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Research Article

Resource Sharing Method of Basic Computer Education Based on Mixed Gaussian Model

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This study developed a computer-based basic educational resource sharing method based on a mixed Gaussian model in order to improve the effect of educational resource sharing. Initially, the challenges of educational resource sharing are examined. Then, the basic sharing platform, consisting of the index layer, the computer basic education resource library, and the data layer, is designed. After collecting information about basic computer education resources to be shared, the education resources are clustered using the Gaussian mixture model and then configured based on the results of the clustering. Depending on the number of configuration factors, computer basic education resources can be shared in accordance with their design. The experimental results indicate that this method has high resource sharing efficiency, the ability to update resources in real time, and a good teacher and student evaluation system. Compared to traditional sharing methods, the proposed method has the benefits of a shorter sharing time and greater resource clustering precision.

1. Introduction

The rapid advancement of computer and network technology hastened the arrival of the information technology revolution and propels social development into the information age. Computer information technology belongs to the category of high and new technologies, and as a result of its rapid development and complex knowledge of two major characteristics, its development level, application level, and education level have become crucial indicators of social progress [1]. Because computer technology encompasses a variety of fields and only when combined with all walks of life, it can have vitality. The most important objectives of noncomputer major computer basic education for general undergraduate colleges and universities are to popularize computer culture and improve the level of computer application.

Currently, as a result of "big expansion," the demand for basic computer education in domestic general undergraduate colleges and universities is increasing, as are teacher stress and the contradictions of school compression; moreover, the rapid development of computer technology and its teaching content updates must be adopted as soon as possible to solve this problem [2]. Faced with the new situation and new things, we must maintain sensitivity, increase the intensity of all aspects of investment, and make practical efforts to familiarize future college graduates with their major and enable them to master compound computer information technology skills. In order to achieve this training objective, there are a number of issues that must be studied and resolved, including but not limited to, training objectives, teaching systems, curriculum design, teaching content, teaching methods, teacher construction, equipment conditions, resource construction, etc. Solving these problems should be the starting point for undergraduate colleges and universities seeking to improve the computer education of noncomputer majors.

How to realize the reasonable development and effective use of basic computer education resources is the foundation for improving the quality of basic computer education work as well as a significant factor in enhancing the quality of education. How to realize the sharing of high-quality teaching resources is still one of the most difficult issues to be resolved [3, 4], despite the fact that many schools have reached a high level of maturity in the independent development of computer education for basic skills.

A cloud-based educational course resource sharing platform has been designed in reference [5]. The platform includes cloud infrastructure, cloud system services, cloud applications, and cloud client layers. The business management system in the cloud system service layer implements the platform's business logic. According to the difference in user rights, the platform divides user functions into two functional modules: teacher and student. The teacher functional module can manage students/teams/courses/live broadcast, edit, review, and approve papers; create/assign/count student assignments; and upload teaching materials, among other capabilities. The student function module enables the download of teaching materials, online homework, online examinations, and discussion and communication functions. A method for sharing educational resources based on a wireless broadband connection is designed in reference [6]. In this method, the ant colony algorithm is used to optimize the focused crawler, which is then used to capture educational resource data and extract the semantic features from the captured data. The K-means clustering algorithm is then applied to all the data to cluster it. According to the results of network centrality and network density calculations, the wireless broadband connection is utilized to schedule and complete the sharing of educational resources. In reference [7], a blockchain-based educational resource-sharing platform has been designed. According to the research, due to the rapid development of the Internet, the construction and sharing of educational resources have become an increasingly important aspect of modern distance education. Creating a blockchain-based platform for sharing educational resources has also become a social consensus. This study discusses the history development and practical issues of educational resource-sharing analyzes the role of an educational resource sharing platform based on blockchain in the construction of a credit bank and proposes the system design scheme for an educational resource sharing platform based on blockchain.

In practice, however, it has been discovered that the aforementioned traditional methods have the drawbacks of a time-consuming sharing process and poor resource clustering accuracy. This study designs a new resource-sharing method for basic computer education based on the Gaussian mixture model to address these issues.

The following is the structure of this work: the first chapter is an introduction that describes the motivation, significance, and contribution of this work. The second chapter is related work, which introduces and summarizes previous work on this topic. "Methods" is the third chapter, and it describes the method used in this paper in detail. The fourth chapter discusses the experimental results, which demonstrate the superiority of this method. The final chapter is the conclusion, which summarizes the work of this paper and discusses its shortcomings as well as future work.

2. Analysis of Difficulties in Educational Resource Sharing

First, the resource management platform has a strong ability to control resources. On the one hand, the resource management platform has a strong ability to control resources, and teachers cannot change the contents of the resource database at will, which leads to the difficulty of updating some old teaching resources in time. On the other hand, each school has its own teaching resources and there is no unified standard to manage these resources, which are only used by teachers and students in the school. Each school has abundant resources inside, but they are not open to the public, which makes it difficult to share teaching resources. Moreover, it is impossible for all teaching resources to give full play to their value in the teaching work of the school, leading to the waste of teaching resources [8].

Second, is the blindness and standardization of basic computer education. A lot of teaching resources are done by numerous companies' cooperation, prone to blindness in the process of construction. This leads to the lack of standard teaching resources construction, resources classification, content, form diverse and complicated, cause some resources appeared repeatedly and the situation of the old, did not get the timely update and check. For self-learning students, these resources are easy to mislead, as they fail to identify useful resources. Meanwhile, they also add difficulties to the management of teaching resources for schools, which is not conducive to the sharing of resources between schools [9].

Third, the utilization rate of basic computer education is too low. The resources of each school are still in the self-sufficiency stage, and some teaching resources have been eliminated before being used, which leads to the low utilization rate of teaching resources. This is mainly because the school has not realized the unified standard requirements for the resource management platform, and the management and use are not coordinated, which leads to the low utilization rate of teaching resources [10, 11].

3. Design of Sharing Methods of Basic Computer Education Resources

3.1. Design of Basic Sharing Platform

3.1.1. Index Layer. In order to deal with the connection search problem of a massive computer basic education resource set, the domain index method is used to reformulate the computer basic education resource set.

Definition 1.

Domain: A particular attribute or combination of attributes of a dataset is described as a domain [10]. If the primary key of the basic computer education resource table can form a domain, the domain is described by the value set of the domain, and the symbol R is used to describe it. If the symbol Ω represents the complete set of values of a domain, then the formal definition of a domain can be described as follows:

$$R = \{x | x \in \Omega\}. \tag{1}$$

The resource set S of basic computer education reformulated by the field is as follows:

$$S = \{R_1, R_2, \cdots, R_n\}. \quad (2)$$

Definition 2.

Domain association degree: For query domain D_1 and index domain D_2, the domain association degree can be formulated as follows:

$$t(D_1, D_2) = \frac{|D_1 \cap D_2|}{D_1}, \quad (3)$$

where $|\bullet|$ stands for the basis of the set. The correlation degree of domains is $(D_1, D_2) \in [0, 1]$, and the greater its value, the better the linkage between domains. Similarly, if two resource sets have domain pairs with a higher degree of linkage, the resource sets will be more related.

Definition 3.

Domain search: According to the query domain D_1, index domain D_2 and the correlation degree threshold $t^* \in [0, 1]$, the process of searching the correlation degree more than t^* from the domain set D_2 is described as domain search, and its formalization can be expressed as:

$$X: t(D_1, X) \geq t^*, X \in D_2, \quad (4)$$

where X represents the target of domain search, that is, beyond the set of computer basic education resources with high linkability.

3.1.2. Computer Basic Education Resource Library. A distributed resource library is a resource library in which the resources are stored and distributed across multiple computers and nodes. It consists of connections between computer networks. The physical distribution of each resource storage node is referred to by the Distributed Resource Library Module. Logically, these nodes constitute a complete resource library module, and a distributed resource library is equivalent to a centralized management and partially connected resource library cluster [12]. The distributed resource library module utilizes the computer P2P network as its medium, connects a number of geographically dispersed independent resource libraries, creates a global logical view, and transforms these distributed centralized resource libraries into a unified resource library module for control and management. All the node resource library modules can independently support local applications and provide resource sharing capability to other nodes [13] in the distributed resource library module.

According to the concept of centralized resource library management, distributed resource library modules can be classified as either homogeneous or heterogeneous. As shown in Figure 1, both heterogeneous and homogeneous distributed resource libraries can be abstracted into a four-layer schema architecture.

The distributed resource library is divided into four layers of patterns: global external pattern, global conceptual pattern, local conceptual pattern, and local internal pattern. There is a corresponding inter-layer image between each adjacent layer mode, and the switch between modes is completed through the inter-layer image. The four-layer distributed resource library module is also suitable for the same configuration as the distributed resource library module formed by the same kind of resource library and the heterogeneous distributed resource library module formed by different kinds of resource libraries [14].

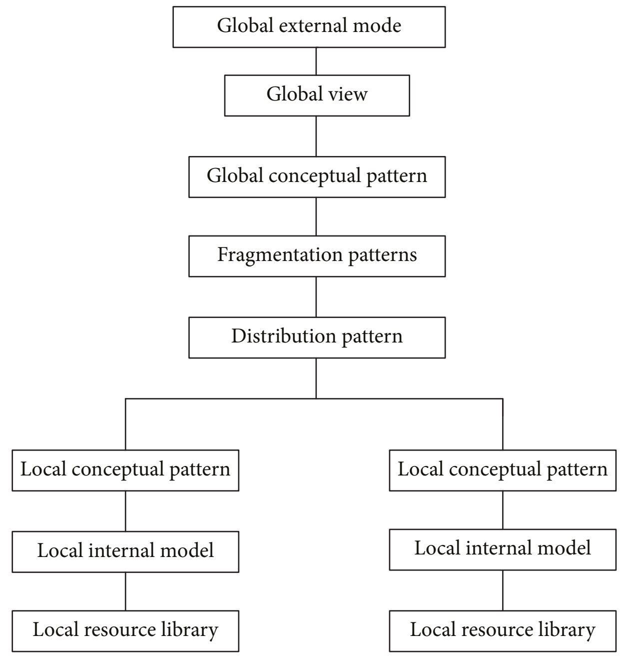

Figure 1: Distributed resource library module architecture.

3.1.3. Data Layer. The main purpose of building a data layer is to ensure the stability and security of the output and input of basic computer education resources. Taking association computation as an example, the implementation of selection and sort computation is described in detail below.

Firstly, it is considered that in the two computations of linkage and sorting, the selection calculation only involves the computation of monomer association, and the latter two computations satisfy the commutative and associative laws. Assume that X_1, X_2, X_3 represents an association, then the link and sorting calculation meet the properties shown in (5) and (6):

Commutative law:

$$R_1 \leftrightarrow R_2 \equiv R_3 \leftrightarrow R_1. \quad (5)$$

Associative law:

$$(R_1 \leftrightarrow R_2) \leftrightarrow R_3 \equiv R_1 \leftrightarrow (R_2 \leftrightarrow R_3). \quad (6)$$

It can be seen that the secure multicomputing problem can be transformed into secure two-party computing.

Data linking refers to the process of combining records with the same keyword in different sets of computer basic education resources. The model completes data linking in the form of a subquery, which means that the shared resources are transmitted among all parties to achieve the final link operation. The general process of link operation is as follows:

All shared computer basic education resources are formulated as T_i, k_i represents the primary key column of the resource set, and the equivalent link data shared by all input parties is formulated as T^*, Shuffle the respective teaching resource set T_i, and use T_i^* to describe the shuffled resource set, and k_i^* represents the shuffled primary key column. The random permutation function is selected based on the shared access control key s between the parties. In order to query the primary key column by permutating function evaluation, the value $\pi_s(k_i^*)$ is transferred to the subsequent calculating party in turn, and the subsequent calculating party is linked with the results transmitted by the previous calculating party, until finally the result table T^* is produced.

The essence of the ranking is a vague ranking. If the vector $X_1, X_2, \cdots, X_n$ of basic computer education resources shared by n computing parties is drawn up, then the shared vector can be described as $X_1, X_2, \cdots, X_n$, The goal of the ranking is to determine the order of vectors according to specific comparison principles, and its general process is as follows:

The encrypted shared vector of each computation method is drawn as X_i, and the input vector of each computation method is randomly selected. When $1 \leq i \leq j \leq n$, $g_{i,j} = X_i \leq X_j$ is calculated in parallel, and the sorting vector X' can be obtained by using $g_{i,j}$ to sort the vector X.

The concrete structure of the data layer can be built based on the above two computations. The cover layer can not only ensure the security of basic computer education resources but also provide automatic arrangement and keyword selection services for resource sharing.

3.2. Collected Information about Basic Computer Education Resources to be Shared. In the database of basic computer education resources, there are many users who provide shared information. In order to ensure the reasonable distribution of shared resource information, it is necessary to collect and classify shared information resources according to different providers and define the information resource sharing process of information providers as follows:

$$\begin{aligned}\frac{\mathrm{d}n_A}{\mathrm{d}t} &= v_A n_A\left(1 - \frac{n_A}{N_A} - \frac{\alpha_{AB} - \beta_{AB}}{N_B} n_B\right)\\ \frac{\mathrm{d}n_B}{\mathrm{d}t} &= v_B n_B\left(1 - \frac{n_B}{N_B} - \frac{\alpha_{BA} - \beta_{BA}}{N_B} n_A\right),\end{aligned} \tag{7}$$

where, v_A and v_B represent the speed at which providers upload resources, α_{AB} and α_{BA} represent the inhibitory effect coefficients between different information providers caused by resource sharing, and β_{AB} and β_{BA} represent the promoting effect coefficients between resource providers.

The overlap of digital resource information is shown in Figure 2. Where, A and B, respectively, represent the information of computer basic education resources uploaded to the shared platform by the provider.

As can be seen from Figure 2, there are three scenarios for resources shared by different providers:

① The resources provided by different providers do not overlap, as shown in Figure 2(a);

② Different providers provide parts of the same or overlapping resources, as shown in Figures 2(b)–2(d);

③ Different providers provide the same or similar resources, as shown in Figure 2(e).

According to the representation in Figure 2, R_{AB} is defined as the information overlap degree of resource information A and B. Therefore, if the value of R_{AB} is 0, the configuration factor can be defined directly. If the value of R_{AB} is not 0, it is necessary to reduce the weight of the collected basic computer education resource information and eliminate the repeated resource information.

3.3. Clustering of Basic Computer Education Resources Based on Gaussian Mixture Model. The Gaussian distribution, also known as the normal distribution, is a very important probability distribution in statistics and has significant applications in the computer field [15, 16]. If there are n -dimensional joint Gaussian random variables, then: is still Gaussian random variable after any linear transformation; any $m(m \leq n)$ -dimensional marginal distribution is Gaussian; after linear transformation (or linear system processing), it is still a Gaussian signal.

Consider the case of a mixed Gaussian model with a mean of 0 and a standard deviation of 1. The cross section parallel to the horizontal plane is a circle, and the center of the circle is where the mean of each dimension lies. In practice, by changing the standard deviation, the probability distribution density curve can become an ellipse, and the ellipse can be tilted at any angle to achieve any aspect ratio, or it can be moved to any position in the plane. The cross section defines a specific distribution, and the mixed Gaussian model adjusts the ellipse so that it can achieve the best match with the cluster data, and the final ellipse parameters can generate the data in the cluster with the maximum probability [17].

It can be said that the mixed Gaussian model clustering is a basic data probability density distribution clustering method, and many widely used algorithms have good applicability to the data distribution conforming to the mixed Gaussian model. The clustering process based on Gaussian mixture model is shown in Figure 3.

Step 1. Input the initial number of clusters C_0 to obtain the overlap threshold T of Gaussian distribution;

Step 2. Let C be the result of each iteration clustering, which is consistent with the initial clustering number C_0, to form the initial partition area and determine the initial kernel;

Step 3. Set the normal kernel function of iterative clustering result C as F_k, and then run the dynamic clustering process;

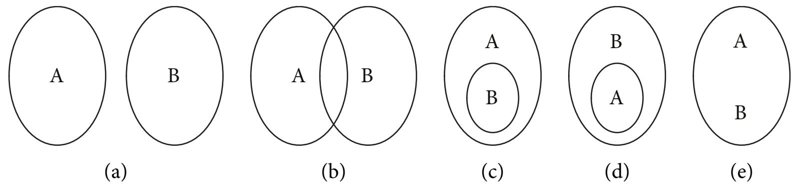

Figure 2: Diagram of shared resource overlap.

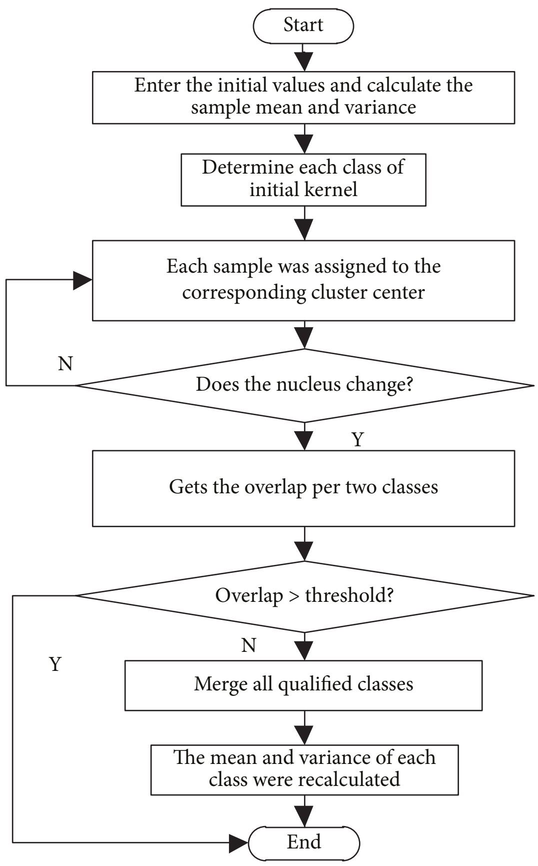

Figure 3: Resource clustering process based on gaussian mixture model.

Step 4. Distinguish overlapping regions and scattered regions according to Step 3, and then calculate the overlap degree $DO(1 \le i < j \le C)$ of several Gaussian distributions into groups;

Step 5. Select the Gaussian distribution results of all load conditions:

(1) The formula of overlap degree threshold meeting the conditions is:

$$T < DO. \tag{8}$$

If the overlap threshold meets the above conditions, the cluster point (i, j) is randomly selected.

(2) The overlap degree of several Gaussian distribution groups meets the conditions and the formula is:

$$DO = \max_{F_k \ge j, l \le i}\left\{DO_{i,k}, DO_{l,j}\right\}. \tag{9}$$

If the overlap degree of several Gaussian distribution groups meets the above conditions, then randomly selected cluster point (i, j) will be merged.

(3) All selected cluster points were normalized to form a new cluster center, and then the mean and covariance of the cluster center were calculated.

Step 6. Update the iterative clustering result. If the result meets > 2, then it needs to jump to Step 3; otherwise, stop updating and output the clustering result X_{AB}.

3.4. Configure Basic Computer Education Resources Based on Clustering Results Evolution. When the information overlap degree of shared information uploaded by different information providers is 0, it means that information resource sharing reaches balance and information demanders' reception degree of information resources tends to be saturated. Then the equilibrium condition shown in (10) holds:

$$\begin{aligned} \frac{n_A}{N_A} &= v_{AB}\frac{n_B}{N_B} + 1 \\ \frac{n_B}{N_B} &= v_{BA}\frac{n_A}{N_A} + 1. \end{aligned} \tag{10}$$

Therefore, the equilibrium condition of information resource sharing is transformed into variable representation, as follows:

$$\begin{aligned} \chi(n_A, n_B) &= X_{AB} + v_{AB}\frac{n_B}{N_B} - \frac{n_A}{N_A} \\ \delta(n_A, n_B) &= X_{AB} + v_{BA}\frac{n_A}{N_A} - \frac{n_B}{N_B}. \end{aligned} \tag{11}$$

The coordinate satisfying the equilibrium condition can be obtained by solving the equilibrium condition. When the information resource sharing level of A and B is equal, the information resource sharing can be realized within a certain range [18].

3.5. Design Configuration Factor. Assume that the number of samples of basic computer education resource information configured by equilibrium evolution is, the factor index of configuration is h, and the j -th configuration factor of the i -th sample in the configuration information is defined as ε_{ij}. $i \in [1, g]$, $\in [1, h]$, then the initial matrix composed of all sample values of basic computer education resource information can be expressed as follows:

$$\varepsilon = \left|\varepsilon_{ij}\right|_{g\times h}. \tag{12}$$

Before calculating the initial matrix of the sample, the data in the matrix should be standardized. The average value of the j -th column data can be calculated by formula (13) as follows:

$$\overline{\varepsilon_j} = \sum_{j=1}^{g} \frac{\varepsilon_{ij}}{g}. \tag{13}$$

After the data in the initial matrix are averaged, the new matrix is obtained as follows:

$$\overline{\varepsilon_{ij}} = \frac{\varepsilon_{ij}}{\overline{\varepsilon_j}}. \tag{14}$$

Then, normalize the mean results according to formula (15):

$$\phi_{ij} = \frac{\overline{\varepsilon_{ij}} - \min\overline{\varepsilon_{ih}}}{\max\overline{\varepsilon_{ih}} - \min\overline{\varepsilon_{ih}}}. \tag{15}$$

The construction matrix obtained after a series of processing can be expressed as formula (16):

$$\phi = \left|\phi_{ij}\right|_{g\times h}. \tag{16}$$

The relevant data of the collected computer basic education resource information is substituted into the matrix, and the relevant matrix, eigenvalue and eigenvector of the matrix are calculated, so as to obtain A uniform eigenvector corresponding to the configuration eigenvalue of the matrix, in which the characteristic polynomial composing the eigenvector is marked as γ_j. Finally, the number of allocation factors can be further determined through the cumulative contribution rate of allocation factors of basic computer education resource information [19]. The cumulative contribution rate of the first μ factors is as follows:

$$d_\mu = \sum_{1}^{\mu} \left(\frac{\gamma_j}{\sum_{j=1}^{h} \gamma_j} \right), \tag{17}$$

When the eigen root of the eigenvector is not less than 1, the number of configuration factors n_d can be determined. Thus, the sharing of basic computer education resources can be realized [20]. The process is as follows:

$$Z = \frac{n_d \times X_{AB}}{\chi(n_A, n_B) + \delta(n_A, n_B)}. \tag{18}$$

4. Experiment and Result Analysis

In order to verify the practical application performance of the computer basic education resource sharing method based on Gaussian mixture model, the following experimental test process is designed.

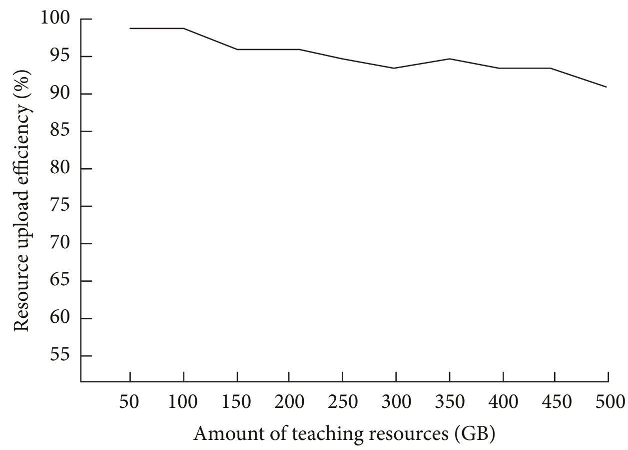

FIGURE 4: Resource sharing efficiency of basic computer education based on this method.

4.1. Basic Inspection. The method proposed in this paper is used to conduct a sharing experiment on basic computer education resources in a university, and the sharing efficiency of this method is tested by taking the uploading efficiency of resources as an index. The experimental results are shown in Figure 4.

As can be seen in Figure 4, as the total amount of computer basic education resources continues to grow, their upload speed will gradually decrease. Although the efficiency of resource uploading will decrease when basic computer education resources are shared in this paper, the rate and range of this decrease are small, indicating that the efficiency of resource sharing in this paper is high. The reason for this result is that the method described in this paper designs the index layer, which can construct the domain with specific attributes or a combination of attributes and complete the rapid clustering and data uploading of teaching resources using the domain index.

Assuming there are 1,000 resources for computer basic education that need to be shared, divide them into six groups. Likewise, each group has a distinct update upper limit. Figure 5 illustrates the real-time resource update capability when the proposed method is used to share basic computer education resources.

As shown in Figure 5, when the proposed method is used to share the resources for basic computer education, the update amount of the resources does not exceed the update upper limit, indicating that the proposed method has superior real-time update performance. This is due to the fact that after configuring basic computer education resources based on the evolution of clustering results, the proposed method also designs the allocation factor of educational resources, so that after generating new educational resources, the proposed method will locate the newly generated resources and integrate them with the original resources, thereby achieving the update and sharing of real-time educational resources.

The method is therefore applied to college teaching. After 60 days of application, a questionnaire is used to assess teacher and student satisfaction and the application's

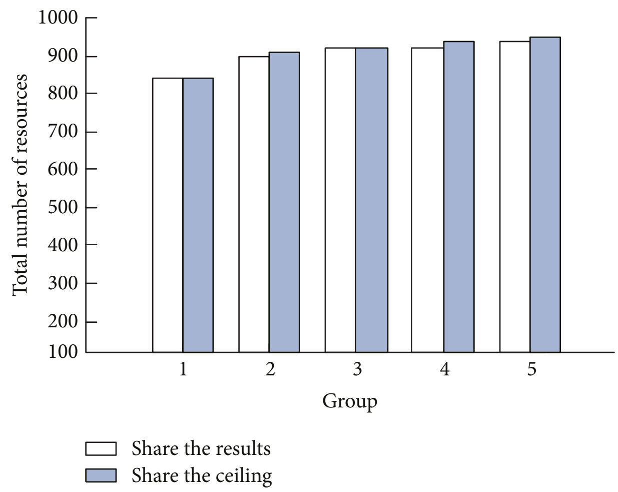

Figure 5: Real-time resource update performance analysis of the proposed method.

Table 1: Evaluation of the application effect of the teaching method by teachers and students.

	Preapplication prediction	Postapplication evaluation	Value of t	Value of p
Learn about educational resource sharing	2.20 ± 0.48	2.60 ± 0.44	−10.258	0.001
Awareness of educational resources	2.52 ± 0.50	2.66 ± 0.57	−3.142	0.002
Understand the role of communication in educational resources	1.88 ± 0.51	2.54 ± 0.51	−10.865	0.001
Recognize the method of sharing educational resources	2.84 ± 0.30	2.80 ± 0.59	0.698	0.487
Contact education educational content	2.93 ± 0.36	2.85 ± 0.44	1.881	0.063
Characteristics of educational resource sharing methods	3.19 ± 0.45	3.06 ± 0.40	2.625	0.010
Improve signal literacy	3.39 ± 0.56	3.27 ± 0.51	1.941	0.054
Autonomy of learning	3.30 ± 0.54	3.17 ± 0.56	2.047	0.046
Information interactivity	3.22 ± 0.62	3.18 ± 0.52	0.536	0.595
Students' concentration	3.17 ± 0.55	3.04 ± 0.53	1.866	0.061
The improvement of interest in learning	2.75 ± 0.69	2.54 ± 0.61	3.224	0.003

impact. In both surveys, 300 questionnaires were distributed and 300 were returned, for a total of 297 valid responses. The SPSS software package was utilized for the analysis and statistics of the collected data. Pearson's correlation, relative number analysis, and multiple stepwise regression methods were utilized for the two questionnaires, respectively, and statistics were utilized for the final result analysis, as shown in Table 1.

After the application of this method, the degree of interest and cognition of teachers and students significantly increased, and the difference was statistically significant ($P < 0.01$). The difference between students' learning autonomy and interest in learning was also statistically significant ($P < 0.05$). As can be seen from Table 1, the evaluation results of teachers and students before and after the application of this method have obvious changes. This also shows that a reasonable method of sharing educational resources has a positive role in promoting both teachers and students.

4.2. Contrast Test. In order to avoid the demerit being too single, the traditional education curriculum resource sharing platform based on the cloud platform (method A) and the education resource sharing method based on wireless broadband connections (method B) as contrast method, respectively, to share process takes, resource clustering accuracy as an index, and complete the performance verification together with the method in this paper.

First, verifying the sharing process of different methods is time-consuming, and the results are shown in Table 2.

According to Table 2, the sharing process of the proposed method takes 5.55 minutes, method A takes 8.74 minutes, and method B takes 9.45 minutes during the tenth experiment. On the 30th experiment, the sharing process time for the proposed method was 5.32 minutes, 8.68 minutes for method A, and 9.58 minutes for method B. On the 50th experiment, the proposed method's sharing procedure takes 5.46 minutes, compared to 8.55 minutes for method A and 9.54 minutes for method B.

In the experimental process, the proposed method has a maximum sharing time of 5.78 min and a minimum sharing time of 5.32 min, indicating that, compared to the two traditional methods, the proposed method is more time-efficient.

The accuracy of different resource clustering methods is then evaluated, and the results are depicted in Figure 6.

Table 2: Time consumption comparison of different methods of educational resource sharing (min).

Number of experiments/time	Method of this paper	Method A	Method B
10	5.55	8.74	9.45
20	5.78	8.63	9.62
30	5.32	8.68	9.58
40	5.34	8.74	9.69
50	5.46	8.55	9.54

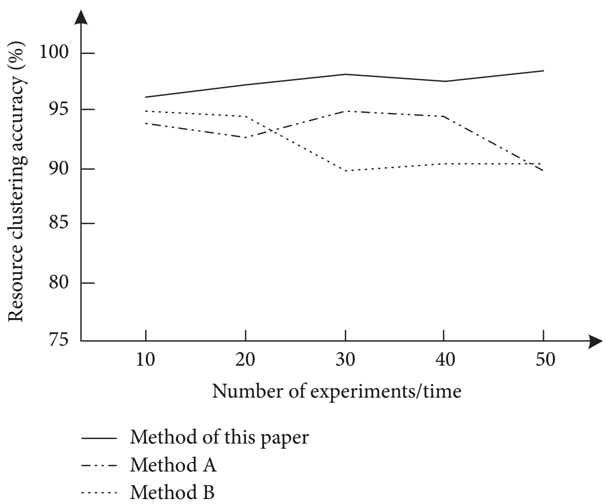

Figure 6: Comparison of the resource clustering accuracy of different methods.

According to the results shown in Figure 2, at the 10th experiment, the resource clustering accuracy of the proposed method was 96.2%, the resource clustering accuracy of method A was 94.1%, and the resource clustering accuracy of method B was 94.8%. At the 30th experiment, the resource clustering accuracy of the proposed method was 97.5%, the resource clustering accuracy of method A was 95.0%, and the resource clustering accuracy of method B was 89.9%. At the 50th experiment, the resource clustering accuracy of the proposed method was 97.9%, the resource clustering accuracy of method A was 89.7%, and the resource clustering accuracy of method B was 89.4%. In the whole experimental process, the resource clustering accuracy of the proposed method can reach 97.9%, indicating that the proposed method has a good effect on the processing of basic computer education resources.

5. Conclusion

In tandem with the acceleration of the education informatization process, the quantity of basic computer education resources is growing. The ability to supervise the basic computer education resources effectively is growing in significance. Increased requirements for the cocreation and sharing of educational resources have been prompted by the expanding types and quantities of basic computer education resources and the diverse learning needs of users.

Based on a mixed Gaussian model, this study develops a method for sharing basic computer education resources. Following the design of the basic sharing platform, information regarding the basic computer education resources to be shared is gathered. The education resources are then clustered using the Gaussian mixture model, and the clustering results are used to configure the education resources. Depending on the number of configuration factors, computer basic education resources can be shared in accordance with their design.

According to experimental results, the proposed method has high resource sharing efficiency, the ability to update resources in real time, and positive teacher and student ratings. Compared to conventional resource sharing methods, the proposed method reduces sharing time and improves resource clustering precision.

In the future, we will further reduce the time of educational resource sharing methods and improve the clustering accuracy.

Data Availability

The data used to support the findings of this study are included within the article.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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