Research Article

Integration and Sharing of College English Teaching Resources Using Cloud Computing Platform

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Intelligent computing has been used in the field of education and teaching for a long time in other countries. China is currently conducting education cloud research, but it has not yet been applied to the sharing of instructional resources in universities. The creation of a university instructional resource sharing network based on intelligent computing will help to alleviate the uneven distribution of educational resources to some extent and achieve the goal of high-quality instructional resource sharing, which is critical for improving China's tertiary education overall. The information age has arrived, thanks to the advancement of information technology and the growth of communication networks. The impact of instructional resources on English classrooms is growing day by day against the backdrop of digitization. The educational resource sharing service platform can effectively deal with the problems of excessive infrastructure investment and low utilization of educational resources with intelligent computing as the technical support. It is essential for promoting educational resource sharing as well as interregional tertiary education exchanges and collaboration. As a result of the research on intelligent computing and educational resource sharing service platform, this paper discusses specific problems such as platform module design, system inspection, and application form, in order to provide a reference for the establishment of educational resource sharing service platform in universities, based on the overall and functional requirements of the platform, a platform that allows teachers and students to access personalized digital resources on demand for reading, downloading, printing, and sharing.

1. Introduction

With the advent of the information age, the speed of information dissemination is faster and faster, and the dissemination range is wider. Its sharing range weakens the concept of time and space [1]. The acquisition scope of CET resources has greatly expanded in the information-based environment and is no longer limited to instructional resources in the school and at home but can now be expanded to the entire world [2]. The expansion of instructional resources also encourages instructional model innovation [3]. In terms of integrating instructional resources, digitization of instructional resources in the information environment is more convenient for integration than written materials such as books, newspapers, and periodicals, and it allows the role of resource allocation to be fully realized [4]. The rapid development of information technology has allowed it to be applied to all aspects of the national economy. A specific application example [5] is the sharing of educational resources. China has a large number of universities and is a large tertiary education country. Universities have their own school-running characteristics, and all types of instructional resources are abundant. When there is a large amount of educational resource data, intelligent computing can be used to share instructional resources and optimize instructional resource allocation in universities [6]. This not only allows for the most widespread sharing of educational resources but also significantly reduces users' hardware investment [7].

The traditional CET model is being challenged by the information, digital, and network era [8]. Enrich and improve their knowledge structure and technical level on a regular basis, and strive to change their roles and responsibilities. Experiment with new teaching methods. It has developed an effective method of CET reform in a multimedia and networked environment, gradually achieving the

goal of CET reform in the new era and continuously deepening CET reform [9]. As new instructional models are developed, related research emerges one after another, and the resulting scientific research results are also limitless [10]. The emergence of network electronic resources such as electronic courseware, network courses, high-quality courses, resource sharing courses, and instructional resource databases not only breaks the constraints of the traditional instructional model, allowing English teaching and learning to be free of time and place to some extent and developing in the direction of universality and personalization, but it also follows the current trend [11]. Courseware, online courses, excellent (resource sharing) courses, and digital resource databases (including teaching plan databases and test question databases) used in multimedia and network environments, as well as various information resources serving CET, such as text, pictures, animation, audio, and video, are all considered CET resources in this paper. The CET mode based on multimedia and network environment has basically been formed. Major universities have not only established multimedia classrooms, network independent study rooms, and instructional resource banks but also built and improved information-based and networked digital campuses. English teaching has built a new platform, which provides a strong guarantee for improving the quality of CET.

With the concept of "intelligent sharing, mining and analysis, dynamic expansion, security and reliability," give full play to the advantages of high-quality instructional resources, tap the rich value contained therein, analyze the visit records of teachers and students by using new technologies such as artificial intelligence and big data, establish relevant resource recommendation models, perceive the use situation of instructional resources, and carry out the establishment of instructional resource platform based on intelligent computing, It is one of the important topics to give full play to the benefits of instructional resources. Starting from introducing the technical advantages of intelligent computing [12], this paper analyzes and discusses the new ideas and methods of instructional resource platform established under the framework of intelligent computing means.

2. Related Work

Each input web page is treated as a list of tags in reference [13], and web page templates are described using regular expressions. For the first time, reference [14] proposed data mining using the template method and designed various templates to describe the logical structure of web pages. The concept of an automatic template generator was proposed in reference [15], and it was believed that TTAG could automatically learn tree templates from training web pages and that TTAG had a good extraction effect in web pages based on query and rapid update. The DOM tree's hierarchical structure facilitates the research method in this paper, and regular expressions can be used to describe the template tree of web page tags. PAT tree was used to extract independent templates from web page strings, and sequence alignment was used to solve the template mismatch problem in reference [16]. However, other studies have found that

IEPAD methods generate an excessive number of templates, the majority of which are useless and spurious. The address forms of web pages with similar structures are generally similar, according to a web information extraction method based on DOM and web page templates proposed in [17]. When collecting pages, you can specify a range of IDs to get pages automatically. Based on chaotic feature perturbation fuzzy C-means clustering [18], reference proposes an English lexical semantic feature decomposition and clustering algorithm. For lexical attribute feature extraction and statistics, the feature segmentation method [19] is used, which makes lexical attribute feature extraction for textile science and means English intensive training. The process meets convergence requirements and improves lexical data classification accuracy, but the algorithm has a high computational cost and poor real-time feature classification performance. In textile science, reference [20] proposes a vocabulary optimization clustering method based on sequential resampling ant colony filtering, which entails English intensive training. This method discards low-weight clustering centers' diversity information, reduces computational overhead, and improves data clustering and convergence. Literature [21] believes that the teaching method of college English has become more intelligent as a result of the change in information means. Integration of information resources can have an impact on not only the teaching process but also the long-term organizational structure in the CET process. Through the use of English simulation teaching software and modern scientific and technological means, literature [22] effectively improves students' interest in learning.

According to the literature, the existing digital teaching resource service system in colleges and universities can no longer meet the needs of college teaching and scientific research. It is necessary to create an emerging, comprehensive, and diversified regional digital instructional resource coestablishment and sharing service system to effectively integrate the digital instructional resources of universities in the region and realize the best balanced allocation of digital instructional resources in the region. Intelligent computing can provide a good solution for the concentration and integration of resource management establishment in universities, provide reference for strengthening the transformation of university education resource management mode, reduce the cost of software and hardware in the establishment of school educational resources, provide a way for teachers and students to carry out mobile learning anytime and anywhere, and enhance information security and ensure the operation of instructional resource management in universities. It is of great significance to comprehensively improve the teaching quality of tertiary education.

3. Research on the Integration and Sharing of CET Resources under Intelligent Computing Platform

3.1. Feasibility of Integration and Sharing of Instructional Resources. Although the current situation of CET resource establishment is not optimistic and there are still many

problems, it is still possible and feasible to integrate and share them. The Ministry of Education has also made clear instructions on the integration and sharing of instructional resources in the work points in recent years. For example, the main points of work put forward are as follows: make full use of information means to promote the sharing of high-quality educational resources. To further emphasize, expand the sharing of high-quality educational resources through educational informatization. Complete the full coverage of digital educational resources at teaching sites, start the implementation of broadband network school-to-school access, and accelerate the promotion of high-quality resources for class-class access and online learning space for everyone. On the basis of expanding the coverage of high-quality resources through education informatization, we will build an information-based learning environment where everyone can enjoy high-quality educational resources. Therefore, actively and steadily promoting the integration and sharing of high-quality English education resources in universities has been supported by various national policies and has become an inevitable choice for the sustainable development of tertiary education in the information age. First of all, the premise of resource integration and sharing is that there are resources before integration and sharing. In recent years, with the deepening of CET reform and the promotion of the overall plan of national education development, the establishment of CET resources in major universities in China has made great achievements, both in quantity and quality, and has been greatly improved and developed into a resource platform. Secondly, the technical support has been initially provided. With the continuous progress of intelligent network and the strong support of the state, the means and environment for realizing the integration and sharing of digital educational resources are already in place. Contemporaneously, the rapid web advancement means and educational information means provide personnel guarantee for the integration and sharing of CET resources. It has created a group of educational informatization teachers and professional teams with exquisite business and reasonable structure. The order of university instructional resource sharing platform is shown in Figure 1.

With the rapid prosperity of the society and the continuous improvement of the intelligent network, the society has put forward a new demand for English talents, and higher education must be changed accordingly. The era of sticking to the rules and sticking to being self-styled is over.

To fully exploit the benefits of information resources, to improve universities' internal resource integration through multiangle resource presentation forms, to combine college English classrooms with instructional resources, to expand students after class, and to integrate training resources. These two resources are both about college English courses, but they have different focuses. The former is primarily a resource presentation of CET knowledge points that is more closely related to the curriculum, with the goal of encouraging students to learn curriculum knowledge. As a result, universities must conduct an in-depth and comprehensive analysis of teaching materials to ensure that each knowledge point is reinforced and repeated. The latter is an educational resource designed to meet the diverse needs of middle school students in universities. College learning is distinct from previous stages of education. Students have different needs for English learning depending on their objectives. Universities should expand curriculum resources and integrate resources according to their learning characteristics in light of this situation. The primary producers and integrators of CET resources are teachers. We need to improve teachers' informatization levels or their ability to summarize instructional resources and use informatization resources through information means, in order to enrich instructional resources. Teachers must have a better understanding of the importance of informatization education, be familiar with the concept of informatization, actively use informatization resources for teaching design, and develop more instructional resources to improve their informatization ability. Teachers can also form an information-based teaching team to supplement CET resources by cooperating and communicating with one another. Universities should also do a good job in establishing infrastructure, creating conditions for teachers' information-based learning and resource integration, and improving teaching quality effectively.

3.2. University English Instructional Resource Integration and Sharing Mechanism Establishment. The current situation of CET resources has many problems, which are largely related to the lack of overall planning. In addition to the active guidance and overall planning of relevant government agencies, the realization of resource integration and sharing requires the participation of all sectors of society to jointly promote the collaborative development between schools and enterprises and between schools, continuously improve the level of in formatization, and promote the development of information means and deep integration of teaching. Contemporaneously, strengthen the establishment of teachers, professional teams, and management teams to provide guarantees for the integration and sharing of resources. Under the information environment, the majority of students also need to actively participate, constantly improve the information learning ability, and establish a learner-centered instructional model. It is an urgent need for English teaching to obtain test question resources through various ways and to establish a test question bank quickly and effectively. The architecture of educational resource sharing service platform is shown in Figure 2.

An automatic web information extraction system based on DOM and tree template is designed based on the characteristics of web pages containing English test question information. The system can automatically gather and preprocess web pages, then cluster them, generate templates, and extract data. Automatic acquisition and preprocessing of a web page set, web page clustering algorithm based on DOM tree editing distance, optimization template generation means, test paper information matching means, and English question bank generation means are among the related technologies involved. The maximum number of matching nodes of two trees (STM) can be obtained using the tree's STM (simple matching) algorithm. The similarity
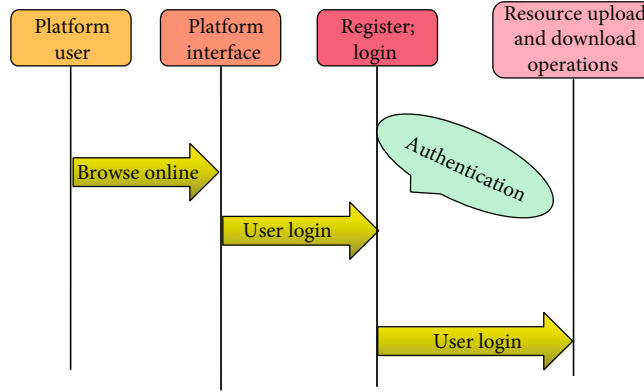
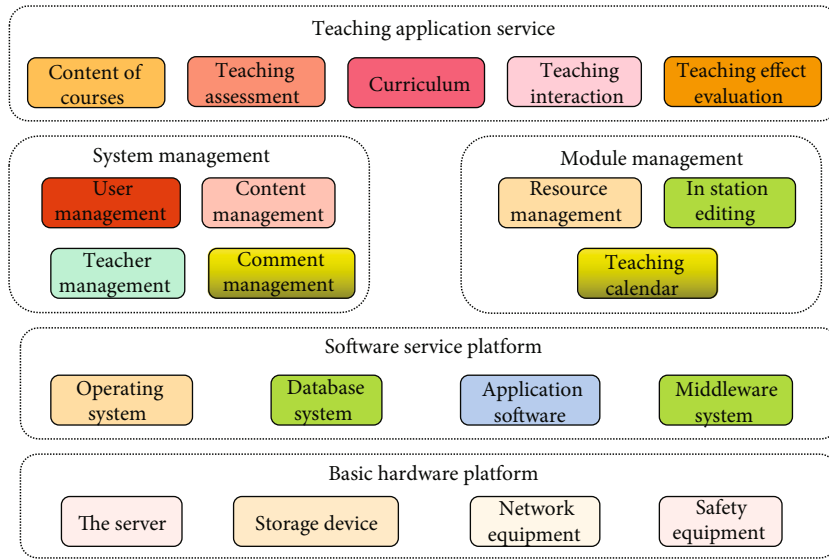FIGURE 1: Sequence of instructional resource sharing platforms in universities.

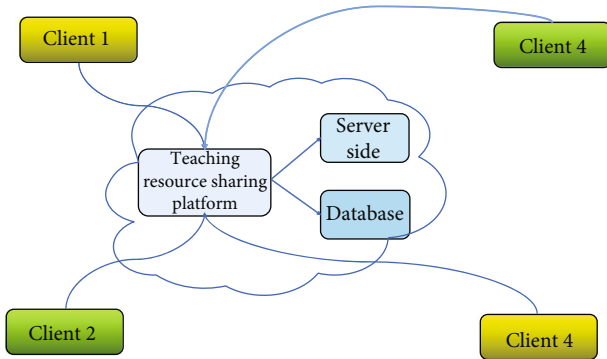FIGURE 2: Architecture of educational resource sharing service platform.

FIGURE 3: Learning mode using intelligent computing.

function NSTM of the two trees is derived using the STM algorithm in order to compare the distance between them. The formula is as follows:

$$\text{NSTM}(A, B) = \frac{\text{STM}(A, B)}{\max{(n_1, n_2)}}. \tag{1}$$

Here, n_1 and n_2 are the number of nodes of two trees A, B, and the nodes with a large number are selected as the denominator. From the expression of the function, it can be seen that the values of NSTM function are distributed in the [0,1] interval. When the function value is 1, it is considered that two trees have exactly the same structure. When the function value is 0, it is considered that the two trees are completely dissimilar. From the previous analysis, we get the similarity function NSTM of the two trees; then, the dissimilarity function UNSTM of the trees is

$$\text{UNSTM}(A, B) = 1 - \frac{\text{STM}(A, B)}{\max{(n_1, n_2)}}. \tag{2}$$

We use the average distance to calculate the distance between two clusters:

$$d_{avg}\left(C_i, C_j\right) = \frac{1}{n_i n_j} \sum_{p \in C_i} \sum_{p' \in C_i} \left|p - p'\right| \tag{3}$$
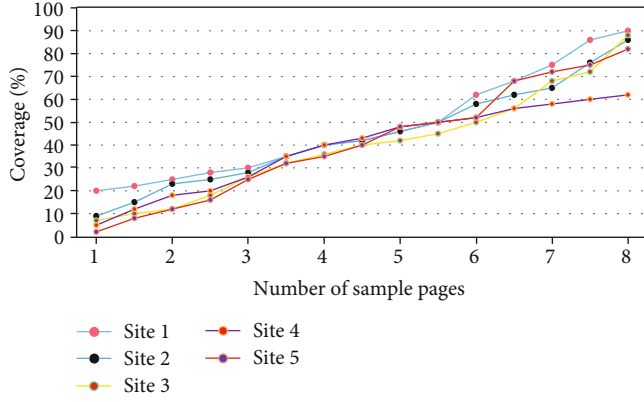
FIGURE 4: Test result curve generated by template.

Suppose there are k strings, each of which is n in length, so there is $s = s_1 s_2 \cdots s_n$; here, $0 \leq 1 \leq n$. They can be regarded as a matrix of k rows and n columns. Then, in the template, t_i elements represent the result of character comparison in the i column of the matrix. Using regular expression, it is

$$t_i = \begin{cases} \mu(s_i)^?, \\ \mu(s_i). \end{cases} \tag{4}$$

Through a large number of observations, it is found that the text web page with English test paper content has two characteristics: the number of pictures and links contained in the body is less, and the number of Chinese characters contained in it is less. Suppose that the number of pictures in (DIV) or (TD) tags is N_P, the number of links is N_L, the number of English characters is N_E, and the number of Chinese characters is N_C. The weight value TW_i of the text contained in the label is as shown in the formula. The greater the weight, the greater the possibility of the text contained in the label.

$$T_i = \log \frac{(N-E)_i}{((N\_P)_i + 1) \times ((N\_L)_i + 1) \times ((N\_C)_i + 1)},$$

$$TW_i = \frac{T_i}{\sqrt{\sum (T_i)^2}}. \tag{5}$$

F index is an index set up to evaluate comprehensive performance:

$$F = \frac{(\beta^2 + 1)PR}{\beta^2 P + R}. \tag{6}$$

CET resources that are multisystem, multiplatform, and multistandard not only cause confusion for teachers and students but also make managers feel powerless. Different standards for establishing resources and different retrieval tools not only waste a lot of manpower and materials, but they also make resource searchers sigh, resulting in an informa-

tion island effect, which not only reduces resource utilization but also reduces resource efficiency. As a result, establishing a unified standard for the integration and sharing of CET resources has become a top priority. This necessitates the creation, integration, and sharing of all types of resources according to unified standards; the realization of seamless, unified, and comprehensive links among resources; and the construction of a structural system with exchange of needed goods, complementary advantages, and balanced resources, in order to maximize resource efficiency and overall benefits and embody the people-oriented service concept. The sound mechanism has many components, the most important of which are the evaluation and incentive mechanisms. Users should assess whether the resources are of high quality and can benefit teachers, students, and learners. Establishing resources is not something that can be done overnight or once and for all. Standardize network and information security management, and create a system for integrating and sharing information resources that is safe, civilized, and environmentally friendly. The learning mode using intelligent computing is shown in Figure 3.

Under the framework of intelligent computing, the sharing of high-quality instructional resources in universities is no longer limited to the platform, which is more convenient for teachers, students, and other users to visit and download. The core of building the university instructional resource sharing cloud platform is the intelligent computing server, which makes use of the high performance, high reliability, and high expansibility of the intelligent computing server.

4. Result Analysis and Discussion

In the process of teaching implementation, teachers and students use crossnetwork, crossplatform, and crossterminal intelligent computing-based instructional resource platforms to support new or mixed learning methods such as digital learning, collaborative learning, and mobile learning, thus giving birth to the teaching behavior process. The scale effect, user aggregation, and data accumulation of Chinese data have reached a massive level. The scale effect, user aggregation, and data accumulation of data in the teaching process have reached a massive level. Teaching behavior analysis based on big data is the process of using cloud platform resources to access data to build a teaching behavior analysis model and visualize it, using the powerful computing power provided by intelligent computing to analyze and mine big data, using the data model to make individual portraits and predict individual learning behavior, recommending high-quality instructional resources to teachers and students from the huge resource platform, providing intelligent analysis on individual learning level, giving learning suggestions, and providing personalized services to teachers and students. The foundation of intelligent computing means is the network, and the Internet is in an open environment. There are risks of leakage, loss, and tampering when accessing, storing, and transmitting cloud resources, which undoubtedly brings many threats and security risks to instructional resources. Therefore, management departments should manage instructional resources in a unified
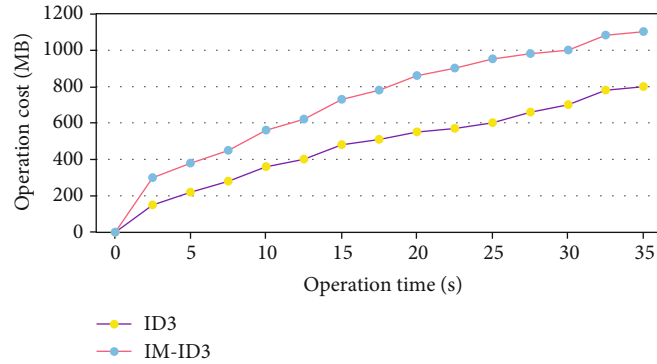
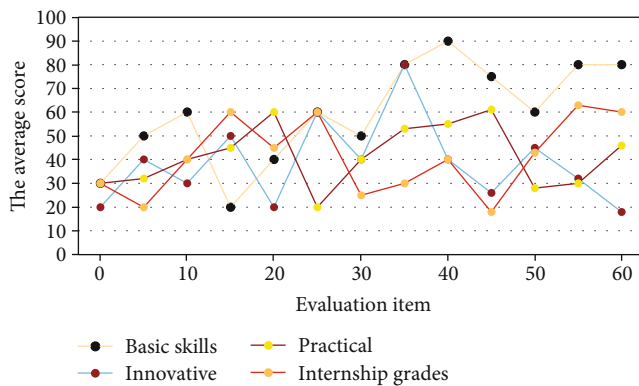FIGURE 5: Operation overhead test of improved ID3 algorithm.

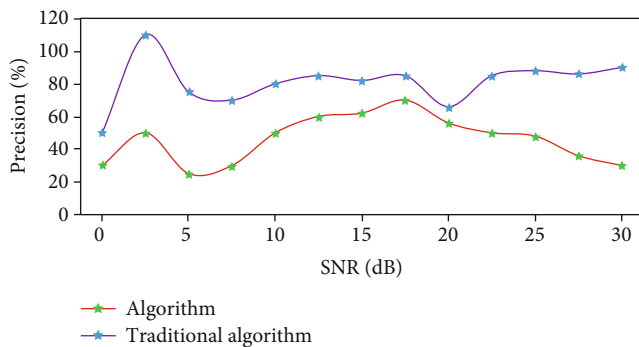FIGURE 6: Results of effectiveness evaluation of English practice teaching.

FIGURE 7: Comparison of accuracy.

ing lessons, teaching, and answering and really improve teachers' teaching ability.

For the clustered web page clusters, templates are generated according to the algorithm in the fourth part of this paper. There are two issues to pay attention to here: whether the generated template can match unknown web pages, that is, whether it has generality; how many training web pages are needed to generate the optimal template. Therefore, the following test scheme is adopted: first, randomly select one of the 90 web pages of each website as a training web page, and then, according to the clustering results of the web pages, use the countermeasures suggested in this paper to generate the corresponding template. Under the condition of varied numbers of training web pages, the matching degree curve between the template and the sample web page. The template generation test result curve is shown in Figure 4.

In this paper, a special simulation experiment was conducted to verify the effectiveness of the improved algorithm. At first, the calculation cost was calculated. The test of the operation cost of the improved ID3 algorithm is shown in Figure 5.

Then, the optimized ID3 algorithm is used to construct the effectiveness evaluation model of English practice teaching, and the practice effectiveness evaluation test is carried out. The evaluation results of English practice teaching are shown in Figure 6.

Using this method and the traditional method, taking the accuracy of vocabulary classification in English intensive training as the test index, the simulation results are obtained. The comparison of precision is shown in Figure 7.

In order to test the performance of the improved vocabulary classification algorithm in the realization of English intensive training vocabulary classification, a simulation experiment was carried out. The experiment uses Matlab simulation software. In the simulation experiment, the English intensive training word pairs in the subject thesaurus are extracted for vocabulary classification. The simulation results of the word classification output of the inscription table are shown in Figure 8.

As long as the structure of the web page to be extracted is similar to the template structure, the web information extraction can be carried out according to the extraction

way, authorize and control access step by step, and conduct intrusion detection, so as to effectively guarantee the security of these data. Resource sharing should strictly follow the security policy of rights management. Management units should define different access rights and data sharing levels according to the needs of instructional resource sharing, and the security policy should be implemented by the virtualization platform of intelligent computing. In English teaching, teachers have accumulated rich test resources according to their own experience. In order to reduce the complicated and repetitive work in teaching, let teachers focus on prepar-
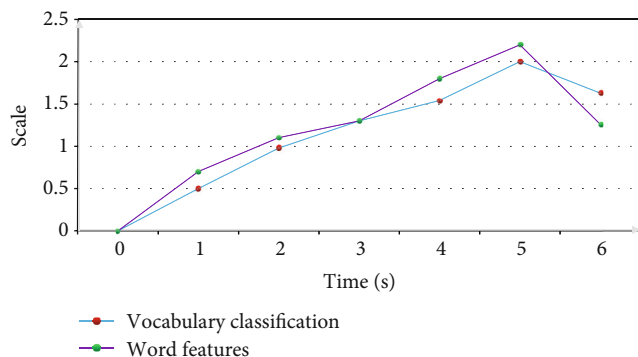
FIGURE 8: Simulation results of word classification output in thesaurus.

rules proposed in this paper. And compared to the template generation process, the information is matched much faster, so the system can handle large numbers of web pages efficiently. English instructional resources are increasing rapidly, but the carrier is lagging behind, and it cannot achieve a balance between carrier and resources in a short period of time. Diversified instructional resources are also a new challenge for the development of conventional English teaching tasks.

In this process, students' participation is ignored, but teachers unilaterally explain the knowledge content. Although students have understood the knowledge content in class, it is easy to forget after a period of time that such an instructional model is not the most ideal. Ignoring students' participation will inevitably lead to problems with unsatisfactory teaching effect. In such a learning environment for a long time, students' English practical ability will also decline. Some interactive links can be set up in the classroom, so that students can learn more and expand knowledge in the learning stage, truly participate in the classroom, and become the main body of classroom teaching plan. When designing classroom interaction, we should consider the integrity of the classroom, form a deep impression on the minds of college students, and keep the proportions designed to expand knowledge to be scientific, so that students can quickly adapt to the information-based classroom. Teachers should not simply pursue the improvement of students' performance, thus ignoring the personal feelings of students in the learning stage. The design of English classroom instructional model under the background of information means should take improving students' comprehensive English application ability as the premise, optimize the use efficiency of instructional resources, and respect the opinions put forward by students in class, so that students' personal ability can be steadily improved.

5. Conclusions

The voice of the people and the needs of society are expressed through the integration and sharing of CET resources in the information environment, but many factors impede the development of the information process and CET reform. The main reasons are that the current resource set-up is lacking in overall planning, resource allocation is unbalanced, high-quality instructional resources are scarce, and resource repetitive set-up is problematic. The use of intelligent computing to share instructional resources in universities can help to promote the informatization of instructional resources throughout the region, realize the sharing and sharing of instructional resources, further optimize instructional resources, and effectively alleviate the uneven development and lack of high-quality resources in my country's educational informatization process. This is the issue. Furthermore, intelligent computing is not as far off as one might think. It is completely achievable under the current technical premise using some technical means and a reasonable model design. For educational modernization, college English informatization teaching is an unavoidable option. To ensure that informatization CET resources develop dynamically, continuously, and consistently, we must begin with the establishment of instructional resources, resource sharing and assurance, the establishment of a digital campus, instructional model transformation, teacher training, fund investment, and other aspects of creating an ecological CET environment. To ensure that informatization CET resources develop dynamically, continuously, and steadily, we must begin with the establishment of instructional resources, resource sharing and assurance, digital campus establishment, instructional model transformation, teacher training, and other aspects that have been jointly started to create an ecological CET environment, promote the in-depth integration of information means and college English courses, innovate college English education models, and impair the development of informatization CET resources.

Teachers are in higher demand these days, thanks to the rapid advancement of intelligent network technologies. Teachers should be aware of and use information resources. In order to achieve better results, they must have a basic understanding of the virtual intelligent computing platform. Furthermore, in order to enrich the teaching content and continuously improve and innovate the educational ability, we should have a deeper understanding of the problems and main characteristics encountered by students during the experimentation process. More applications of the intelligent computing platform provide more impetus for students to learn English. It can boost language experimentation's innovation and quality, broaden students' language practice's creative boundaries, and increase the output rate of high-quality English classroom practice. Furthermore, using an intelligent computing teaching platform can help teachers improve their practical teaching abilities. At the moment, most universities are still exploring and practicing the use of intelligent computing in English classrooms, with few teachers and students participating. It is hoped that, as a result of the above research and practice, this paper will serve as a useful resource for those interested in learning more about college English information teaching.

Data Availability

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

Conflicts of Interest

The author does not have any possible conflicts of interest.

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