Online Education and Digital Resource Construction: A Comparative Analysis of Basic Education in Mongolia and China

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Abstract

In order to cope with the challenges of unequal distribution of educational resources and the transformation of education models in the context of globalization, and to promote the modernization of basic education, this paper uses a combination of literature analysis, case studies and comparative analysis to discuss the construction of online education and digital resources in the field of basic education in Mongolia and China. The study finds that China has significant advantages in the penetration rate of online education, the coverage of digital resources and the depth of technology application, and has formed a government-led and multi-party resource co-construction and sharing model. Although Mongolia has made some progress in the construction of online education infrastructure, it is still facing problems such as lack of resources and imperfect sharing mechanism due to the economic conditions and technical level. There are also significant differences between the two countries in terms of educational philosophy, policy support, and technology application paths. Based on this, this paper proposes to strengthen China-Mongolia education cooperation, learn from China's successful experience in the construction of digital resources, and explore a development path suitable for Mongolia's national conditions in combination with its local characteristics. The results of this study provide theoretical reference and practical enlightenment for the digital transformation of basic education in China and Mongolia..

Keywords

online education, digital resource construction, basic education, comparison between China and Mongolia, education modernization.

1. Introduction

In the field of global education, digital transformation has become an irreversible trend. Especially in the basic education stage, the construction of online education and digital resources not only changes the traditional teaching mode, but also provides new possibilities for education equity and quality improvement. Taking China as an example, as of 2022, the Internet access rate of primary and secondary schools in the country has reached 100%, and the coverage rate of digital teaching resources has exceeded 95%[1]。 This data shows that China has made significant progress in the digitalization of basic education. In contrast, the digitalization of basic education in Mongolia is relatively lagging behind, and although the government has increased investment in education informatization in recent years, there are still many challenges in the construction of Internet penetration and digital resources. Schools in some remote areas of Mongolia still lack stable network connectivity, and the development and sharing mechanisms of digital resources are not yet mature[2]。

The impact of online education and the construction of digital resources on basic education in China and Mongolia is far-reaching. In China, the large-scale online education practice during the epidemic has accelerated the process of education digitalization. During the epidemic in

2020, more than 200 million students across the country participated in learning through online platforms, which not only verified the feasibility of online education, but also provided valuable experience for the subsequent construction of digital resources[3] 。 In Mongolia, although online education is less widely available, some pilot projects have shown its potential positive effects. Some schools in Ulaanbaatar have significantly increased student interest and engagement by introducing online courses[2] 。

A comparative analysis of the differences between China and Mongolia in terms of online education and digital resource construction will not only help to reveal the advantages and disadvantages of the two countries in the process of education digitalization, but also provide reference for future policy formulation and technology application. China has accumulated rich experience in the standardization of digital resources and platform integration, while Mongolia has shown a unique attempt to explore the path of education digitalization suitable for its own national conditions. Through an in-depth analysis of these differences, new ideas can be provided for cooperation between the two countries in the field of education, such as synergistic development in the sharing of digital resources and technical support.

The construction of digital resources is not only a technical issue, but also involves many factors such as educational philosophy, teacher training and social support. China's "Smart Education" program not only focuses on the application of technology, but also emphasizes the improvement of teachers' digital literacy and the need for personalized learning for students[4] 。 In Mongolia, the construction of digital resources relies more on international aid and technology introduction, and the development of localized educational resources still needs to be further strengthened[2] 。

The construction of online education and digital resources is of great significance to the development of basic education in China and Mongolia. Through comparative analysis, it can provide theoretical support and practical guidance for the cooperation between the two countries in the field of education digitalization, and then promote the comprehensive improvement of basic education.

2. Overview of the current situation of basic education in China and Mongolia

After years of development, China's basic education system has formed a relatively complete structure. The compulsory education stage includes primary and lower secondary schools, with a nine-year duration and a coverage rate of nearly 100 per cent. High school education is divided into general high school and vocational high school, with regular high school accounting for about 60% and vocational high school accounting for about 40%. According to data from the Ministry of Education, as of 2022, there are about 210,000 compulsory education schools and 14,000 high school schools in the country, with a total of more than 200 million students[5] 。 In recent years, China's basic education has been continuously reformed in terms of curriculum, teaching methods and evaluation system, emphasizing quality education and the cultivation of innovation ability.

Mongolia's basic education system is relatively simple, divided into three stages: primary, junior high and high school, with a duration of 10 years. The primary school stage is four years, and the junior high school and high school are three years each. Mongolia's educational resources are unevenly distributed, with the capital Ulaanbaatar housing about 40% of the country's schools and students, while remote areas are relatively scarce. According to the statistics of the Ministry of Education, Culture and Science of Mongolia, as of 2022, there are about 800 basic education schools in the country, with a total of about 600,000 students. In Mongolia, the curriculum of basic education is mainly based on traditional subjects, and in

recent years, information technology courses have been gradually introduced, but the overall popularity is low[5]。

There are significant differences between China and Mongolia in the development of basic education. Since the 80s of the 20th century, China has implemented nine-year compulsory education, and after decades of efforts, it has basically achieved full coverage. Mongolia only officially implemented 10 years of compulsory education in 2008, and faced many challenges in the implementation process, such as insufficient teachers and uneven distribution of educational resources. China's basic education system is more complex in size and structure, covering both general and vocational education, while Mongolia is dominated by general education and the development of vocational education is relatively lagging behind.

In terms of the structure of the education system, China's basic education is divided into compulsory education and high school education, of which compulsory education is divided into two stages: primary school and junior high school. High school education is further subdivided into general high school and vocational high school, forming a diversified education path. Mongolia's basic education system is relatively homogeneous, with general education as the main focus, and vocational education as a relatively low percentage. China's basic education pays more attention to the cultivation of comprehensive quality in the curriculum, while Mongolia focuses more on the teaching of traditional subjects.

Overall, China's basic education is better than Mongolia in terms of size, structure and quality, but Mongolia has also made some progress in education reform and innovation. The differences between the two countries in the field of basic education provide an important background basis for the subsequent comparison of online education and digital resource construction.

3. The application of online education in basic education in China and Mongolia

There are significant differences in the application of online education in basic education in China and Mongolia, especially in terms of popularity, application mode and teaching effect. China has a high penetration rate of online education at the basic education level, especially during the pandemic, and has quickly achieved full coverage of online teaching across the country. According to relevant statistics, during the epidemic in 2020, more than 90% of primary and secondary school students in China participated in learning through online platforms. In contrast, Mongolia has a low level of online education, and although the pandemic has also boosted its rapid online education, it is far less popular than China due to infrastructure and network coverage. Schools in some remote areas of Mongolia still face unstable networks and insufficient equipment, making it difficult to fully implement online education[6]。

In terms of application mode, China's online education presents diversified characteristics. In addition to traditional live and recorded classes, many schools have introduced interactive teaching tools, such as online quizzes, virtual labs, etc., to enhance student engagement and learning. During the epidemic, a middle school in Beijing realized real-time interaction between teachers and students and the push of personalized learning resources through the "smart classroom" platform[1]。 However, Mongolia's online education model is relatively simple, mainly relying on recorded courses and simple online discussions, and lacks interactivity and personalized design. This limits the effectiveness of teaching to a certain extent.

In terms of teaching effectiveness, China's online education has obvious advantages in terms of technical support and resource abundance. Through big data analysis and artificial intelligence technology, many schools are able to monitor students' learning progress in real time and provide targeted tutoring. A primary school in Shanghai used AI technology to analyze students' learning behaviors, and found and solved some students' learning difficulties[7]。 However,

due to limited technical resources, it is difficult to achieve similar efficient teaching management in Mongolia. Despite this, some schools in Mongolia are also trying to make up for the lack of local resources by introducing international online education platforms such as Coursera and Khan Academy, but the overall effect still needs to be improved.

Overall, China is better than Mongolia in terms of the popularity, application mode and teaching effect of online education. This is mainly due to China's significant advantages in infrastructure construction, technology research and development, and investment in educational resources. Mongolia's efforts during the pandemic have also laid the groundwork for the development of online education, which is expected to increase significantly in the future if the infrastructure is further improved and more advanced technologies are introduced.

4. Construction of digital resources for basic education in China and Mongolia

China has made remarkable progress in the construction of digital resources for basic education. According to the 2022 National Report on the Development of Education Informatization released by the Ministry of Education, by the end of 2022, the network access rate of primary and secondary schools across the country had reached 100%, and the coverage rate of digital education resources exceeded 95%. The Chinese government has promoted the widespread use of digital resources through projects such as the National Public Service Platform for Educational Resources and the Smart Education Demonstration Zone. Shanghai's "Smart Education" project provides students with personalized learning resources and teaching support through big data and artificial intelligence technology[1]。 The "Smart Vocational Education" platform of Higher Education Press provides teachers and students with a wealth of digital teaching materials and online courses, effectively improving the quality of teaching[8]。

In contrast, Mongolia started late in the construction of digital resources for basic education, but it has also made some progress in recent years. According to statistics from the Ministry of Education of Mongolia in 2023, about 70% of primary and secondary schools in the country have access to the Internet, and the coverage rate of digital education resources is about 60%. In cooperation with international organizations, the Government of Mongolia has introduced a number of Open Educational Resources (OER) platforms, such as the Mongolian Open Educational Resource Center, which provides basic digital resource support for teachers and students. Due to financial and technical constraints, Mongolia still faces many challenges in the construction of digital resources, such as slow resource update speed and uneven content quality.

In terms of resource sharing, China's digital education resource sharing mechanism is relatively mature. Through the national public service platform for educational resources, teachers and students can access a large number of high-quality resources for free, and the platform also supports the co-construction and sharing of resources, encouraging teachers to upload and share their own teaching resources. This model not only improves the utilization of resources, but also promotes communication and cooperation among teachers[9]。 Mongolia's resource sharing mechanism is relatively weak, mainly relying on international cooperation and donations, and lacks a localized resource sharing platform. As a result, access to resources is limited and it is difficult to meet diverse teaching needs.

From the perspective of construction subjects, China's digital resource construction presents diversified characteristics. The government, enterprises, universities and educational institutions have jointly participated, forming a pattern of coordinated development of "government, industry, academia, research and application". Technology companies such as Alibaba and Tencent have developed a variety of educational applications and platforms in

cooperation with the education sector, providing technical support for the construction of digital resources. Mongolia's construction subject is relatively simple, mainly relying on the support of the government and international organizations, and the participation of local enterprises is low, which limits the innovation ability and sustainable development of digital resource construction to a certain extent.

In general, China has obvious advantages in the construction of digital resources for basic education, which are mainly reflected in the wide coverage of resources, the mature sharing mechanism, and the diversification of construction subjects. Although Mongolia has made some progress in resource construction, it still needs to make further efforts in terms of resource quality, sharing mechanism and localization. In the future, Mongolia can learn from China's experience and strengthen cooperation with international organizations, while encouraging the participation of local enterprises and educational institutions to promote the comprehensive development of digital resources[5]。

5. Comparative conclusion of online education and digital resource construction in China and Mongolia

China and Mongolia show significant differences in online education and digital resource construction, but there are also some commonalities. Both countries face the infrastructure challenge of building digital resources. Due to geographical and economic constraints, the promotion of digital education in Mongolia is severely constrained by low network coverage and device penetration, especially in remote areas. In contrast, China vigorously promoted the "Broadband China" strategy during the 13th Five-Year Plan, and as of 2022, the Internet access rate of primary and secondary schools across the country has reached 100%. This difference in infrastructure has a direct impact on the popularity and quality of online education.

In terms of the content construction of digital resources, relying on the huge education market and mature publishing system, China has formed a relatively complete system of digital textbooks and online courses. The "Smart Vocational Education" platform launched by Higher Education Press provides vocational colleges with rich online teaching content through the integration of high-quality resources[8]。 However, Mongolia's digital resource construction is relatively lagging behind, mainly relying on international aid and the support of non-governmental organizations, and the resource content is relatively simple, and it lacks localized characteristics. This disparity in resource construction is not only reflected in quantity, but also in quality.

In terms of the application mode of online education, China has adopted a variety of teaching platforms and tools, such as DingTalk and Tencent Meeting, which have rapidly gained popularity during the epidemic and have become the main teaching methods for schools and educational institutions. Mongolia relies more on international platforms, such as Coursera and Edraak, which provide high-quality course resources but are less localized due to language and cultural differences, making it difficult to meet the actual needs of Mongolian students.

There are also significant differences in the development of teachers' digital literacy between the two countries. China has been able to improve teachers' digital technology application capabilities on a large scale through projects such as the National Training Program, while Mongolia has generally had low digital literacy due to insufficient teachers and limited training resources. This gap has led to difficulties for teachers to effectively use digital resources for teaching and learning in Mongolia when implementing online education, further exacerbating the uneven quality of education.

Despite the many differences, China and Mongolia have shown certain commonalities in promoting the popularization of online education in response to the pandemic. During the pandemic, both countries quickly adjusted their education policies to promote the full

implementation of online teaching. In the spring semester of 2020, China launched the "Suspend Classes without Suspending Learning" program, covering 280 million students across the country. Mongolia has also provided free online learning resources to students through international cooperation during the same period. While this emergency response has alleviated the problem of education disruption in the short term, it has also exposed the shortcomings of the long-term online education planning in both countries.

In general, the differences between China and Mongolia in terms of online education and digital resource construction are mainly due to the gaps in infrastructure, resource content, and teacher literacy. China has obvious advantages in terms of policy support, technology application and resource integration, while Mongolia faces more challenges. In the future, Mongolia can learn from China's experience to strengthen infrastructure construction, improve local resource development capabilities, and focus on the cultivation of teachers' digital literacy to narrow the gap with China. At the same time, China can also export mature online education models through international cooperation to support developing countries such as Mongolia.

6. Inspiration and Advice

Based on the comparative results, China and Mongolia have shown certain results in online education and digital resource construction in the field of basic education, but there are also significant differences. Mongolia has a relatively low penetration rate of online education, according to 2022 data, only about 30% of primary and secondary school teachers in Mongolia are proficient in using online teaching tools, while in China the proportion has exceeded 70%. This gap partly reflects Mongolia's shortcomings in digital infrastructure and teacher training.

China's digital resource construction is characterized by strong systematization and scale. In the digital transformation of education, Shanghai has launched the "Smart Education Cloud Platform", which integrates a large number of high-quality educational resources, covering all subjects from primary school to high school, and the number of users has exceeded 5 million. In contrast, Mongolia's digital resource construction is still in its infancy, and its resources are scattered and lack unified standards, making it difficult to form a scale effect.

Mongolia can draw lessons from China's experience for these differences. Strengthening the digital infrastructure is key. Mongolia should invest more in broadband networks and smart devices to ensure that schools in remote areas have access to high-speed networks. Improving teachers' digital literacy is crucial. Mongolia can learn from China's practice in teacher training and conduct regular training on the use of digital education tools through a combination of online and offline methods to improve teachers' online teaching capabilities[10]。

China, for its part, can draw some reflection from Mongolia's practice. Despite the rapid growth of online education in China, there are still challenges in terms of resource moderation and content regulation. The quality of the content on some online education platforms varies, and there are even false information and low-quality courses. In this regard, China can learn from Mongolia's experience in content regulation and establish a stricter review mechanism for digital resources to ensure the authority and scientificity of educational resources[7]。

There is also potential for cooperation between the two countries in the sharing of digital resources. China and Mongolia can jointly develop digital resources suitable for bilingual teaching to promote cultural exchanges and educational cooperation. Through the establishment of a cross-border educational resource sharing platform, Mongolian students can access China's high-quality curriculum resources, and Chinese students can also learn Mongolia's traditional cultural courses, achieving mutual benefit and win-win results[11]。

China and Mongolia have their own advantages and disadvantages in the construction of online education and digital resources in the field of basic education. Through mutual learning and

cooperation, the two countries can jointly promote the development of education digitalization and provide students with better educational resources and learning experiences.

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