Retraction

Retraction: Construction of College English Teaching Resource Database under the Background of Big Data (J. Phys.: Conf. Ser. 1744 032004)

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The authors of the article have been given opportunity to present evidence that they were the original and genuine creators of the work, however at the time of publication of this notice, IOP Publishing has not received any response. IOP Publishing has analysed the article and agrees there are enough indicators to cause serious doubts over the legitimacy of the work and agree this article should be retracted. The authors are encouraged to contact IOP Publishing Limited if they have any comments on this retraction.

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Construction of College English Teaching Resource Database under the Background of Big Data

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Abstract: At present, the construction of college English network resource database in domestic universities is still in its initial stage in practice, and it is almost a blank in theoretical research. The construction of college English teaching resource database is of great strategic significance for promoting the construction of college English subject resources and improving the talent training mode. In this regard, the purpose of this paper is to study the construction of college English teaching resource database under the background of big data. This paper first discusses the current situation of college English teaching resources construction and resources in China. This paper summarizes the main problems existing in contemporary Chinese college English teaching resources database. According to the previous investigation and research results, and combining with big data technology, this paper constructs a new college English teaching resource library. The new college English teaching resource library puts the feelings of college students at the main position, and its teaching resources are more inclined to the subjective initiative and communication of college students. The resource library also uses the storage architecture of data warehouse, combined with big data and other related technologies, to realize the storage and update of various English teaching resources, and meet the needs of effective management of teaching resources in colleges and universities. Finally, this paper compares the old and new college English teaching resources. The experimental results show that the college English teaching resource database constructed in this paper is more recognized and liked by students, and the degree of students' liking for English has increased by about 55%, which plays a significant role in improving students' English and provides an important reference for the construction of college English teaching resource database.

Key Words: Big Data, College English Teaching Resource Library, Questionnaire Survey, Data Warehouse

1. Introduction
After the successful application of big data in e-commerce and other fields, many experts and scholars in education called for the application of big data in education as soon as possible, hoping to use big data to promote the construction of educational informationization, improve teachers' teaching methods and teaching quality, and improve students' learning efficiency. Especially with the popularization of intelligent terminals, the traditional teaching mode can no longer meet the needs of social development. Both teachers and students urgently need an English teaching resource library that can meet the teaching needs of teachers in accordance with their aptitude. It can meet the individualized learning needs of students. Therefore, it is necessary to build a high-quality college English teaching resource library.

At present, with the continuous development of information-based teaching in colleges and universities, various teaching resource banks created by using big data and other related technologies have emerged. In foreign countries, Fordyce put forward flip classroom. Compared with traditional classroom education, flip classroom changes the roles of teachers and students. Teachers are no longer the main body of teaching, but serve students. Students are the center of teaching. Students learn according to teaching videos before class, discuss and finish homework in class, and teachers give special guidance according to the actual situation of learners[1]. In China, Yang Dong discusses the teaching mode in multi-disciplines, including the penetration of reading and writing methods in Chinese learning, the interactive learning of English in many aspects, the penetration of aesthetics in teaching, and the cultivation of behavior habits in the process of information culture cognition[2].

Under the background of big data, this paper studies the construction of college English teaching resource database. Firstly, this paper combs the present situation of college English teaching resources database in China by consulting relevant data and questionnaire survey, and summarizes the main problems existing in contemporary college English teaching resources database in China. Then, according to the results of previous investigations and studies, combined with big data, data warehouse and other technologies, this paper puts forward a new college English teaching resource library. This teaching resource library greatly improves students' enthusiasm and subjective initiative, and has important reference significance for the further development of higher calligraphy education.

2. Technical research on the Construction of College English Teaching Resource Database
Under the Background of Big Data

2.1 Big Data
(1) Data acquisition
For any data analysis, the primary thing is data collection, so the first technology of big data analysis software is data collection technology. This tool can collect data distributed on the Internet and data in some mobile clients quickly and widely. At the same time, it can quickly import data from data sources in some other platforms into this tool, and clean, transform and integrate the data, thus forming it in the database or data mart of this tool for contact analysis and processing[3].

(2) Data access
After the data is collected, another technology of big data analysis, data access, will continue to play a role. It can relate the database, make it convenient for users to store the original data in use, and collect and use it quickly. Then there is the basic architecture, such as transportation and storage and distributed file storage, which are common.

(3) Data processing
Data processing can be said to be one of the core technologies of the software. Facing the huge and complex data, the tool can use some calculation methods or statistical methods to process the data, including its statistics, induction, classification, etc., so that users can deeply understand the deep value of the data [4].

(4) Statistical analysis
Statistical analysis is another core function of the software, such as hypothesis testing, which can
help users analyze the reasons for a certain data phenomenon, and difference analysis can compare the huge differences of product sales in different time and regions, so as to make a more reasonable layout in time and region in the future.

(5) Correlation analysis

What is the relationship between a certain data phenomenon and another data phenomenon? Big data analysis can analyze the relationship between the two through data growth, reduction and change, etc. In addition, cluster analysis, principal component analysis and correspondence analysis are commonly used technologies, and the application of these technologies will make data development closer to people's application goals [5].

2.2 College English Teaching Resource Bank

(1) Content of resource pool

College English basic teaching resource database is generally based on teaching materials. Each unit in all English textbooks has different themes. Students can use new media technology to learn the culture and art under each theme, and then cultivate their comprehensive English listening, speaking, reading and writing skills. English listening and speaking resource library includes audio and video resource library. Audio resource library can contain CET-4 and CET-6 listening, new concept listening, BBC, English songs and so on. For example, translating important news at home and abroad, cultural propaganda at home and abroad, etc., can enable students to achieve comprehensive development in the new media era, and quickly improve their English quality and comprehensive level [6].

(2) Resource library functional requirements

1) Collection of resources

Teachers provide lesson plans and courseware. The resources provided by teachers are generally produced by teachers themselves, and have been modified many times in the process of use, so they have high use value and are one of the essential resources in the network teaching resource library. The resource builder collects from the Internet according to the content requirements of the resource library. The resources collected from the Internet are characterized by large quantity, various types and complex file types, so it is necessary for resource builders to spend more time sorting and classifying. Buy complete sets of materials, courseware, CD-ROM of online courses, etc.

2) Classification of resources

College English network resources are aimed at teaching, so after the collection of resources is completed, they need to be carefully sorted and classified according to the teaching needs. A good classification mechanism is conducive to the organization and management of resources and the high efficiency of their use. In the actual construction process of the resource library, we can take the subject as the general classification basis, and then divide it in detail according to the applicable object and material type, or take the applicable object or material type as the priority classification basis, depending on the type of the resource library [7].

3) Resource conversion

After sorting and classifying the resources collected by resource builders, they have a good organizational structure, but there are huge differences in file types, which is not conducive to the management, use and sharing of resources. Therefore, it is necessary to convert resources before warehousing, and the conversion of resources is an important part in the standardization process of resource library construction [8].

4) Resource warehousing

Resource warehousing includes the storage of structured data and unstructured data. Structured data mainly refers to text information and metadata information of resources. Unstructured data mainly refers to multimedia files such as pictures, videos, animations and audio. Structured data is mainly stored in the database to facilitate retrieval and query; Unstructured data is mainly stored in computers in the form of files. The access to unstructured data is mainly achieved indirectly by searching and querying the metadata information of resources in the database.

5) Post-management
Post-management mainly includes adding, deleting, modifying and adjusting the resources in the resource pool according to the user's usage, requirements and evaluation results. To a great extent, the quality of a resource pool depends on whether the post-management work is done adequately. A resource library with updated content, timely feedback to users, thinking about what users think and anxious for users is a high-quality resource library [9].

2.3 Data Warehouse

Data warehouse is not only a data collection, but also a decision support system. It reorganizes and integrates the information from multiple data bases or other data sources, and provides a unified user interface for a topic application at the upper level, so that the end user can directly complete the query, analysis and decision of data. The related algorithm is as follows [10].

Let \( s \) be the training sample data set, and the category identification attribute in \( s \) has \( m \) independent values, that is, \( m \) classes are defined, \( i=1, \ldots, m \). \( R_i \) is the subset of the data set \( s \) belonging to the \( C_i \) class, and the number of tuples in the subset \( R_i \) is expressed by \( r_i \). The expected information amount of set \( s \) in classification can be given by the following formula.

\[
I(r_1, r_2, \ldots, r_m) = -\sum_{i=1}^{m} P_i \log_2(P_i)
\]  

(1)

Where \( P_i \) indicates the probability that any sample belongs to \( C_i \) class, \( P_i = r_i / |S| \), where \(|S|\) is the number of tuples in the training sample data set.

If \( S_{ij} \) indicates the number of tuples belonging to \( S_j \) class in subset \( C_i \), the entropy of attribute \( A \) for classification \( C_i (i = 1, 2, \ldots, m) \) can be calculated by the following formula.

\[
E(A) = \sum_{j=1}^{w} \frac{S_{ij} + \cdots + S_{mj}}{|S|} I(S_{ij}, \cdots, S_{mj})
\]

(2)

Let \( w_j = \frac{S_{ij} + \cdots + S_{mj}}{|S|} \) then \( w_j \) be the weight of \( S_j \) subset, which indicates the proportion of \( S_j \) subset in data set \( S \), and the expected information amount of classification \( C_j \) for each value of attribute \( A \) can be calculated by the following formula.

\[
I(S_1, \cdots, S_m) = -\sum_{i=1}^{m} P_{ij} \log_2(P_{ij})
\]

(3)

Where \( P_{ij} = S_{ij} / |S_j| \) indicates the proportion of \( S_j \) belonging to \( C_i \) class in the subset.

3. Experimental research on the Construction of College English Teaching Resource Database under the Background of Big Data

3.1 Experimental Data

The research object of this paper is 400 randomly selected college students, including 240 boys and 160 girls. Then divide them into a and b groups on average. Group a is the experimental group and group b is the control group.
3.2 Experimental Process
First of all, this paper makes a questionnaire survey among randomly selected college students, and obtains their understanding, liking and cognition of college English teaching resource pool, so as to more truly understand contemporary college students' views on college English teaching resource pool. After that, the college English teaching resource library proposed in this paper is used to teach English for one month for group A students, and under the same conditions, the traditional college English teaching resource library is also used to teach English for one month for group B students. Finally, a questionnaire survey was conducted and the experimental data were compared.

4. Experimental analysis on the Construction of College English Teaching Resource Database under the Background of Big Data

4.1 College Students' views on College English Teaching Resource Pool
In this paper, 400 randomly selected college students were investigated by questionnaire. Therefore, we can get the understanding, liking and cognition of college English teaching resource bank of contemporary college students, so as to more truly understand the views of contemporary college students on college English teaching resource bank. The purpose of the first questionnaire survey is to understand college students' English level and interest in English learning, and the second questionnaire survey is to understand college students' views on college English teaching resource pool and traditional English teaching resource pool proposed in this paper. The survey results are shown in Table 1 and Figure 1.

Table 1. College students' views on English teaching resource bank

| Understand resource pool | Used resource library | Like resource pool | Think resource pool is very important |
|--------------------------|----------------------|-------------------|---------------------------------------|
| Boys                     | 156                  | 106               | 42                                    | 128                                   |
| Girls                    | 108                  | 90                | 36                                    | 78                                    |

Figure 1. College students' attitude towards two kinds of resource banks
From the survey data, it can be seen that most college students know little about the college English teaching resource database, know little about it and use it rarely, so only a few students express their love for it. On the other hand, students can't realize the importance of college English teaching resource pool for their future English study. Therefore, people don't like the traditional college English teaching resource library very much, and they don't realize its importance to English learning.

After using two kinds of college English teaching resources to teach college students in A and B groups for one month, most college students in A group think that the college English teaching resources proposed in this paper are more effective, interesting, interactive and rich in resources,
which improves students' enthusiasm for learning English. However, the B group of college students who use the traditional teaching resource database generally have low evaluation. This is mainly because the college English teaching resource database proposed in this paper adopts big data analysis technology, which can focus on the parts that students like and are interested in, so that students can acquire the English knowledge they want. Big data technology first collects the opinions of college students on the college English teaching resource database, and then stores and analyzes these data, so as to know the English knowledge that college students are eager to learn and teach students in accordance with their aptitude.

4.2 Changes in College Students' love for English Learning

In this paper, group A students are allowed to use college English teaching resources for one month's English teaching, and group B students are allowed to use traditional teaching resources for one month's English learning under the same conditions. During the experiment, the college students were investigated every five days, and the changes of their love for English learning were counted. We visually show the changes of college students' love for English learning in A and B groups, and curve-fit them according to the mean value respectively. As shown in Figure 2.

![Figure 2. Changes of college students' liking for English learning](image)

From the experimental results, it can be seen that the students in Group A who use the college English teaching resource library proposed in this paper are gradually increasing their love for English learning, and the increasing speed is faster than those in Group B who use the traditional resource library. Moreover, students in group A enjoy English much more than students in group B. This proves once again that the college English teaching resource library proposed in this paper has a positive effect on college students' learning English, greatly promotes their enthusiasm for learning English, and is of great significance, which has an important relationship with big data and data warehouse. Big data has powerful data processing and analysis ability, and can teach English according to college students' interests and hobbies.

5. Conclusions

Under the background of big data, this paper studies the construction of college English teaching resource database. Based on the actual situation, this paper first combs the current situation of college English teaching resources database in China by consulting relevant data and questionnaire survey, and summarizes the main problems existing in contemporary college English teaching resources database in China. At the same time, I understand the college students' views on the college English teaching resource pool, so as to make a more targeted research. Then, according to the survey results,
combined with big data, data warehouse and other technologies, this paper puts forward a new college English teaching resource library. This teaching resource library is rich in learning resources, which greatly improves students' enthusiasm and subjective initiative in learning English, meets the needs of effective management of teaching resources in colleges and universities, and has important reference significance for the further development of college English teaching resource library.

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