Ecolinguistic Thinking on the Application of Information Technology in International Chinese Education

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Abstract: *The existing education system cannot meet the Chinese learning needs of social groups well. There are certain problems in ecological, balanced and benign development. Since the new century, information technology has developed rapidly, and Internet technology has been widely used in cross-cultural education. Starting from the current development status of international Chinese education in the new era, this paper takes its healthy development as the guiding principle, explores the feasible ideas of promoting educational development through interdisciplinary studies from the perspective of ecolinguistics, proposes some development strategies for international Chinese education, strengthens the construction of international Chinese education response mechanism for emergencies, promotes the effective allocation of international Chinese education resources, and especially strengthens the in-depth application of modern information technology in all aspects and fields of international Chinese education.*

Keywords: New Era, Information Technology, International Chinese Education, Ecolinguistics.

1. Introduction

As globalization continues to encounter twists and turns but continues to deepen, international exchanges and cooperation are becoming increasingly frequent and complex. With China's rapid economic development and increasing international influence, Chinese has become one of the most widely learned and used languages in the world [1]. With the advancement of modern information technology, the rapid development of new information technologies such as 5G networks, artificial intelligence, cloud computing, big data, blockchain, and virtual reality, international Chinese education across time, space, and culture has strong technical support. Even during the outbreak of the COVID-19 pandemic, when teaching activities around the world were severely impacted, online teaching has become an important means of responding to the pandemic and ensuring the continuity of education, and has also been proven to be an effective means of education [2]. The traditional education model is limited by time and space and cannot meet the needs of global learners. Online education, with its unique advantages of breaking through time and space limitations, rapid replication and dissemination, and rich presentation methods, should become an important development direction for international Chinese education. However, the study found that during the COVID-19 pandemic, some systematic and structural problems also emerged in the online teaching that was widely carried out in the field of international Chinese education using modern technology [3].

In response to these problems, international Chinese education teachers have explored from a multi-dimensional perspective and actively sought suitable online teaching models: some teachers discussed the rationality of using Chinese teaching materials on online platforms; some teachers thought about the ways of interaction between teachers and students in online teaching [4]. Against the backdrop of the vigorous development of information technology in the new era, this article reviews the current development status of international Chinese education from the perspective of ecolinguistics, explores effective mechanisms for the harmonious operation of the language ecology of this discipline, and conducts ecological thinking on the application of information technology in international Chinese education.

2. The Proposition of International Chinese Education Ecology

The focus on the language education ecosystem comes from the fact that humans have destroyed the natural and cultural ecology in the process of civilization development, which has led to the survival crisis of mankind itself. Language is an important element in cultural development, and it also carries and nurtures culture itself. Human culture is inherited and developed through the formation of a certain cognitive system through language [5]. Therefore, language and culture have a very close relationship and cannot be ignored. At the same time, as important parts of international Chinese education, some discordant phenomena have occurred in the process of discipline construction, leading to a crisis in the ecological development of the discipline, thus causing academic discussions on the relevant ecological operation of the discipline.

The term ecolinguistics came into being in interdisciplinary research and gradually formed an independent discipline. It was first formed in the 1970s with the Haugen model, which focused on language problems in the environment, that is, the effect of the environment on language. After the 1990s, scholars represented by Halliday shifted their research focus to ecological issues in the field of language, that is, the impact of language on the environment [6]. In terms of language ecology, the academic community regards language and environment as an open ecosystem, takes the harmony between language ecology and biological ecology as the starting point of basic theory, and emphasizes the importance of language ecology harmony to human survival and development. From this, we can see that the interdependent relationship between biological ecology and language

ecology is the normal state of the relationship between nature and humanity [7]. Obviously, as a component of language ecology, the ecological outlook of international Chinese education reflects to a certain extent the basic situation of language ecological development, and further reflects the subjective influence of human ecology on natural ecology. In terms of academic research, the study of ecolinguistics in China started relatively late. Starting in the 1980s and 1990s, some scholars used ecological theory to think about problems that arise in Chinese. For example, Li Guozheng's research results in this area include "Ecological Language System" Theory" and "Ecological Chinese Language Studies" are considered to be the earliest treatises in China that combine ecology to explore language.

After the 1990s, with the development of social economy, the ecological environment was severely damaged, which affected the harmonious relationship between nature and human beings. Therefore, people believed more in the importance of a healthy ecological environment to the promotion of human civilization. This prompted scholars to pay more attention to the ecological development of language and form more and more research results. Ecolinguistics research has gradually been recognized by the academic community, and its development prospects are relatively bright. However, at present, scholars do not seem to be very active in paying attention to ecolinguistics, and the corresponding research results are relatively few. Its research topics are mainly reflected in the following points: Some scholars analyze the problems in Internet language from an ecological perspective and advocate the environmental protection of Internet language [8]. Some scholars have conducted ecological analysis of Chinese stories in newspapers in order to promote the localization of language ecology [9]. Some scholars have combined ecolinguistics with science and technology to explore cultural ecological issues in rural construction [10]. Although these studies consider the relationship between language and culture from an ecological perspective, there is still a lack of research on ecology in international Chinese education. Therefore, the integration of international Chinese education with ecological research is an academic issue that has not been widely recognized, and there is still a lot of room for research.

From the perspective of the ecological environment of international Chinese education, it generally includes four aspects:

First, the mother tongue learning environment where Chinese is taught in the mother tongue mainly refers to the Chinese teachers teaching Chinese in the mother tongue of the students. The teachers are generally local international Chinese teaching staff who are proficient in foreign languages; the students are from countries other than China, and their Chinese level is roughly at the elementary level. It is very difficult for teachers to teach completely in Chinese, and they are unable to come to China to learn Chinese due to subjective and objective factors such as economic conditions.

Second, there is the crossover situation of second language teaching in a native language environment, that is, the learners whose native language is not Chinese. These students may have a Chinese proficiency at the elementary or intermediate

level. Their teachers are from China: some teachers are dispatched by the National Language Cooperation Center for international Chinese education, and other teachers apply for it through Chinese training institutions. After being approved by relevant departments, they go to other countries or regions to teach international Chinese.

Third, students who apply to come to China through channels in other countries, they study Chinese in some schools or Chinese training institutions in my country, and the language of instruction they receive in class is Chinese. From the perspective of second language acquisition, this form is the most effective for students to learn authentic Chinese, it helps students master Chinese the fastest, and guides them to have a deeper understanding of Chinese classical culture. However, this teaching model requires students to have a good foundation in Chinese.

Fourth, the learning objects are mainly Chinese students, and some foreign students are also involved. Their learning objectives are to deeply understand Chinese theoretical knowledge and master Chinese teaching skills. The country trains international Chinese teachers for such students, and the teaching language is mainly Chinese. For example, during the COVID-19 pandemic, most students stayed at home and could not return to school. They applied to the school to choose to take online classes at home, which broke the face-to-face learning state between teachers and students. The teaching content, learning process and after-class feedback have also changed to a great extent: face-to-face discussions have become dialogues between voices and voices or images and images; emotional exchanges between teachers and students have become rare, etc. In the process of teaching Chinese, teachers found that the effect of Chinese teaching has been discounted to a certain extent, and found that students face many obstacles in receiving Chinese teaching on the Internet platform. For example, the cognition of daily words including ride-hailing, QR code, shopping, etc., students can master them through personal experience in offline classes, while online teaching reduces this real experience, resulting in their understanding of these common words not being so smooth. In addition, in the specific Chinese phonetics teaching, students do not have a clear perception of the teacher's pronunciation of words, facial expressions, etc. They can only watch the PPT content presented by the teacher on the computer screen, and their viewing experience is also relatively superficial. The time difference problem also makes it difficult to conduct live online teaching. Recorded courses make students listen to the class unilaterally, which is not conducive to timely interaction between teachers and students and affects the teaching effect.

Based on the above-mentioned difficulties in the international Chinese education environment, teachers and scholars have reflected on professional training objectives, teaching content, teaching methods, etc., formed corresponding solution strategies for specific problems, and produced systematic academic research results on international Chinese education [11]. However, in addition to the problems of the discipline itself, whether international Chinese education is affected by other disciplines is also worth exploring, and the academic community is still lacking in cross-disciplinary research. From the perspective of language education ecology, when

population mobility is restricted, international Chinese education encounters a greater dilemma: classrooms are converted to virtual classrooms, teaching content is not targeted enough, learning feedback is not effective, and teacher-student interaction is not active.

3. Strengthen the Construction of International Chinese Education Emergency Response Mechanism

At present, international Chinese education is in an abnormal stage. Relevant departments should establish an abnormal operation mechanism based on existing experience and equipment to promote the ecological development of international Chinese education. It is understood that the international community has accumulated a lot of relevant experience in dealing with emergencies, such as the establishment of a special department by the World Health Organization to study diseases that occur in emergencies; the establishment of the National Language Service Corps (NLSC) by the United States through law; and the creation of "Simplified Japanese" in the 1990s by Japan to facilitate language communication among foreigners when disasters occur [12]. These rich experiences provide a good reference for international Chinese education to set up emergency response mechanisms in the new era.

For example, during the COVID-19 pandemic, Chinese linguists set up the "War Epidemic Language Service Group". With the support of relevant national departments, this organization jointly developed a variety of emergency language products, such as "Fighting the Epidemic Hubei Dialect Guide" and "Easy Chinese for Epidemic Prevention and Control", which provided timely language services for the sudden epidemic [13]. International Chinese education involves both language learning and cultural learning. In the new era, we should actively learn from experienced countries about emergency response measures and establish corresponding scientific mechanisms. Therefore, international Chinese education should integrate with new media, deeply connect teaching links with network software, and establish a suitable ecological operation path: the classroom forms a real teaching environment for teacher-student interaction. In this atmosphere, teachers are not limited to using PPT teaching, but can try situational teaching to increase students' actual perception of learning content; in the big data environment, teachers should also master relevant network skills, understand students' learning interests, and teach them Chinese in a targeted manner; teachers can also use VR technology to increase students' immersive experience in classroom learning, thereby stimulating students' enthusiasm for learning. In addition, schools or institutions should prompt teachers to adjust teaching content in a timely manner and flexibly choose teaching methods based on talent training goals and the advantages of information technology development in the new era, rather than simply reducing course content, resulting in a decline in teaching quality, and should not choose to completely stop similar courses due to poor implementation of online teaching such as listening and speaking classes. Because such courses are designed to train students' Chinese listening and speaking skills and are highly practical, it is not advisable to completely stop them. To sum up, schools or institutions should arrange course teaching and learning methods in a hierarchical and phased manner according to specific circumstances, encourage teachers to use videos to increase the intuitiveness of learning, and use interactive question-and-answer functions on online platforms to allow teachers and students to communicate promptly about difficult points in learning.

With the support of information technology in the new era, we can strengthen the construction of the operation mechanism of international Chinese education to respond to emergencies from the following aspects: First, use big data and artificial intelligence technology to establish a monitoring system in the field of international Chinese education to conduct real-time monitoring and early warning of emergencies. At the same time, formulate a clear emergency response process and clarify the responsibilities and action plans of various departments and positions. Ensure that when an emergency occurs, the emergency plan can be quickly activated and work can be carried out in an orderly manner according to the established process. Second, increase investment in digital teaching resources and build a rich online teaching resource library, including textbooks, courseware, videos, etc. These resources can provide students with flexible learning methods and materials during emergencies to ensure the continuity of teaching. Third, use cloud computing, artificial intelligence and other technologies to build a stable and efficient online education platform. Realize online teaching, interactive communication, homework submission and other functions, break the limitations of region and time, and ensure that students can study normally at home. Third, design appropriate emergency discourse for different situations and needs of emergencies. These discourses should be concise, easy to understand, and able to accurately convey information and intentions. Fourth, regularly organize teachers to conduct emergency capacity training, including information technology application, online teaching skills, psychological counseling and other aspects. Improve teachers' response capabilities and teaching levels in emergencies.

Of course, schools or institutions should consider long-term planning in the development of the international Chinese education ecosystem, such as building an online Chinese teaching library on a new media platform. With the support of information technology, teachers and students have gradually adapted to the online Chinese teaching model, and have produced a lot of rich teaching materials such as online teaching videos, audios and pictures during the teaching process. These teaching materials can also be used in international Chinese education in the new era, and can also be considered as a supplement to offline teaching. Therefore, in the long run, international Chinese education must not only form a specialized systematic Chinese learning for specific situations, but also accumulate the experience of the discipline in responding to public emergencies, preserve teaching resources, and establish a sustainable online teaching platform. At the same time, schools or institutions should make reasonable use and development of limited teaching resources to avoid potential waste of teaching resources.

4. Promote the Effective Distribution of International Chinese Education Resources

The International Chinese Education major was established through approval to adapt to the global trend of Chinese learning. It is not only to meet the needs of the Chinese learning market, but also to enable people from other countries in the world to deepen their understanding of the essence of Chinese culture, guide them to truly like Chinese culture, and eliminate prejudice against Chinese culture, so as to enhance China's cultural soft power on the world stage and realize the development strategy of a community with a shared future for mankind. However, the resources for professional construction are limited after all, and schools or institutions should comprehensively consider the supply of international Chinese education resources.

Specifically, in terms of student sources, different schools or institutions are located in different geographical locations and cooperate with different countries, and there are differences in the number of international students they recruit and their Chinese language proficiency. In particular, the student source situation of local colleges and universities is not optimistic, resulting in large differences in the development of the same major among schools. In terms of platform resources, online courses on platforms such as WisdomTree and MOOC are highly homogenized. For example, if the same or similar courses appear on the same platform, the course content is also similar. Especially when virtual space is limited, schools or institutions will upload courses to the online platform at the same time, which will obviously increase the pressure on the platform space. In the case of insufficient platform space, this will force the platform to expand frequently, which will greatly increase the platform construction and maintenance expenses.

In view of the above platform resource problems, we can consider the following solutions: When the overall development goals of the discipline are similar, the country should consider reducing the resource supply of schools or institutions that are not well developed in the discipline in the top-level design, especially implementing the cancellation plan for schools or institutions that cannot meet the enrollment requirements. In terms of teaching resources, schools or institutions can establish a resource sharing chain to form an international Chinese education development alliance, that is, through international Chinese education, schools or institutions will form their resources as a whole and establish a cooperative relationship through project implementation. On this basis, set up course models and create high-quality online courses to encourage them to form a strong cohesion. In terms of network media, the platform should form rules for uploading and using online courses, strengthen strict review of course names and course content, and check from aspects such as teacher preparation, classroom teaching, after-class feedback and teacher-student interaction to avoid following the crowd, resulting in a lack of characteristics in the construction of course resources in the discipline. At the same time, a collaborative relationship should be established between platforms to jointly supervise the scientific and innovative nature of course resources. From the perspective of language ecology, the essence of these problems is how to use platform resources in a balanced way, avoid platform congestion that affects teaching order, and avoid similar courses taking up too much space and causing waste of resources.

In general, the rational use of network resources is not only the responsibility of the platform itself, but also an important issue that schools or institutions should consider when creating a disciplinary ecological environment. In particular, strengthening the ecological development of international Chinese education is not only a reflection of the level of disciplinary construction, but also a demonstration of the ability of schools or institutions to integrate other resources, and it is also a demonstration of the strength of international Chinese education in the world.

5. Other Thoughts on Deepening International Chinese Education

The ecolinguistics of "Haugenian Dogma" believes that each language has its own ecological environment, and its quality is determined by the society and people who use the language. This means that a well-ordered social environment can promote the continuous progress of language use and research, while a vague and chaotic social environment will hinder the healthy development of the language ecology [14]. The disorder of language ecology will inevitably lead to the imbalance of social and cultural ecology, thus delaying the sustainable development of the entire human society and even destroying the existing human living environment. From this perspective, maintaining the development of language ecology is the unshirkable responsibility of language planning departments and their staff [15]. International Chinese education is an overall language and cultural ecology that requires strengthening overall considerations and involves the harmonious integration of the country, society and individuals.

From the national level, the corresponding departments and managers should issue a top-level design for the sustainable development of international Chinese education in the new era, including the growth of the discipline itself and its cross-disciplinary development with ecology, which can involve schools, Chinese institutions and communities, etc. At the same time, they should comprehensively consider the overall mechanism of discipline development, the feasibility of project cooperation, the creativity of platform resource links, etc., so that international Chinese education can be implemented in an orderly manner and progress harmoniously in a benign ecological environment. At the social level, through legal publicity, relevant organizations and collectives should guide people to objectively recognize the problems existing in international Chinese education in China on the Internet platform, and win more people to support the orderly implementation of the discipline worldwide. At the same time, effective operation methods should be proposed for the allocation of existing discipline resources, so as to establish an implementation department for the ecological development of international Chinese education.

From the perspective of educational implementation institutions, it is necessary to strengthen the construction of the teaching staff of international Chinese education. On the one hand, it is necessary to strengthen the training of Chinese teachers, improve their language level, teaching skills and cross-cultural communication ability, especially the ability to apply modern information technology. At the same time, teachers are encouraged to participate in international

academic exchanges and research activities to broaden their horizons and update their teaching concepts. At the same time, a scientific teacher evaluation system and incentive mechanism should be established to commend and reward teachers with outstanding performance and encourage them to better devote themselves to teaching. On the other hand, it is necessary to promote international cooperation and exchanges, actively establish cooperative relations with foreign educational institutions, academic organizations, etc., use modern information technology, jointly carry out Chinese education projects, research activities, etc., and promote the internationalization and standardization of Chinese education. International Chinese education forums, cultural festivals, language competitions and other activities should be held regularly to provide teachers and students with a platform for display and communication, and promote the international dissemination and exchange of Chinese education.

From the perspective of teachers, international Chinese education is not only a cause that the country and society value, but also a meaningful thing for teachers to actively participate in cultural exchanges. Specifically, teachers can think about the feasibility of connecting each course lesson plan with the platform, especially the sharing of teaching resources for the same course; students can think deeply about the importance and necessity of learning Chinese, and at the same time, cooperate with teachers to jointly build online course resources.

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