Research on Co-development and Sharing Mechanism of Digital Educational Development Resources Based on Cloud Computing

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Abstract: The development of regionalization and differentiation of Chinese economy, the unbalanced characteristics of educational development resources among regions, between urban and rural areas in the region, between key schools and non-key schools are becoming increasingly obvious. The lack of educational development resources and limited allocation of high-quality educational resources are becoming increasingly prominent and problematic. Cloud technology can economically share educational resources, provide easy access and maximize the benefits of resources. With access to higher quality education resources, it can greatly improve the sharing of the overall improvement of regional education levels. Based on the analysis of the existing problems in the development of network education resources sharing, this paper explores the network education development resources from the aspects of establishing network education resource management departments and coordination agencies, standardizing management of resource development and utilization, and improving incentive and guarantee mechanisms.

1. Introduction

The co-development and sharing of digital educational development resources is an effective way to avoid the repeated development of educational development resources and improve the quality of educational resources as a whole. Educational equity is an important basis for promoting the fairness of mad societies, a key factor for promoting the all-round development of mankind and social equity and justice, and the ultimate goal pursued by China's educational reform and development [1]. The development of educational resources, teachers' application ability and development infrastructure are the important foundations of educational development. As the core work of the development and application of educational development, the development of educational resources has been paid more and more attention. However, due to many factors, such as lack of unified planning, insufficient funds, insufficient technical force, and no corresponding mechanism, etc. Making full use of educational resources, improving classroom teaching efficiency, and enriching the form of teaching activities are important goals of educational development. With the continuous deepening and development of China's education development project, the development of digital campus in China's colleges and universities has developed rapidly [2]. Almost all colleges and universities across the country have established campus networks of different levels and scales. Give full play to the role of quality education resources, better meet people's demand for quality education resources, and also realize the effective integration of education development resources of the whole society, and provide strong support and guarantee for building a learning society and an innovative country.

Online education resources are characterized by openness, interaction, sharing, fast dissemination, convenient storage and rich content. At the same time, online teaching can also become a broadband for development exchange between schools, families and society, providing students with a new learning method and a comprehensive lifestyle [3]. As an emerging service computing model, cloud computing can integrate and manage computing resources. At the same time, a unified interface provides services to a large number of users, and deployment and distribution in the network are characterized by data-centric, service-centric, user-centric, all data, software and services are in the “cloud” end [4]. Based on the analysis of the current situation and

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problems in the development and application of educational resources, and the principle of sharing teaching resources based on “cloud computing”, this paper uses cloud computing technology to centralize a large number of available resources in the network, build an educational cloud platform, and realize automatic management by software.

2. Co-development and sharing system of digital educational development resources

The co-development and sharing of digital educational development resources involves many factors. Only by combining these factors organically, can the co-development and sharing of digital educational development resources be realized and developed continuously. Regional self-built cloud computing platform provides a proud new development direction for the sharing of educational development resources, and can promote the innovation of teaching mechanism based on cloud computing. According to the regional characteristics, each region can establish a unique educational cloud service platform to realize the co-development and sharing of high-quality educational resources and the balanced and high-quality development of educational resources in the region [5]. The digital education resources cloud platform is built on the basis of “cloud computing”. It relies on professionals to centralize the development of educational resources, and helps schools to integrate, transform and use resources effectively. It can enable teachers and students at the grass-roots level to enjoy resource sharing services, so as to achieve a high degree of sharing of educational resources. Grids can absorb a variety of computing resources and transform them into a ubiquitous, reliable, standard, and relatively economical computing power and grid service [6]. Platform facilities are mostly hardware facilities with poor variability; active participants and related rules have greater flexibility. Strengthening the sharing and cooperation of resources, following the norms of resource development, and strengthening quality monitoring will help improve the efficiency and quality of digital campus education resources development in colleges and universities.

In order to ensure the co-development and sharing of educational development resources can be carried out efficiently and smoothly, it is necessary to clarify the relevant responsibilities and functions, so as to coordinate the multi-party development and sharing. The most effective way is to build an educational resource sharing cloud platform that provides education, development support for teachers, students, parents and education administrators, integrate existing educational resources in the region, enrich new quality education and teaching resources, and build rich and friendly. A personalized educational development resource library. Break down development islands and realize multi-integrated services of educational resources. Formulate policies on the sharing of educational resources, and establish an expert group for network education resources consisting of disciplines, instructional design, network resource development and management experts, and follow the principles of co-development, sharing, interconnection, collaboration, and scientific management. In practice, development providers and users are often interactive, that is, providers are often also users, users are providers at the same time. The government should consider the comprehensive strength of enterprises and schools, inspect the capacity of resource development, pay attention to the availability, applicability and reusability of resources, and select more suiTable resource builders to build curriculum resources. To maximize the co-development and sharing of excellent teaching resources, provide more convenient and effective services for subject teachers' classroom teaching, and gradually form a long-term mechanism of “co-development and sharing” of regional educational resources.

Through grid technology, load balancing of distributed and heterogeneous resources can be realized, network congestion can be avoided, resource data storage and backup can be realized, fault tolerance and disaster tolerance can be realized, and resource system can be more secure and reliable. Establish the overall concept and development awareness, organize and coordinate the departments to actively introduce and independently develop network education resources according to their disciplinary advantages, professional advantages and curriculum expertise. If there is no development provider to provide development resources, the co-development and sharing of digital education development resources will become a passive water and a rootless wood.

In the process of sharing, the government should also play a role of macro-control and formulate strict sharing standards. If other enterprises and schools want to participate in resource sharing, they need to exchange or purchase resources according to the resource sharing standards, so that resources can be shared more widely and fairly in a wider scope. In order to build a resource center in a cloud platform, the principle of “separate storage and unified management” must be adhered to, so that the utilization rate of the storage system, the rate of resource utilization, and the unified management of resources can be improved. Within a grid, it can be composed of multiple service registries in different levels. The client or learner can find all the development about the grid teaching service registered here through the service registry. Avoid the intersection and duplication of the development of the same professional or different professional curriculum resources to prevent the decentralization, independence and lack of planning of resources.

3. The basic contents of the co-development and sharing mechanism of digital educational resources

To establish the mechanism of Co-development and sharing of digital educational development resources, it is necessary to combine the status and role of each component of the system with digital educational development resources, which has a certain pertinence. In order to ensure the fairness of resource co-development and sharing and to make resources known to more users, social media should play a role of supervision and propaganda. In order to ensure the independence of school-based resources, school-based resources are stored in the school resources system. The physical isolation of school-level resource servers in different schools completely eliminates the possibility of leaking school-based resources. For the developers of the teaching system, the grid services found in the registry can be directly embedded in the development of teaching software. Different universities are subordinate to different subjects of running schools, and each university has its own development focus. By setting up a coordinating agency for resource sharing among regions and schools. Facts have proved that without a sound system, joint activities can not be carried out. In China's library and development system, the call for development resources to build and share has been very strong for many years, but because there is no unified management system, the effect is not ideal. Simply select the raw resources in the cloud, download the authorized video and tutorial materials and other course resources to learn, and pass the final test to earn credits. After the student has completed a certain number of credits, the online university can issue a diploma. According to the characteristics of teaching resources, the teaching resources are reasonably classified, and teachers can browse and retrieve resources from multiple dimensions such as subject, school segment and resource category according to the actual needs.

In the shared resource grid system, the grid user represents the user of the grid service, and the user can not only use the grid resource, but also enjoy the grid service, and can also construct the application by using the grid resource and the service. With the development of development resources co-development and sharing activities under the network environment, the trend of resource system specialization is becoming more and more obvious. All colleges and universities should be based on the development resource foundation, professional settings and teaching advantages of the university. To this end, it is necessary to establish a special digital education development resource development and sharing management system, and jointly manage and coordinate the nationwide digital education development resources to jointly build and share. The value of the curriculum resources should be determined by a combination of evaluation methods, such as assessment agencies for evaluation, user evaluation, and so on. The value of the resource can be determined through the evaluation mechanism. When sharing, it is necessary to calculate the value difference between the two resources and exchange the difference. According to the characteristics of teaching resources, we can classify teaching resources reasonably, and teachers can also create their own classification system according to their own needs. Teachers can directly access the corresponding modules to select the appropriate resources according to the actual needs. The virtualization interface of access and integration of educational resources can be constructed by utilizing the resource sharing capability of grid. In order to better meet the development needs of

teaching and to maintain and consolidate the characteristics of colleges and universities, network technology is used for re-processing. For the development and sharing of digital education development resources, which involves many systems and concerns the overall situation of the country, the macro-management of the country is very important, and the strong support of governments at all levels is an important condition for its development.

In this paper, we propose a model of education development resources co-development and sharing cloud service. Under the guidance and funding of the government, the core work is also to establish a level of Co-development and sharing cloud service. The cloud services at all levels also provide education development resources services for users through the co-development and sharing of cloud service platform. To provide teachers with diversified ways of resource retrieval, teachers can search by catalogue tree according to textbook version, subject, grade, unit and so on. Teachers can also search by inputting a single Keywords. The central repository platform is a resource sharing platform, which directly constructs on the grid, stores and manages all high-quality development resources, and realizes the functions of resource display, search and download. Allocate the relevant development tasks of university resources, and clarify the intellectual property rights of developers, and release the detailed contents and methods of resource collection and resource development technical specifications and resource quality requirements. Popularize development resources to build and share knowledge, so that people fully understand the importance of digital education development resources to build and share, from the ideological recognition of development resources to build and share, and consciously transform the ideological identity into their own actual actions. To fully take into account differences in infrastructure development and demand differences in different regions, it is necessary to clearly distinguish the size, function, and deployment location of different co-constructed shared cloud services. The school's teaching administrators and system administrators can evaluate school-based resources and evaluate regional resources and resources exchanged by schools. A reasonable resource evaluation mechanism can promote the dissemination and sharing of high-quality resources.

4. Conclusions

The development of educational resources is the core of educational information. The regional teaching resources are the key development content of educational information, realizing the “high-quality development and sharing” of regional high-quality teaching resources, providing teachers with massive and high-quality teaching resources services, thus realizing the development of teaching resources and sustainable development. This study has certain reference significance for clarifying the responsibilities of various entities in resource co-development and sharing, determining the value of educational development resources, mobilizing national resource development forces to participate in the development and sharing of educational resources, and improving the enthusiasm of resource development and sharing. The educational development resources provide a reference for the development of a shared cloud platform. Based on the current situation of university network education resources development and management, the important task of current resources development is to establish the sharing mechanism of network education resources, and carry out the development, selection, integration and integration of network education resources. The scientific and reasonable mechanism of Co-development and sharing of regional educational resource banks is conducive to the development and application of educational resource banks moving towards a benign development track and realizing social sharing of educational resources in a larger scope, larger scale, higher quality and greater benefits. There are many factors involved in the co-development and sharing of digital educational development resources, and the connotation of “mechanism” is very rich. Due to the limitation of space, this paper can only be elaborated from a macro perspective. As for the specific content of various mechanisms, it needs to be constantly explored, enriched and perfected in practice.

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