



# Advantages and Feasibility of Technology-Enabled Quality Resource Sharing Sino-Russia Cross-border Higher Education

Hong Ma\*

Heihe University, Sino-Russian Education Comparative Research Center, Heilongjiang Province, China

\*wjshdiw@163.com

**Abstract.** The lack of quality education resources in border areas, the slow pace of education informatization, and the failure to keep up with the development of the times have become factors affecting China's advancement into an educational powerhouse. We should design sino-russian frontier higher education at the top level, establish a long-term and stable cooperative relationship of strategic educational resources, optimize the allocation of educational resources, strengthen the complementary ability of cooperative advantages, expand the breadth and depth of cooperative fields, this article will effectively raise the level and level of joint education and give full play to the huge potential of higher education in the sino-russian border areas. This article tries to improve the traditional resource sharing method with the help of technology, break through the limitation of time and space, assist teachers and students in teaching and learning, expand the radiation of high-quality resources, accelerate the development of schools in border areas and enhance their informatization development, and provide a new path for the construction of resources in border colleges and universities.

**Keywords:** technology-enabled education resources, sharing, advantages, feasibility

## 1 Introduction

At present, the border higher education cooperation between China and Russia is mainly based on the introduction of Russian higher education resources, there is still an imbalance between the "Coming in" of Russian universities and the "Going out" of Chinese universities. [1] On the one hand, China is limited by the lack of higher education resources in terms of "Quality" and "Quantity", so it is difficult to allocate rich and high-quality higher education resources to "Go out" in a short time; on the other hand, since our reform and opening-up, due to social transformation and other reasons, both China and Russia have focused on the theory and practice of higher education in the west, which has weakened the exchanges between the two countries in the field of education science. In addition, Russia's active cooperation and proximity to European education

in the field of education has led to a lack of mutual understanding between China and Russia in education, and has also increased the difficulty of implementing the sharing of resources. In November 2010, the Office of Educational Technology of the U.S. Department of Education officially promulgated the National Education Technology Plan 2010, which proposed “technology empowerment for learning”, and this concept has also triggered changes in China’s education sector, with the emergence of artificial intelligence education, “Internet+” education and other references. In February 2019, <The Modernization Education of China 2035> clearly deploys ten strategic tasks for education modernization, one of which is clearly: “to achieve basic equalization of public education services”, “Promoting educational digitalization” is a great strategic plan of our country. [2,3] It also points out the important role of technology in the process of educational resource sharing, and clarifies the importance of educational resource sharing. The unbalanced and unfair allocation of educational resources between regions, urban and rural areas, and schools still exists in China, which is an important bottleneck in the development of education in China, especially in the development of education informatization, and one of the main contradictions facing education in China at present. So choose the road of technological empowerment is the only way to share resources in China in this stage.

## **2 Technology Empowerment is the Inevitable Choice for Resource Sharing**

The greatest advantage of technology is that it can be highly open and shared, and develops very rapidly. Border colleges and universities need to develop education by integrating technology into the construction of resources and realize the sharing of college education resources. Using technology to empower education development can give full play to the positive role of technology and deepen the implementation level of sharing, and its advantages are mainly reflected in the following aspects.

### **2.1 Technology Platform Provides the Foundation for Resource Sharing**

With the advent of globalization and the Internet era, the process of education reform has been accelerated. As China’s international status continues to rise, the gap between Chinese education and that of developed countries continues to narrow. By introducing quality educational resources (e.g. curriculum platforms, teachers, curriculum systems, etc.) to each other and learning from quality management models and teaching methods, the two countries are learning from each other to improve the educational standards of both countries.[4] In the decade of China’s education informatization development, projects such as the construction of “three channels and two platforms”, the construction of national high-quality courses, and the construction of national high-quality online open courses have been opened, accumulating more and richer high-quality educational teaching resources for higher education and basic education. Action Plan for Education Informatization 2.0, marking the shift from application integration development, to

innovation integration development, to realize the upgrade of education informatization from dedicated resources to large resources. During the epidemic, China opened up a large number of high-quality online educational resources, which can greatly meet the needs of different students in terms of content selection, difficulty setting, resource structure and organization. In the post-epidemic era, each of them need to think about how to promote and expand the scope of application of high-quality resources, and how to break the barriers of resources and connect high-quality educational resources in order to realize the maximum value of resource application.

## **2.2 Technology Tools Provide Support for Resource Sharing**

Sharing higher education resources requires the support of necessary technologies - online teaching and learning tools. As a mediator for expressing understanding and evaluating learning effectiveness, learning tools can facilitate learners' access to and processing and exchange of information for the purpose of constructing knowledge. [5,6] The current online teaching technology has become increasingly mature, and learning tools can be roughly divided into two categories: one is specially designed based on the platform, such as: Wisdom Tree, Super Star Learning, Rain Classroom, etc.; the other has functions to promote learning in its auxiliary functions, such as: QQ, WeChat, Nail, etc. Online learning tools can help learners achieve convenient information exchange and emotional interaction within the social tool network space to achieve the purpose of effective communication. In border areas, technical support can fully realize the sharing of resources, however, security issues such as personal information security and privacy security as well as intellectual property issues also need to be ensured in the process of use.

## **2.3 Technology-enabled Education Resource Sharing can Break Through the Limitations of Time and Space**

The outstanding advantage of technology-enabled education is that it lowers the threshold of learning - transcending the limitations of time and space - to achieve the purpose of sharing educational resources. [7] The advantage of technology-enabled is suitable for online docking of university resources, and it is necessary to realize resource sharing among universities in remote areas. Even in the post-epidemic era, the combination of online and offline education can be carried out, which provides for effective teaching and learning. Conducting resource sharing should not only focus on classroom teaching, but also further strengthen the sharing in practical application, including expanding teachers' professional vision, improving teaching level, and discussing education management, professional development, and talent cultivation together. It also provides new ideas for professional construction and breaks through the situation that only a few majors have achieved sharing by improving the system and mechanism of teachers' mutual visits. At the same time, in terms of resource allocation, online education relies on the Internet, computers and mobile devices, digital learning resources and other information-based education resources, rather than a unified school public education resources. The free and open forms of learning give greater scope to the cultural and

psychological support of the family and to the abilities and habits of the individual learner, and if combined with the involvement of capital and the market, the gap in the educational process will gradually widen, the final impact of education results equity. The digital divide between geographical and social groups created by the development and application of information and communication technologies (icts) has also been observed in the field of education in recent years. For example, in 2015 the OECD organization report shows that the educational gap between students worldwide has gradually increased with the development of information technology and the spread of the Internet. Therefore, the transformation of resource factors makes online education more dependent on non-public resources, and the fairness of educational process is more difficult to control. This is its limitation.

### **3 Effective Ways of Sharing Technology-Enabled Resources**

#### **3.1 Relying on Technology Empowerment to Build a Resource Sharing Platform**

Taking the road of sharing high-quality educational resources is one of the important ways to promote the rapid and high-quality development of higher education in China. Improving the cooperation and sharing of educational resources in higher education institutions and integrating invisible educational resources are at the same time an important guarantee for the development of talent cultivation.[8] Promoting education resource sharing should establish a resource sharing exchange platform, continuously improve, develop and supplement the sharing platform, and reflect the multilateral development pattern of intangible education resource application. With the continuous development of digitization, the level of education informatization should be continuously improved by the times. The continuous improvement of the network information sharing resource platform is a prerequisite for promoting education resource sharing, and it is necessary to promote the construction of network services and network-guided information. After nearly three years of online teaching in China, a more mature online teaching system has been formed. There are some high-quality online teaching platforms introduced by all universities during the epidemic, such as: Wisdom Tree, Super Star Learning Pass, China University MOOC, etc. On the basis of the online teaching experience already explored, the two countries need to further explore the sharing of quality resources through online and use technical support to achieve barrier-free docking, so as to cultivate innovative talents in line with the development of the times.

#### **3.2 Strengthen the Exchange and Cooperation Among Professional Teachers**

In 2020 the development of online education has made the country aware of the sharing of excellent teachers that can be achieved by relying on a sharing platform, and the Internet is better able to establish teaching groups of teachers across time and space.

[9]During the epidemic the movement of people was strictly controlled, and for the border areas most of the time the teaching had to be done online. This way the teaching tasks were accomplished while saving the cost of teaching, the interaction between teachers and students to discuss learning issues online, and the ability for academic exchange and discussion between teachers and faculty. To enhance teachers' digital skills, a continuous skills upgrading programme for educators was launched, and a regional online learning capacity development centre was set up to train teachers on digital education concepts and capabilities. This online communication mode can still be retained after the end of the epidemic, allowing quality teachers to play a role in the process of sharing educational resources and realizing the value of resource construction.

### **3.3 Meet Personalized Learning Needs**

The “Internet+” education has the characteristics of a large number of teaching resources, complicated categories and uneven quality compared to offline teaching only, and students need strong screening and selection ability to face a large number of learning resources more effectively. Such different forms and modes of education and more easily accessible educational resources can better meet the different needs of students and provide teaching methods that can be adapted to different types of students. Therefore, online education resources should follow the principle of “teacher teaching guidance, student self-learning”, and the teaching design should be more flexible and vivid, with a variety of styles to meet the learning needs of different types of students and focus on teaching according to their abilities. Online education resource platform can systematically transfer knowledge through digital technology, seek the teaching suitable for each student, teach and entertain, meet the personalized learning needs of students, in terms of improving students' digital literacy, various urban and rural children's science and Technology Parks and digital education centers have been established to cultivate students' IT skills and interest in learning, push educational resources to students in an intelligent and personalized way, and improve the efficiency of online education for students.

### **3.4 Technology Empowerment Promotes Participation of Multiple Subjects**

The sharing of higher education resources is not only the participation of schools as the main body of education, but the government, enterprises and research institutions can cooperate and communicate with multiple parties to promote the sharing of resources. To achieve deeper sharing, it is necessary to change local to comprehensive and multi-party participation in sharing, so as to break the limitation of cooperation.[10]To achieve comprehensive educational resource sharing, technology must be involved. The use of digital means to build a good channel for sharing educational resources enables high-quality educational resources to play a demonstration role and become the frontier of educational resource development, thus realizing the efficient development of sharing subjects in the field of higher education.

## 4 Conclusion

After nearly three years of online teaching practice, it has provided an effective guarantee for the continued forward development of technology-enabled education. The efficient sharing of quality resources is also beneficial to the development of education informatization in China. It is necessary to proactively use shared educational resources, promote educational exchanges with shared subjects, build interactive exchange models for online teacher training and online student learning, effectively promote the exchange and communication of educational concepts and talent training, and promote higher levels of development in higher education. In terms of educational platforms and digital resources, government agencies, universities and enterprises should participate in the development of online educational platforms and online course resources for all levels and stages of BASIC, higher and vocational education education; At the same time, the unified authentication and convenient access to digital resources are carried out according to the unified window principle, and various social media software is fully used as a mobile learning tool. Specifically in the field of education resource sharing, it is necessary to explore new development methods that integrate technology, build an integrated online and offline resource sharing platform, promote educational teaching reform, cultivate first-class talents, promote complementary advantages between regions and even different countries, and promote high-quality and balanced development of higher education.

## Acknowledgement

This paper is the research result of the project “The construction of resource-sharing model of Sino-Russian border higher education by technological empowerment” (20EDC192), a social science planning project of philosophy in Heilongjiang in 2020

## References

1. FOX S. Mass imagineering: combining human imagination and auto matedengineering from early education to digital afterlife. *Technology in Society*, 2017, 51: 163-171.
2. Wan Kun, Ren Youqun. A survey study on the development of basic education informatization-based on W County, Jiangxi Province. *Open Education Research*, 2020(1): 90-99.
3. Lei Zhaozi. Educational Changes in the Age of Intelligence. *Digital teaching in primary and secondary schools*, 2019,(9):30-32.
4. Ma Hong, Fan Huimin. Current situation and practice of cross-cultural education cooperation on the Sino-Russian border. *Journal of Hubei Open Vocational College*, 2021,2. vol. 34, no. 04, total no. 290
5. JORD S D, RADU G, ALEXANDRA R. The rest of me[J]. *Futures*, 2012, 44(8):730-734.
6. RASHID M , FURQAN A, NASSER N.A, et al. UTiLearn: a personalised ubiquitous teaching and learning system for smart societies[J].*IEEE Access*, 2017, 5:2615.
7. ALEJANDRO R, JESÚS G B, CECILE F, et al. Setting accessibility preferences about learning objects within adaptive elearning systems: user experience and organizational aspects[J]. *WILEY Expert Systems*, 2017, 34(4):1-12.

8. Yang zongkai, Wu Di, Min Chen. Emerging Technologies help to reorganize the educational ecosystem [ J ] . China audio-visual education, 2019(2) : 1-5.
9. Liu H .Application and Strengthening Strategies of Network Resources in the Construction of Teaching Platform[J].Journal of Physics: Conference Series, 2021, 1915(4):042056 (7pp).DOI:10.1088/1742-6596/1915/4/042056.
10. Luo Wanli, Wang Rui, Fan Rong. Application of artificial intelligence in education [ J ] . Digital Education, 2018,4(6) : 85-88.

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

