese language education. The first is to promote the change of international Chinese language education form and the dissemination of Chinese knowledge, the second is to promote the supply and innovation of digital resources of international Chinese language education, and the third is to improve the perceptual shaping of "technology embodiment" of teaching subjects.

Keywords: Digital Technology; International Chinese Language Education; Application

1. Introduction

In the new era of educational informatization, digital technology has become an important support for promoting the dissemination of language education. New technologies such as big data, cloud computing, internet of things, blockchain, artificial intelligence, virtual reality, and 5G are accelerating the reconstruction of the education field. The rapid development of digital technology and its in-depth integration with education are constantly changing educational forms, teaching modes, teacher-student relationships, and educational environments. In the field of international Chinese language education, the application scope of digital technology has gradually become wider and more diverse, resulting in a series of changes in the transnational, global and cross-cultural international Chinese education ecosystem. Based on this, this paper will sort out the application forms of digital technology in international Chinese language education, and explore the impacts of digital technology in promoting the development of international Chinese education.

2. The application status of digital technology in international Chinese language education

From the perspective of media form, this paper examines the presentation of digital technology in international Chinese language education, involving smart mobile terminal devices such as mobile phones and computers, various learning websites, apps and other applications, as well as all emerging technologies. However, if we pay too much attention to media forms and material carriers, we will not be able to list all technical forms. In view of this, this paper combs the technical form from the aspects of teaching process (learning process and intelligent evaluation process), AI teacher assistant and technical facility environment.

2.1 Application software in the process of Chinese learning

The learning process refers to the process by which students acquire knowledge, skills, and attitudes through interaction with teachers, classmates, technology, and learning information in a teaching situation. In the field of international Chinese language education, multiple products produced by relying

on digital technology run through the learning process of Chinese learners, mainly including the following types of applications. The first is comprehensive Chinese learning websites and applications, including language learning platforms such as *ChinesePlus*, *Tang Chinese Education*, *Ponddy Reader* and *Memrise*. The second is targeted Chinese learning software, such as dictionary, reading and writing, examination and other application-oriented APPs. Based on digital technology, these educational products have formed integrated, industrialized and differentiated Chinese learning terminal applications to meet different Chinese learning needs and provide personalized services for learning subjects. The third is instrumental applications commonly used in society, such as *Tencent Meeting*, *WeCom*, *DingTalk*, *ZOOM*, *Rain Classroom* and other program applications, which are mainly used in formal online Chinese teaching. In addition, social software is also indispensable in the teaching and learning process, including domestic and foreign social media, video websites and short video platforms, such as *Facebook*, *Wechat*, *Youtube*, *Tiktok*, etc.

2.2 Digital technology in the process of intelligent education evaluation

The digital technology in the educational evaluation process covers the functions of speech recognition technology to assist oral Chinese teaching, human-computer interaction and data analysis to evaluate learners' abilities. Learners can use intelligent mobile devices for oral Chinese practice and oral self-assessment. Based on speech recognition technology, the system converts speech into text, and on this basis, with the help of deep neural network, the voiceprint features in speech audio and the grammatical and semantic features in reading text are extracted[1], and the scoring model is trained through machine learning with the scoring index as the label, then realize the automatic scoring of learners' oral English. For example, the *Manga Mandarin* has a function of evaluating the user's pronunciation standard, so that learners can correct their pronunciation in real time, and they can also practice the dubbing of scene comics. For the intelligent analysis of learners, some Chinese learning platforms analyse their learning preferences, Chinese level and problem feedback based on the learners' interactive behaviour data records and full statistics of their learning trajectories, so as to intelligently recommend personalized learning content according to user needs.

2.3 Intelligent teacher assistants supported by digital technology

The intelligent teacher assistant developed based on digital technology assists Chinese teachers in classroom teaching and resource management. Its functions are reflected in four aspects. Its functions are reflected in four aspects. First, conduct intelligent tutoring in Chinese learning, simulate the tutoring role of teachers, diagnose the learning state in real time, and provide customized learning services; Second, intelligent question setting and homework correction, which has the advantages of reducing teachers' repetitive work and effectively reduce random errors; Third, intelligent lesson preparation and teaching design generation; Fourth, centralized management of online teaching resources. For example, *Ponddy Reader*, as an AI teaching assistant and learning assistant, is a "one-stop platform for lesson preparation, class and classroom management"[2]. Through technologies such as big data analysis and natural language processing technology, the text is transformed into intelligent texts and associated knowledge graphs to provide learners with learning auxiliary materials. At the same time, it provides teachers with multiple lesson preparation resources, makes teaching courseware online, outputs and corrects exercises.

2.4 Construction of a comprehensive learning platform and intelligent teaching system for international Chinese language education

The integrated intelligent Chinese education environment formed by relying on digital technology gathers different technical forms into "potential energy" and forms an intelligent space, which is mainly reflected in the construction of a comprehensive learning platform for international Chinese language education and an intelligent teaching system. For example, *Tang Chinese Education Technology Co., Ltd.* has established an intelligent international Chinese education system that integrates information platforms, mobile learning, teacher services, intelligent teaching and examination evaluation. The *ChinesePlus* cloud service, *Chinese Bridge Club* App, *Online Chinese Classroom*, and *Chinese Learning Test Center* projects released by *the Center for Language Education Cooperation* of the Ministry of Education of China constitute an integrated platform for online Chinese education services.

3. The multiple influences of digital technology on international Chinese language education

The application and integration of digital technology in the practice of international Chinese language education has brought many influences on the way of knowledge dissemination, the supply of digital resources and the teaching experience.

3.1 Promoting the change of international Chinese language education form and the dissemination of Chinese knowledge

Digital technology promotes more possibilities for the dissemination of Chinese knowledge and Chinese cultural knowledge. In the era of "pan-new media", in a learning society where "everyone can learn, can learn everywhere, and can learn from time to time", the occurrence space of international Chinese education practice has changed, that is, the development of digital learning space, which is the most significant change in the transformation of international Chinese language education knowledge dissemination space. The reorganization, connection and integration of the real-virtual space has accelerated the production rate of Chinese knowledge and the spread of Chinese culture.

Online teaching has become a normalized teaching mode. Learners can connect with the learning space anytime and anywhere, which improves the availability of resources. In the learning space of international Chinese language, teachers and students form a Chinese learning community through interaction; social groups can learn Chinese knowledge on the new media platform, forming an extensive common knowledge dissemination circle in the cyberspace. Chinese knowledge exists as a digital resource, and digital technology is conducive to reintegrating fragmented Chinese curriculum knowledge. Learners and teachers can choose learning resources independently with the help of different application software, and can also obtain fragmented Chinese knowledge by browsing pictures, texts and short videos. In addition, social software, as a field of ubiquitous learning and fragmented learning, although it lacks the systematicness and professionalism of Chinese teaching, it promotes the spread of Chinese knowledge to a certain extent.

3.2 Accelerating the supply and innovation of digital resources for international Chinese language education

International and domestic demand for Chinese language learning has led and driven innovation in the supply of Chinese educational resources. Activities such as overseas Chinese education, Chinese teaching for domestic students, and Chinese language teacher training have been transferred to virtual spaces on a large scale, breaking the traditional supply system. Digital technology has become an effective path for the transformation of international Chinese education resources. On the basis of identifying learners' Chinese needs, multiple subjects formulate plans based on the common goal of international Chinese online education, share real and virtual resources such as platform resources, technical resources, product resources, teacher resources and teaching resources, innovate the supply content, supply mode and supply chain of Chinese products and language services. The digital resources for Chinese education built by the government and various formulates are complementary, which alleviates the contradiction between supply and demand of digital resources to a certain extent. However, international Chinese education still faces the dual dilemma of insufficient supply and uneven distribution of digital resources, and the gap in digital resources is widening. There is also a lack of effective communication channels between resource providers and users.

3.3 Improving the perceptual shaping of the "technical embodiment" of the teaching participants

The American philosopher Don Ihde believes that technological embodiment refers to the practical process in which people realize the embodiment through technical objects, and obtain the extension of perception through the mediation of artificial objects. The application of digital technology in international Chinese language education is an intermediary for people to obtain Chinese cultural perception through the embodiment of technology. The teaching-learning behavior of teachers, learners, and a wide range of participants through digital technology show embodied characteristics. New media can expand their perceptual experience, coordinate their physical behavior, and shape learning behavior and teaching practice through the ubiquitous perception and strong stickiness of technology. To a certain extent, technology embodiment and individual perception are integrated and symbiotic, and interact with the individual's Chinese educational practice behavior. The intelligent learning space of international Chinese language education constructed by digital technology is a spiritual space for the production of

Chinese knowledge and the dissemination of cultural knowledge. In the space of information flow, learners use technology to experience and perceive Chinese knowledge and cultural significance, so as to obtain the experience of Chinese culture.

4. Conclusion

"Digital technology + education", "Internet + education" and "AI + education" are triggering a revolution in the field of international Chinese language education. The Embeddedness and integration of technology has formed a new education pattern and education ecology, showing a strong function of language education service. Constructing an international Chinese language education scene and intelligent learning space that integrates offline-online, material-virtual, domestic-international, is an innovative model for the effective supply of Chinese as an educational product on a global scale. It is also the technical route and macro plan that the development of international Chinese language education should follow.

References

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