

# Research on the Application of the Sharing Economy Model Based on "Internet +" in the Field of Higher Education in China

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## ABSTRACT

Under the background of "Internet +", the sharing of educational resources in higher education can effectively solve the problems in the process of popularization of higher education in China. This paper takes the sharing of higher education resources as the entry point, and analyses the application of the shared economy pattern based on "Internet +" in the field of higher education in China. In view of the problems existing in the sharing of educational resources in colleges and universities, such as unreasonable quality structure, low utilization rate of resources, and low degree of sharing. This paper points out that it is necessary to cooperate with universities, governments and enterprises to provide a relatively benign environment. Thereby helping to share high quality educational resources in higher education.

**Keywords:** *Internet +, sharing economy, higher education, resource sharing*

## 1. INTRODUCTION

The emerging IT technology at the end of the 20th century has innovated the social organization structure, and completely broken the long-standing problem of information asymmetry. The mode represented by "Internet +" has been formed: integrate the innovation achievements of the Internet into various fields of the economy and society, improve the innovation and productivity of the real economy, and form a broader new pattern of economic development (Tong, 2015). The core of the sharing economy is sharing. The idea of sharing can be said to be the foundation of the new economic model in the era of "Internet +" (Richardson, 2015) which can optimize the use right of idle resources. It will have an impact on the way people live and socialize, and even on the way they think. [1] After combing the existing researches, it can be found that the current researches can be divided into two types: one is the research on Shared content, and the other is the research on Shared path exploration. (Chen, 2016). This paper offers a new insight into the shared subject, proposes an overall framework of digital resource sharing in higher education, and studies the mechanism of digital education resource sharing in higher education from multiple perspectives, including technical support, sharing mode, organizational structure, guarantee and incentive mechanism.

## 2. THE ACHIEVEMENT OF CHINA'S RESOURCE SHARING IN HIGHER EDUCATION BASED ON "INTERNET+"

Distance education has made a great contribution to the popularization of higher education in China and even world. Distance education has made a great contribution to the popularization of higher education in China and even world. Sharing of higher education resources is common in the United States, and the most notable one is OpenCourseWare (OCW) built by MIT. [2] MIT plans to take a decade to implement a program that will share teaching materials on the Internet for free use around the world. Our higher education is moving from massification to universalization, which benefit from the online education. From 2008 to 2017, the number of undergraduate and junior college students enrolled through online teaching increased from 1,472,194 to 861,444 and the proportion also showed an increasing trend year by year.

### 2.1. Effectively Alleviate the Unfairness of the Allocation of Educational Resources

For a long time, the starting point of the allocation of higher education resources in China is unfair, which is mainly attributed to the unbalanced economic development in the eastern, central and western regions. At present, the sharing economy model based on "Internet +" has been widely used in the field of higher education in China. For example, in recent years, "Flip class",

“MOOCs”, “micro-class” and other online and offline teaching modes have gradually emerged and been promoted worldwide. The sharing of intellectual property rights effectively solves the problem of unfair distribution of resources in China’s higher education, and breaks the time and space constraints of higher education. It allows colleges and universities across the country to share curriculum resources and provide quality content to those with a relatively limited faculty

**2.2. Effectively Solve the Shortage of Resources in Higher Education**

The shortage of resources has always been an unfavourable condition restricting the development of higher education in China. The expansion of the scale of education and the development of education cause the overall shortage of public higher education resources, especially the shortage of teachers. The sharing economy model based on “Internet +” effectively solved the shortage of resources in higher education. For example, a joint school-running institution of colleges and universities in southwest China of Shanghai, established by 19 colleges and universities, carried out the pilot work of “MOOCs” co-construction and sharing in 2014, and organized high-level teachers to establish cross-school course construction team. Students can use the “MOOCs” to learn online and earn credits and obtain a certificate. This move effectively realized resource sharing, promoted complementary advantages which has certain reference significance for the future development of higher education

**2.3. Reduce the Waste of Resources in Higher Education**

In 2018, the Ministry of Science and Technology publicly released Notice on the open sharing of evaluation and assessment results of major scientific research infrastructure and large scientific research instruments of central universities and research institutes. 373 units from 21 departments participated in the evaluation, with a total of 34,000 sets of scientific research instruments in various fields. 26 units, including China University of mining and technology (Beijing), performed poorly in the open sharing. As is shown in Figure 1, the results of units’ assessment were poor, and there were problems such as idle waste and serious submission of data. Only about 10 percent of the institutes have made significant achievements in opening up and sharing.

Domestic instrument and equipment sharing platforms mainly include technology service e-commerce platforms involving equipment leasing and sharing platforms established by provincial and municipal institutions, universities and scientific research institutes. The latter is mainly responsible within the administrative division. They not only solve the problem of idle resources faced by universities and research institutions, but also serve the

whole process of enterprise innovation, reducing the limitations of knowledge, technology and management innovation of small and medium businesses.

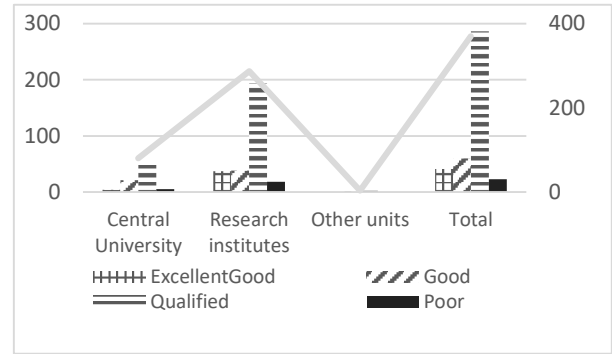


Figure 1 assessment results of open sharing

Source: [2018] No. 117, Ministry of Finance of the People's Republic of China

**3. PROBLEMS EXISTING IN THE APPLICATION OF THE SHARING ECONOMY MODEL**

**3.1. Software Infrastructure Sharing**

**3.1.1. No guarantee of course quality.**

Firstly, Due to the time and space separation caused by the special online teaching mode, it is difficult for learners to interact and resonate. The collaborative discussion and interactive Q&A between teachers and students do not have the real-time and effectiveness of traditional teaching. It is difficult to get students' feedback and make teaching quality evaluation.

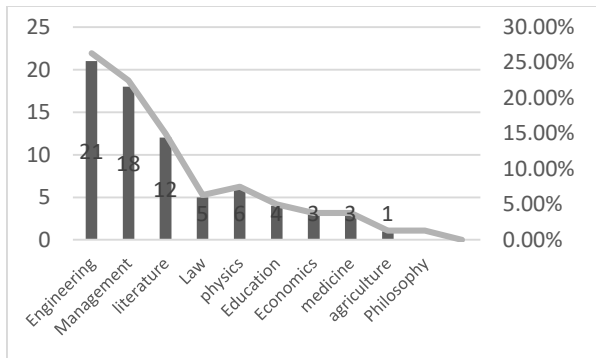
Second, from the perspective of the overall system framework, the sharing of higher education software resources is mainly reflected in a series of resource sharing courses with good quality uploaded on the platform, while the expanding resources outside the course are rarely involved. The case base, the homework system for strengthening exercises, and the experimental system for training students' practical operation ability are all deficient to some extent. These disadvantages make it impossible for the platform to accurately measure the construction quality of an open online course

**3.1.2. Unreasonable course content setting.**

In the course construction, the effective combination of school and enterprise has not been realized, and the emphasis on the theory is not conducive to the improvement of students' practical quality. Course content

cannot be effectively selected and designed according to the needs of students. The quality of the content of open online courses cannot be guaranteed, and its practicability and pertinence are not strong, which will inevitably affect the quality of higher education.

Take "network education quality resources sharing" survey as an example. As shown in Figure 2, the distribution of online network courses is extremely uneven, corresponding to the distribution of undergraduate students of various disciplines in China. It shows that the current open online curriculum construction does not achieve comprehensive coverage of various disciplines, but inclined to individual disciplines. The supply and demand structure of online courses is not balanced.



**Figure 2** resource development of shared courses[3]

### 3.1.3. Urgently needed regulatory norms

The "Internet + Education" application model is in the search phase and there are still irregular behaviours. For example, the current online education platform lacks corresponding management system. As the Internet's teacher qualification and quality certification system has not been established, it is difficult to systematically and accurately evaluate the instructors of the online education platform, resulting in a current uneven team of teachers. The course content can only be evaluated by the subjective feelings of learners, which has not yet formed a complete and standardized evaluation system. On the other hand, the completion rate of online courses is not high, which is also a problem that has long been criticized by researchers.

## 3.2. Hardware Infrastructure Sharing

### 3.2.1. Lack of effective platform operation management mechanism

Many colleges and universities have formulated and implemented such documents as "management measures for the sharing and use of large-scale instruments and equipment". However, due to the fact that the implementation rules are not specific and lack of pertinence, the documents cannot play their due role

during the actual operation of the platform, resulting in lower utilization of shared equipment. Due to the limited operating funds of the sharing platform and the unsound paid use management system, the maintenance funds of scientific research equipment are insufficient and the sharing platform lacks effective guarantee for long-term development.

### 3.2.2. The equipment management and technical support team is weak and the structure is unreasonable.

Many institutions are unaware that experimental technicians and equipment managers are the backbone of equipment sharing and technology development. Institutions may lack reasonable and orderly planning in equipment purchase projects and neglect the investment in the absorption and training of technicians and managers. It will lead to the lack of corresponding quantity and quality of professional technical equipment management personnel, resulting in structural imbalance of the personnel team and affecting the efficiency of hardware equipment sharing.

### 3.2.3. Lack of resource sharing concepts and incentives.

In China, the ownership of most large scientific research instruments and equipment belongs to universities or research institutes, while the right of use and management belongs to specific research groups. Although the instrument sharing management platform of Chinese academy of sciences has been established, the decentralization and personalization of instruments in some institutions still exists. There are still some large instruments and equipment purchased by the research group, which have low utilization rate due to their managers' lack of sharing ideas.

## 4. SUGGESTIONS ON THE APPLICATION OF THE SHARING ECONOMY MODEL BASED ON "INTERNET +" IN THE FIELD OF HIGHER EDUCATION IN CHINA

### 4.1. Software Facility Sharing Recommendations

#### 4.1.1. Make use of big data technology and mobile Internet technology

In view of the insufficient quality of online open course construction, platform builders and universities should be

encouraged to establish and use online courses together, and data information should be incorporated into the large database to realize the dynamic construction of database-related information. The development of resources in online courses should be strengthened, forming the situation of constructing teaching videos and expanding resources at all levels. Through the unique big data and cloud computing tools in the Internet era, the audience of online open courses can be clearly positioned and thoroughly analysed.

#### *4.1.2. Strengthen school-enterprise cooperation, and use market means*

In order to make full use of the educational resources of colleges and universities, it is necessary to play the role of market mechanism in the sharing process, abandoning the situation of all-inclusive development of curriculum resources in Colleges and universities from design, research and development to recording and publishing. Through school-enterprise cooperation, using market economy methods to attract enterprises to actively participate in the construction of online sharing courses, let enterprises become the main force in the development of popular general education resources, let colleges and universities become the planning party of resource construction and evaluation. Meanwhile, the government should incorporate the construction of higher education resource sharing platform into the development strategy of colleges and universities, and explore a standardized online course opening method suitable for China through pilot projects.

#### *4.1.3. Government and universities improve relevant policy systems and strengthen standardized management*

The government should adhere to the law and regulate the construction, application, introduction and promotion of working procedures outside the open online curriculum. Improve the curriculum content review system, strengthen supervision of educational processes and platform operations, and prevent and stop the transmission of harmful information. Ensure the stability of the platform operation and information security of users and resources. According to the ever-changing supply and demand in the development of higher education and the operation of the market and the rapid development of the Internet era, it is necessary to continue the online course construction, platform operation and maintenance, and skills training in the use of Internet technology.

## **4.2. Hardware Sharing Recommendations**

### *4.2.1. Build a big data information platform to realize educational informatization*

The big data information platform can effectively solve the problems of information asymmetry, resource docking difficulties and inappropriate resource allocation in educational resources sharing. The hardware devices shared by the universities can be simultaneously supervised by technical means, and the Internet of Things can be used to manage the usage status, equipment quality, and depreciation loss of shared devices in the area. At the same time, education informatization in the Internet era can achieve timely response, online guidance, user reviews and other interactive functions.

### *4.2.2. Explore scientific market operation mode and introduce third-party business operation team*

Establishing a market-oriented public service platform for university education resources in a country or region through the participation of third-party teams. To provide comprehensive services for the release, management, use and transaction of resource sharing participants, and act as a communication medium between all parties. The third party team should have the professional knowledge of educational resources sharing and the ability of Internet information operation to effectively promote the complementarity and sharing of superior resources. In order to achieve sustainable development, enterprises and universities should be the providers of platform resources, and college students and social enterprises can become the purchasers and users of resources.[4]

### *4.2.3. Establish a hardware equipment sharing evaluation system and rules*

The premise of sharing hardware facilities in Colleges and universities is to establish a scientific, reasonable and operable management system. Comprehensive evaluation and assessment should be made on equipment utilization efficiency, function development, user experience and sharing revenue, and the results should be audited and evaluated. The results should be published on the platform of universities and supervised by the government and the public. Equipment use and management methods should be established on the basis of evaluation and assessment, such as user access mechanism, profit evaluation system, and a series of operation management systems. Rules and regulations should be strictly observed and flexible incentives and penalties should be implemented at the same time.

#### *4.2.4. Strengthen the main responsibility of management units, and the construction of professional and technical personnel*

The introduction of professional and technical personnel should be the key point in the construction of resource sharing team and the daily work should systematically carry out business training for relevant personnel. Institutions can establish long-term cooperative relations of mutual benefit, hold symposiums and exchange experiences, so as to promote each other in equipment scientific research, maintenance and use, and function development.

## **5. CONCLUSION**

With the help of comparative research, literature research and case analysis, this paper proposes an overall framework for the mechanism of digital resource sharing among universities, and studies the mechanism of digital education resource sharing among universities from multiple perspectives, including technical support, sharing mode, organizational structure, safeguard and incentive mechanism. Realizing resource sharing in the field of higher education in China can save educational resources, reduce transaction costs, effectively improve teaching quality and teaching efficiency, expand teaching scale, and improve the level of scientific research in universities.[5] To sum up, for improve the efficiency of university resource sharing, the following points should be done: (1) Use the information technology of the Internet era to rely on big data. (2) Establish a high-quality resource development mechanism of "enterprise-oriented, market-oriented". (3) Integrating the construction of higher education resource sharing platform into the development strategy of colleges and universities (4) Government and universities should improve relevant policy systems and strengthen the construction of technical team.

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