

# Research on the Practical Dilemmas and Optimization Paths of Sharing Open Educational Resources in Higher Education Institutions

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**Abstract:** With the deepening of the popularization of higher education and the comprehensive promotion of educational informatization, the rational allocation and efficient utilization of open educational resources (OER) in higher education institutions have become core issues constraining the high-quality development of higher education. Constructing a scientific and sound system and mechanism for sharing OER is a key pathway to break down "information silos" and "resource barriers" among universities, optimize the allocation of educational resources, promote educational equity, and enhance the overall level of teaching and research in higher education. Based on the connotation and characteristics of OER in universities, this study systematically analyzes the problems existing in the construction of sharing systems and mechanisms both domestically and internationally. Combining the actual needs of the connotative development of higher education, it explores the construction pathways of the sharing system and mechanism from the dimensions of policy guarantee, management system, operational mechanism, technical support, and supervision and evaluation. The research aims to provide theoretical reference and practical guidance for promoting the construction of a sharing system and mechanism for OER in Chinese universities, thereby achieving the optimal allocation and efficient utilization of OER.

**Keywords:** Open Educational Resources; Resource Sharing; Collaborative Governance; Sharing Mindset; Compensation for Benefits

## 1. Introduction

Against the backdrop of the global wave of educational informatization and the in-depth advancement of the construction of a strong educational nation, higher education institutions worldwide are facing the dual tasks of quality

improvement and structural optimization. As an important component of national educational resources, Open Educational Resources in universities constitute the material and intellectual foundation for higher education development and the cultivation of high-quality talents. However, influenced by factors such as fragmented management systems, differences in interest demands, and lagging sharing concepts, universities around the world generally suffer from problems such as idle and wasted resources, unbalanced allocation, and difficulties in inter-institutional circulation. These problems not only constrain the improvement of higher education quality but also hinder the realization of educational equity.

The construction of a system and mechanism for sharing Open Educational Resources in universities is a systematic project involving multiple subjects, multiple links, and multiple fields. It is not only a key measure to optimize the allocation of educational resources and improve the efficiency of resource utilization, but also an important pathway to promote the collaborative development of higher education and narrow regional and inter-institutional educational gaps. In recent years, governments and higher education institutions worldwide have actively explored resource sharing practices, such as China's National Smart Education Platform, achieving initial results. However, overall, the construction of sharing systems and mechanisms still faces many bottlenecks, including an incomplete policy support system, unclear management responsibilities, an unsound operational mechanism, and insufficient technical support, which urgently need to be resolved through in-depth research and systematic improvement.

Based on this, this study takes the construction of a sharing system and mechanism for Open Educational Resources in universities as the research object, sorts out the connotation and characteristics of Open Educational Resources in universities, analyzes the problems existing in the construction of sharing systems and mechanisms

both domestically and internationally, and proposes targeted construction pathways. It aims to provide theoretical support and practical reference for the healthy and sustainable development of Open Educational Resources sharing in universities, and to promote the high-quality development of higher education.

## 2. Connotation and Characteristics of Sharing Open Educational Resources in Higher Education Institutions

### 2.1 Definition of Core Concepts

#### (1) Open educational resources

Open Educational Resources (OER) in higher education institutions refer to various material, intellectual, and service resources that are developed with investment from the government, society, and the universities themselves, used for teaching, research, and social service activities, and open to the public or the entire higher education field [1,2]. According to their form of existence, they can be divided into tangible and intangible resources: tangible resources include teaching buildings, laboratories, research equipment, libraries, sports venues, and other physical facilities; intangible resources include curriculum systems, teaching plans, teaching staff, research achievements, digital teaching resources, and academic exchange and cooperation platforms.

#### (2) The sharing of OER in higher education institutions

It refers to the process in which multiple universities, guided by relevant policies and mechanisms, break down inter-institutional barriers, reasonably integrate and allocate OER, and achieve mutual utilization of resources, complementary advantages, and common development [3,4]. The core objective is to achieve optimal allocation of resources, make full use of idle resources, reduce operating costs, and promote the balanced development of higher education. The sharing of OER is not a simple exchange and utilization of resources, but a systematic reform involving management system adjustment, coordination of interest relationships, and innovation of service models.

### 2.2 Characteristics of Sharing OER in Higher Education Institutions

First, public welfare. Most OER in universities are invested in by government and public funds, possessing the attributes of public goods. The purpose of resource sharing is to promote

educational equity and improve the quality of higher education, rather than pursuing economic interests. Therefore, the sharing of OER should adhere to the principle of public welfare, prioritize meeting teaching and research needs, and ensure that various universities and students have fair access to high-quality OER.

Second, complementarity. Significant differences exist among universities in terms of orientation, disciplinary advantages, and resource conditions. The types and quality of OER also vary: some universities have strong advantages in research equipment, some have outstanding achievements in teaching staff development, and others possess rich digital educational resources. Resource sharing can achieve complementary advantages among universities, make up for the resource shortcomings of individual institutions, and form a joint force for the development of higher education.

Third, systematicness. The sharing of OER involves multiple links such as resource integration, management coordination, technical support, and benefit distribution, as well as multiple subjects including government, universities, teachers, and students. It is a complex systematic undertaking that requires the cooperation of all subjects and the improvement of supporting systems and mechanisms to ensure the smooth progress of resource sharing.

Fourth, informatization. With the rapid development of educational informatization, digital technology has become an important support for the sharing of OER in universities. Digital platform construction, resource digitization, and networked services break the limitations of time and space, enabling remote sharing, real-time interaction, and efficient utilization of resources. Informatization is not only a technical means of resource sharing but also an important direction for the reform and development of resource sharing.

## 3. Practical Dilemmas of Sharing OER in Higher Education Institutions

### 3.1 Lack of Institutional and Policy Support

The absence of robust institutional and policy support constitutes a fundamental constraint on the development of sharing mechanisms for public educational resources in universities. This deficiency permeates all the previously discussed obstacles, creating an institutional vacuum that prevents sharing from becoming sustainable. It manifests primarily at three levels [5].

First, there is no systematic legal or policy

framework at the top design level. China currently lacks comprehensive legislation or administrative regulations specifically addressing the sharing of public educational resources in higher education. Existing policy documents are mostly soft instruments such as guiding opinions or pilot notices, which lack legal enforceability and operational specificity. Core issues—such as property rights attribution, benefit distribution, and liability determination in cross-institutional resource sharing—remain undefined by higher-level laws. Consequently, local education authorities and universities face a situation of having no legal basis to follow when promoting sharing. The incompleteness of policy instruments keeps sharing in a state of marginal experimentation, preventing its integration into routine educational governance.

Second, financial and investment policies lack supporting mechanisms. Resource sharing requires upfront platform construction investment, ongoing operation and maintenance funds, and later-stage incentive and compensation budgets. However, the current higher education funding system remains institution-based: special-purpose funds are applied for and accounted for by individual universities. Cross-institutional sharing projects encounter the awkward question of who provides the funding and how to allocate it. The government has not established dedicated guiding funds or recurrent budget lines for educational resource sharing. Sharing platforms often depend on project-based temporary appropriations, which cease once the project period ends. Moreover, there are no fiscal reward mechanisms for actively sharing universities, nor transfer payment channels to compensate resource providers. This renders the financial foundation of sharing extremely fragile.

Third, there is a lack of cross-sectoral collaborative governance policies. Resource sharing involves multiple governance actors, including education authorities, science and technology departments, finance departments, and the universities themselves. The boundaries of authority and responsibility among these actors are unclear, and there are no regular coordination mechanisms. Yet policy articulation between education and technology departments is weak, leaving universities caught between multiple overseers with no single clearly accountable entity. Cross-institutional credit transfer requires policy alignment between education authorities and university registrars, but there is no unified framework for credit conversion standards or oversight. This policy fragmentation prevents

resource sharing from receiving systematic institutional support.

### **3.2 Vague Definition of Property Rights**

The ownership of public educational resources in universities exhibits a three-tier principal-agent structure: state ownership, institutional possession, and faculty-level usage. Legally, these resources belong to the state or the university as a legal entity, implying public ownership. However, in practice, the rights of possession, control, and exclusive use are delegated down to faculties, laboratories, or even research groups. This configuration creates an institutional vacuum where everyone has a nominal claim but no one bears substantive responsibility [6]. Consequently, two major obstacles impede resource sharing. First, the entity holding the resources lacks explicit incentives to share. It bears marginal costs such as accelerated equipment depreciation, increased maintenance expenses, and additional managerial effort, yet it cannot obtain clearly internalizable economic returns or performance recognition from sharing. Second, the potential user cannot form stable institutional expectations. Because the internal management structure of the resource holder may shift due to personnel changes, budget adjustments, or strategic reorientations, sharing commitments have weak contractual force. Users cannot confidently rely on the continued availability of a resource for long-term teaching plans or series of experiments. This high level of transaction cost and uncertainty, arising from ambiguous property rights, constitutes the primary institutional barrier that prevents sharing from moving from possibility to feasibility.

### **3.3 Lack of Compensation for Benefits**

From the perspective of exchange theory, educational resource sharing is essentially a cross-organizational transfer of use rights. Its sustainable operation depends on a symmetric institutional arrangement of contribution and reward. However, the current management system lacks effective compensation mechanisms, trapping participating universities in a typical prisoner's dilemma [7].

On the one hand, the resource-exporting university bears explicit economic costs and implicit organizational costs. Explicit costs include equipment depreciation, administrative labor, and technical support; implicit costs involve internal coordination for resource scheduling and potential conflicts of use. Yet the existing system provides neither market-based economic compensation nor

reputation-based non-monetary incentives. On the other hand, the resource-importing university often obtains external resources at low or zero cost, engaging in free-rider behavior. This stark asymmetry of costs and benefits renders remaining closed the rational individual choice. Any university that unilaterally opens its resources will experience net benefit outflow while internalizing all costs, whereas if all universities remain closed, individual welfare is protected despite a loss of overall system efficiency. The resulting adverse incentive structure undermines the spontaneous order necessary for sustainable sharing.

### 3.4 Biased Evaluation Orientation

Evaluation systems function as organizational compasses, shaping attention and resource allocation. The current higher education evaluation framework operates on the basic unit of institutional performance. All assessments, rankings, funding allocations, and project applications are measured within the boundaries of a single university. This institutional design inherently reinforces territoriality and resource boundary rigidity. Specifically, curriculum development funds are allocated to home institutions, making cross-institutional courses difficult to count as local achievements. Research outputs are attributed by affiliation, leaving the recognition of contributions arising from shared resources ambiguous arising from shared resources. Equipment procurement and platform construction are justified by their service to the institution's own teaching and research, with external sharing contributions invisible in performance metrics. Thus, the evaluation system produces a goal displacement effect: resource sharing, which should enhance overall utilization efficiency, may instead dilute measurable performance indicators of the individual university. When organizational rationality conflicts with systemic rationality, biased evaluation orientation becomes a deep-seated institutional barrier [8].

### 3.5 Technical Standard Barriers

Even when universities reach a strategic consensus on sharing, technical interoperability problems pose operational obstacles. The core issue is the lack of standardization [9]. Currently, university information systems are often independently developed or procured, resulting in heterogeneous platforms with incompatible data formats, communication protocols, and interface specifications. This technological fragmentation manifests in several dimensions. First, sharing

course resources requires bridging different online learning platforms; the absence of unified metadata standards hampers efficient search, matching, and retrieval. Second, sharing large-scale instruments and experimental data is hindered by differences in device control software and data output formats, as well as inconsistent metadata schemas. Third, credit transfer lacks institutionalized conversion rules, forcing students and administrators to navigate cumbersome manual processes. According to transaction cost theory, when the search, negotiation, and enforcement costs of sharing exceed the convenience cost of non-sharing, users will opt out despite their willingness. Technical standard barriers entrench these transaction costs.

### 3.6 Quality Assurance and Credibility Deficits

The sustainable operation of public educational resource sharing depends not only on institutional supply and technical support but also on users' cognitive trust in resource quality and authority. Currently, this trust foundation remains weak [10]. First, the absence of peer review mechanisms raises concerns about academic rigor. Unlike traditional scholarly publications, many open educational resources are characterized by rapid release and open access, lacking institutionalized peer review. This leads faculty and researchers to reasonably question the accuracy, pedagogical soundness, and ethical compliance of such resources. Within academic habitus, peer-reviewed materials are regarded as validated knowledge, whereas unreviewed open resources tend to be relegated to the category of unverified or even unreliable content. Second, brand inertia of commercial publications results in lower perceived value. Many educators have developed path dependency on commercial textbooks and established publishers through long-term professional socialization. Renowned publishers shape a cognitive schema equating commercial origin with authority, while open educational resources are unconsciously devalued as inferior substitutes, even when their content quality is comparable or superior. Overcoming this dual barrier requires new quality certification mechanisms and reputational signaling systems.

### 3.7 Lagging Sharing Mindset

Beneath the explicit institutional obstacles lies a deeper, less tangible constraint: the systematic lag in cognitive attitudes and value orientations toward resource sharing among university organizational members, from administrators to faculty [11,12].

This lag manifests as a narrow understanding of sharing's significance, path dependency on traditional modes of operation, and an entrenched cultural inertia that prioritizes competition over cooperation. First, the mindset of closed-operation remains deeply ingrained. Chinese higher education has long operated under a paradigm of institutional self-sufficiency, where each university is tacitly regarded as an autonomous unit. Cross-institutional dependence is stigmatized as a sign of deficiency. Many administrators subconsciously equate open sharing with self-weakening, fearing that resource outflow will erode their institution's relative competitiveness. Second, the understanding of sharing's value is often narrow, reduced to instrumental exchanges such as equipment borrowing or course selection, without recognizing the strategic significance of sharing for pedagogical innovation, interdisciplinary collaboration, and talent cultivation reform. Third, the cultural inertia of prioritizing competition over cooperation persists. Under pressures of resource scarcity and ranking competition, universities engage in zero-sum game over students, funding, and reputation, viewing sharing as antithetical to competitive advantage. Fourth, excessive fear of sharing risks—management disputes, security liabilities, loss of control—suppresses willingness to act, reinforced by loss aversion psychology. This lagging mindset forms a self-reinforcing loop with institutional deficiencies. It cannot be overcome by technical platforms or administrative directives alone, but requires gradual cultural change through demonstration projects, professional training, and accumulated success stories.

#### **4. Pathways for Constructing the Sharing System and Mechanism of OER in Chinese Higher Education Institutions**

##### **4.1 Improve the Policy Support System and Strengthen Institutional Guarantees**

First, formulate and improve relevant laws, regulations, and policies. The government should accelerate the formulation of special laws and regulations on the sharing of OER in universities, clarifying the connotation, scope, principles, and methods of resource sharing, and defining the rights and obligations of various subjects such as the government, universities, and teachers in resource sharing. At the same time, specific implementation rules and supporting measures should be formulated to enhance the operability of policies. For example, clarify the scope of resource sharing, fund allocation

methods, benefit distribution standards, and evaluation and reward mechanisms to provide policy basis for resource sharing. The Ministry of Education should further improve relevant policy documents to provide more specific guidance for resource sharing.

Second, increase financial support. The government should establish a special fund for sharing OER in universities, increase investment in the construction of resource sharing platforms, the development of digital resources, and cost compensation. At the same time, guide social capital to participate in the construction of resource sharing through policies such as tax incentives, forming a diversified investment mechanism. In response to the increased management costs brought about by resource sharing, establish a scientific cost compensation mechanism to alleviate the economic pressure on universities.

Third, improve the supporting policy system. Accelerate the reform of teacher mobility policies, the socialization of personnel file management, and professional title evaluation systems, and incorporate the effectiveness of teachers' participation in resource sharing into professional title evaluation, performance appraisal, and reward systems to encourage teachers to actively participate in resource sharing activities. At the same time, establish a credit recognition system among universities to facilitate the circulation and sharing of student resources and course resources. This is also an important direction for the Ministry of Education to promote the reform of resource sharing.

##### **4.2 Improve the Management System and Clarify the Division of Responsibilities**

First, establish a unified management institution. The government should set up a specialized management department for sharing OER in universities, responsible for formulating resource sharing policies, coordinating the interests of all parties, and supervising the implementation of resource sharing. Universities should also establish specialized management institutions for resource sharing, clarify the division of responsibilities among relevant departments, and strengthen coordination and cooperation among departments to ensure the smooth progress of resource sharing activities.

Second, break the fragmentation of the management system. Strengthen coordination between the central and local governments and among different competent departments, break down administrative

divisions and management system barriers, and promote the integrated development of OER in regional universities. Regional higher education resource sharing alliances can be established to integrate OER within the region and achieve unified planning, allocation, and management of resources, which is also consistent with the Ministry of Education's practice of promoting regional resource integration.

Third, clarify the main responsibility of universities. Universities should assume the main responsibility for sharing their own OER, formulate their own implementation plans for resource sharing, sort out their own resource types and quantities, and determine the scope and methods of resource sharing. At the same time, strengthen the management of shared resources, establish resource management systems, and ensure the safe and standardized use of resources.

#### **4.3 Improve the Operational Mechanism and Stimulate Intrinsic Motivation**

First, establish a scientific cost accounting and benefit distribution mechanism. Guided by the economic concept of cost-benefit balance, introduce market mechanisms, establish a scientific and reasonable cost accounting system, and clarify the cost and compensation methods of resource sharing. At the same time, establish a fair and reasonable benefit distribution mechanism, distribute the benefits generated by resource sharing according to the contribution of each subject, protect the interests of resource providers, and stimulate their enthusiasm for participation.

Second, improve the incentive mechanism. The government and universities should establish and improve the incentive mechanism for resource sharing, giving certain material and non-material rewards to universities and individuals who have made outstanding contributions to resource sharing. For example, incorporate the effectiveness of resource sharing into the evaluation indicators of universities, and give priority to teachers participating in resource sharing in terms of professional title promotion and performance appraisal. At the same time, select typical cases of resource sharing and promote them, forming a good atmosphere for resource sharing, which is also an important measure for the Ministry of Education to promote resource sharing.

Third, establish a dynamic adjustment mechanism. Establish a regular research and evaluation system for resource sharing, identify the current situation and existing problems of resource sharing, and

adjust resource sharing plans and mechanisms according to changes in social needs and the development of higher education, ensuring the adaptability and effectiveness of resource sharing.

#### **4.4 Strengthen Technical Support and Enhance the Level of Informatization**

First, standardize the construction of digital resources. Formulate unified standards for digital educational resources, clarify the technical specifications, content requirements, and management methods of digital resources, and promote the interconnection, interoperability, and mutual recognition of digital resources among different universities. At the same time, strengthen the construction of high-quality digital resources, focus on developing core course resources, professional resources, and practical teaching resources, and improve the quality and quantity of digital resources, which meet the requirements of the Ministry of Education for the construction of high-quality educational resources.

Second, improve the construction of resource sharing platforms. Integrate existing digital resource platforms of universities, build a unified national and regional OER sharing platform, and achieve centralized storage, unified management, and efficient sharing of resources. The platform should have functions such as resource retrieval, download, exchange, and interaction, providing convenient services for resource sharing among universities. At the same time, strengthen the construction of the platform operation and maintenance team to ensure the stable operation of the platform. This is also an important part of the country's promotion of the construction of new educational infrastructure.

Third, strengthen the construction of professional technical teams. Universities should introduce and cultivate professional talents proficient in digital resource development, platform operation and maintenance, and resource management, and establish professional technical teams for resource sharing. At the same time, strengthen the information literacy training of teachers, enhance their ability to use digital resources and sharing platforms, and promote the deep integration of digital resources with teaching and research. This is also one of the core tasks of the Ministry of Education in promoting educational informatization.

#### **4.5 Renew the Concept of Resource Sharing and Create a Good Atmosphere**

First, strengthen concept guidance. The government and universities should strengthen the publicity and

guidance of resource sharing, popularize the concepts of openness, cooperation, and resource sharing, and let universities and teachers recognize the importance of resource sharing for the development of higher education and the improvement of teaching quality. Guide universities to break the insular mindset, establish a new concept of open, shared, co-constructed, and win-win boundless education, and clarify the dialectical relationship between competition and cooperation, which is also consistent with the open and shared development pattern advocated by the Ministry of Education.

Second, cultivate a culture of resource sharing. Universities should cultivate a culture of cooperation and sharing, create a good atmosphere of mutual trust, mutual support, and common development, so that resource sharing becomes a conscious behavior of universities and teachers. Various forms of resource sharing exchange activities can be carried out to strengthen communication and cooperation among universities and promote the formation of a good pattern of resource sharing.

## 5. Conclusion

The construction of a sharing system and mechanism for OER in higher education institutions is an important measure to optimize the allocation of educational resources, promote the high-quality development of higher education, and achieve educational equity. At present, although some progress has been made in the practice of sharing OER in Chinese universities, there are still many problems such as an incomplete policy support system, insufficient technical support, and lagging sharing concepts. These problems are the result of multiple factors such as interest patterns, institutional systems, technological levels, and educational concepts.

To solve these problems, multiple measures need to be taken simultaneously: improve the policy support system and strengthen institutional guarantees; improve the management system and clarify the division of responsibilities; improve the operational mechanism and stimulate intrinsic motivation; strengthen technical support and enhance the level of informatization; renew the concept of resource sharing and create a good atmosphere. Only through the joint efforts of the government, universities, and all sectors of society can a scientific and sound sharing system and mechanism for OER be constructed, the optimal allocation and efficient utilization of OER be achieved, and the high-quality

development of higher education in China be promoted. This is also in line with the long-term goal of the Ministry of Education to promote the deep integration of information technology and education and teaching, and to build an open and shared pattern of educational development.

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