



Infrastructure Optimizing through a Big Data Clustering Algorithm-Based Model for Universities' English Online Learning Platform

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Abstract. With the improvement of modern information technology and network technology, the construction of online learning platform and English education website is becoming more and more abundant. They provide rich and convenient sources of knowledge for online learners. However, many universities and universities do not realize the importance of online teaching mode, and they do not pay enough attention to online teaching in the era of mass data. The present situation of universities English teaching is not optimistic: the quality of English teaching is low, university students' interest in learning is low, and the ideal teaching effect can not be achieved. This is not only due to the deep-rooted traditional concept of teachers in teaching, but also due to the low level of information development of universities education. Based on this, this paper expounds some strategies for the effective construction of universities English online learning platform based on the specific application of mass data in higher education in the current period. Based on data mining technology, this paper makes a correlation analysis and prediction of university students' English education behaviors and achievements, which provides a scientific decision-making basis for English teaching reform and learning in schools. Experiments show that the average error of data clustering in this method is 5.45, while the average errors of LVT and L1 models are 13.18 and 10.37, respectively, which shows that the error rate of big data clustering in this method is low, and its performance is better than that of traditional methods.

Keyword: Universities English education behavior characteristics, Universities English, Data mining, Mass data clustering, Online learning platform

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1 INTRODUCTION

As a supplementary learning method to normal universities English teaching, Internet teaching platform is not only an auxiliary tool for classroom teaching, but also an important way for university students to open up new channels for English education. Therefore, in the process of applying

Internet teaching, it is necessary to accurately position it, not only to ensure that it fully plays an auxiliary role in universities university students' daily English education, but also to attach importance to the sharing of educational information resources. This will not only promote the circulation of teaching resources, but also help university students learn more and more extensive knowledge. It can be seen that the importance of accurate positioning of online learning platform teaching is self-evident [1]. When English teachers use the Internet to teach, they should give full consideration to their status as teachers and take on corresponding social responsibilities. Because the Internet has many characteristics, such as fast information dissemination, rich information resources, and a wide audience. Therefore, in order to establish a more scientific Internet teaching system in universities English teaching, we must pay attention to the establishment of English network platform teaching system [2].

Through the research of data mining and model building technology, this paper makes a correlation analysis and prediction of university students' English education behaviors and achievements, which provides a scientific decision-making basis for English teaching reform and learning in schools. The fact model is a quasi-tree structure with the fact as the root node, in which the nodes other than the root are dimension attributes, and the connecting line between dimension attributes represents the measure in the fact, along which attributes can be aggregated with different granularity. The purpose of data mining of universities English in this paper is to find out the rules of university students' learning English and their ability training, and select the fact constellation mode according to the characteristics of the existing database. Design the fact table and dimension code table according to the demand theme of English education. To build a data cube in the analysis server, we must first create a database in the analysis server, which is a virtual object, but this virtual database contains data mining model objects. After the virtual database is established in the analysis server, you need to specify it. You can specify the data source of the cube through the data source tab in the analysis service. Because the original data and the relationship can't be directly mined, according to the data characteristics in the database, some data views are organized and generated first, and some intermediate data in the calculated views are collected, and then the analysis and mining are carried out.

This paper will focus on the design of the online learning platform of universities English, design and develop the online learning platform of English by using the concepts, technologies and tools of knowledge management, and build an open online learning environment that is conducive to online learners' knowledge accumulation, application, sharing, communication and innovation. The development and changes brought by mass data to the field of higher education are mainly reflected in the influence on teaching forms, teaching contents, etc., and this influence is reflected in the innovation of educational ideas, teaching methods, teaching techniques, teaching modes, etc [3]. Mass data overcomes the limitation of traditional educational ideas, analyzes massive data by using mass data thinking, understands the educated groups more comprehensively and objectively, and transforms traditional collective teaching ideas into modern personality education ideas [4]. Mass data promotes the objectivity and scientificity of teaching evaluation and learning effect evaluation, and makes teaching evaluation more objective, comprehensive and scientific. In the social network, the multi-dimensional text information structure of universities English education behavior features is complex, and the system coupling is strong. By classifying the multi-dimensional text data of universities English education behavior features, the optimal detection and classification of universities English education behavior features are realized, and the multi-dimensional text information fusion method is adopted to detect and intelligently analyze universities English education behavior features in community network. The wide application of mass data in the field of education has not only brought a new way to the reform of universities English teaching and education, but also changed university students' learning style and further improved their learning enthusiasm [5].

The innovation of this paper: This paper will focus on the design of online learning platform for universities English, design and develop English online learning platform by using the concept, technology and tools of knowledge management, and build an open online learning environment that is conducive to online learners' knowledge accumulation, application, sharing, communication and innovation.

In terms of infrastructure development, this paper recognizes the importance of creating a robust and user-friendly online learning platform. It emphasizes the need for a well-designed and technologically advanced platform that can support various learning activities. This includes features such as interactive multimedia content, virtual classrooms, collaborative tools, and personalized learning pathways. The development of such infrastructure is essential for providing a seamless and engaging learning experience for students.

Chapter arrangement of this paper: The first section of this paper introduces the related research of related scholars on the analysis of universities English online learning characteristics, the second section introduces the methods and ideas used in this paper, the third section makes an experimental analysis of the methods used in this paper, and the fourth section is the full text summary.

Cooperative learning in the classroom environment, although face-to-face emotional communication and instant communication can be realized, there are also some problems, such as the lack of depth and breadth of communication content, students can only communicate with prepared materials, and can't effectively obtain new materials in a short time. Therefore, there are some problems in English learning under the network environment and the traditional classroom environment. The solution to these problems is to combine them, give full play to their advantages and overcome their shortcomings, so as to establish a new learning model.

2 RELATED WORK

The rapid development of mass data has become a hot issue all over the world, and the development of mass data technology has gradually become an important symbol for evaluating comprehensive national strength, which is triggering an unprecedented information revolution in the world. Based on the influence of mass data, educational informatization has gradually become the main development direction of modern higher education, contributing to the integration and optimization of educational resources. Nowadays, universities are gradually expanding the application scope of online teaching in English teaching, and a large number of online learning platforms and open online English teaching resources have emerged, which provide more abundant and comprehensive information resources for the majority of English learners and promote the progress and development of universities English education [6-7].

Xu Weiai, Wan Aoping, Liu Huiyi decomposed noisy data into clean data, Gaussian noise and sparse error matrix, and then clustered in low-rank subspace to improve the robustness of the model [8]. Chen, University B M added symmetry constraint to LRR model, then a low-rank representation model with symmetry constraint was obtained, which can ensure the consistent weight of each data point, and make highly correlated data in subspace have consistent representation [9]. Xi-Wen L U believes that in the process of language acquisition, teachers should provide university students with enough and understandable language input. These language inputs should be understood by learners or suitable for learners' level, neither too difficult nor too easy, and should be slightly higher than learners' current language level. Learners can understand language materials by using their acquired language knowledge through context clues [10]. Zou Z F, University X N think that language output also plays a significant role in the process of language acquisition, and university students should be given enough opportunities to practice using the learned language in class [11]. Chen y's data points for clustering are all distributed on a sphere. When using this algorithm, each data point needs to be normalized so that the data to be clustered are distributed on a spherical surface, and then cosine similarity measure is used instead of Euclidean distance measure to measure the similarity between

data points, and good clustering results are achieved [12]. A data clustering method based on Kang P's optimization of objective function, which introduces fuzzy factor and uses it to calculate the membership degree of each point to each cluster. The membership degree is expressed by a numerical value, and the membership degree is used to determine the degree to which each data point belongs to a certain cluster. FCM algorithm is an unsupervised fuzzy clustering method, which needs no human intervention in the process of algorithm implementation [13]. Yaqi, Zhong Xiao map all the samples to another vector space before clustering. Because K-means is not effective in clustering the samples with non-standard normal distribution and non-uniform distribution, we can map the sample points to a new high-dimensional space by some way, and carry out K-means clustering processing in the new space with the help of kernel function. At this time, the similarity between samples depends on the choice of kernel function [14]. Yue L believes that the group wisdom formed in the computer network platform and classroom platform can be displayed in the classroom or network. Through the discussion and appraisal of all groups, the collective wisdom of the class is formed, and the knowledge output is completed [15]. Guo R, Zhang C think that cooperative learning in the network environment can eliminate the time and space constraints, provide convenience for learners, provide enough critical thinking time for structured online discussions and finely process opinions [16].

3 STRUCTURE DESIGN AND IMPLEMENTATION OF E-LEARNING PLATFORM

3.1 Implementation of Data Mining Model for Universities English Education

When designing the content section of English online learning platform, it is necessary to improve the differentiation setting of English education content section, optimize the design according to university students' real-time feedback, arrange teaching resources reasonably according to different subjects, types and contents, and make the page layout clearer [17-18]. At the same time, teachers should guide university students to choose their own learning content according to their actual learning situation, so that university students can learn more pertinently on the Internet platform; Secondly, it is necessary to provide teachers and university students with the function of self-designed plate, so as to meet the diverse needs of different groups of people for online English education platform [19]. In addition, university students can fully put forward their own opinions when using the English online learning platform, which is not only conducive to the better improvement of the online learning platform, but also conducive to cultivating university students' exploration and discovery ability, improving university students' interest in learning, and enabling university students to get real exercise in the online English education platform to meet the individual needs of university students at different stages, as shown in Figure 1. Model realization

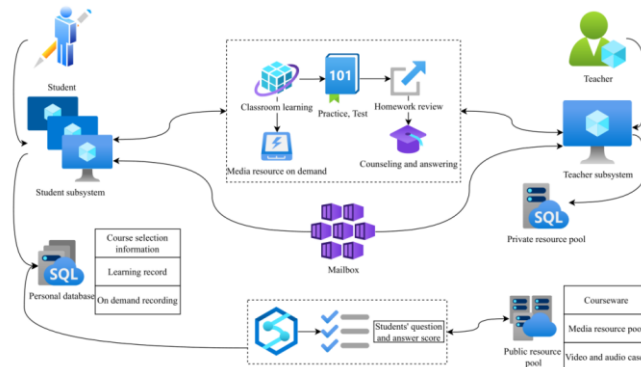


Figure 1: Universities English online learning platform model.

As can be seen from the figure, the model is mainly composed of two subsystems and three resource pools. In the designed platform system for autonomous learning of professional English, teachers and university students can communicate and interact with each other on a series of issues related to course learning by using short messages, emails and forums in the website, so as to realize university students' autonomous learning and interactive learning between university students and teachers. In the online learning platform, university students can make use of the resource library to study independently, and get guidance from teachers when necessary. The learning content includes listening, speaking, reading and writing, audition, practice and unit test. If you have any questions, you can discuss them collaboratively. Realize the accumulation of learning, and the learning effect is evaluated and feedback evaluated, so that university students can know fairly well [20]. Teachers can guide individual university students' learning situation and evaluate their learning records. university students can request learning materials in real time, and teachers can answer questions when they are in doubt, or organize university students to have group discussions and start learning exchanges. In order to make the system meet the learning needs of most university students, this scheme also tests the calculation time and speedup ratio of the algorithm under the condition of different number of nodes in the cluster configuration, as shown in Table 1.

<i>Number of nodes</i>	<i>Speed-up ratio</i>	<i>Calculation time /S</i>	<i>Speed-up ratio</i>	<i>Calculation time /S</i>
<i>1</i>	<i>1</i>	<i>186423</i>	<i>1</i>	<i>15324</i>
<i>4</i>	<i>1.69</i>	<i>80338</i>	<i>1.59</i>	<i>99346</i>
<i>8</i>	<i>3.78</i>	<i>36105</i>	<i>3.58</i>	<i>46201</i>
<i>16</i>	<i>6.03</i>	<i>22585</i>	<i>5.56</i>	<i>27248</i>
<i>32</i>	<i>10.24</i>	<i>12531</i>	<i>9.52</i>	<i>15326</i>

Table 1: Running time of increasing the number of cluster nodes.

Information and knowledge within the learning organization should be made public as much as possible, so that every learner can contact and use the knowledge resources in the knowledge warehouse. By sharing, you can increase your knowledge and avoid low-level repetition. By sharing, you can complement each other's advantages. Some knowledge that is worthless to yourself may be very valuable to others. According to the code feature quantity of multi-dimensional text information transmission of universities English education behavior characteristics, information reconstruction is carried out to obtain the bit sequence distribution of multi-dimensional mass data transmission of universities English education behavior characteristics as shown in (1).

$$x(t) = \sum_{i=0}^p \alpha(\partial_i) b_i(t) + n(t) \quad (1)$$

The semantic concept set of multi-dimensional text data of universities English education behavior characteristics is obtained, rough set scheduling and frequent mining are carried out on the multi-dimensional text data of universities English education behavior characteristics, and the classification state feature quantity of multi-dimensional text data of universities English education behavior characteristics is obtained according to the hierarchical characteristics of data aggregation tree, as shown in (2).

$$p(y|\alpha, \theta) = \sum_{i=1}^T \alpha B_k(y|\sum u_k) \quad (2)$$

According to the above algorithm, combined with the small disturbance suppression method, the cluster center disturbance is avoided, and the convergence of clustering is improved. university students provide language input to prepare for their online discussion output. The network monitoring system is divided into teaching system and management system: the teaching system is realized by the structured network course design based on the analysis of courses and university students by teachers, and the related course contents are divided into many learning modules, each of which has clear learning objectives, learning methods, examinations and solutions to difficult problems. The learning pace of learners is controlled by modules. The management system is that teachers manage the relevant information of university students' group cooperation, track the cooperation process of each group, check the cooperative learning and give necessary guidance in time.

3.2 Mass Data Sampling and Feature Parameter Extraction of Universities English Education Behavior Characteristics

In universities English teaching, not only online English education activities can be carried out through the Internet platform, but also it can be combined with offline activities, which not only allows university students who study and communicate together online to have the opportunity to meet online and offline, but also helps to narrow the distance between teachers and university students, and enables university students to share their learning experience and make common progress in online and offline comprehensive activities [21]. In addition, by combining online and offline comprehensive activities, it can be fully integrated with the campus culture, and the corresponding design of learning activities can further improve university students' learning enthusiasm and stimulate university students' enthusiasm for learning English. Therefore, the school should organize more online and offline joint activities, create a good learning atmosphere for university students, enhance the friendship between university students, and deepen the communication between teachers and university students, so as to achieve the best English education effect and make more contributions to deepening the reform of universities English teaching. Knowledge management needs to establish mutual trust among members, which is often the biggest obstacle to the smooth progress of knowledge management. Knowledge management needs to establish an organizational structure and cultural atmosphere within the organization that is conducive to members' communication. Through the corresponding incentive mechanism, people are encouraged to actively contribute their knowledge and actively share and communicate with others.

The management of knowledge transfer refers to the flow of knowledge to the needed place on the basis of knowledge generation and accumulation, and finally realize the value of knowledge. For example, when using accumulated tacit knowledge and explicit knowledge to solve problems and encountering problems beyond the scope of knowledge, we should look for the experience of experts. In the social network, the multi-dimensional text information structure of universities English education behavior features is complex, and the system coupling is strong. By classifying the multi-dimensional text data of universities English education behavior features, the optimal detection and classification of universities English education behavior features are realized, and the multi-dimensional text information fusion method is adopted to detect and intelligently analyze universities English education behavior features in community network. The multi-dimensional text feature data distribution structure model of universities English education behavior features is constructed as shown in Figure 2.

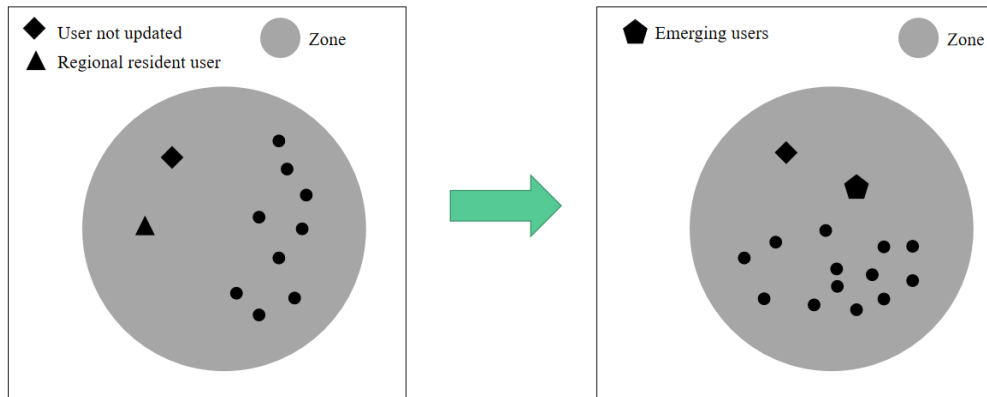


Figure 2: The multi-dimensional text feature data distribution structure model of universities English behavior features.

According to the distribution set of universities English education behavior characteristics in Figure 2, the state feature distribution of data of multidimensional text of universities English education behavior characteristics is obtained, as shown in number (3).

$$w_{ij}(k) = \frac{(s_j(k) - d_i(k))\eta_{ij}(k)}{\sum_{j \in N_i} (s_j(k) - d_i(k))\eta_{ij}(k)} \quad (3)$$

If the weighted clustering criterion function meets the convergence judgment condition, it means that there are no data objects adjusted in each cluster at present, and the weighted clustering criterion function has converged, as shown in (4).

$$X(h+1) = \sqrt{\sum_{i=j}^K \sum \arg \min |u_i(h+1)^2 - x_p|} \quad (4)$$

Divide the similarity of all data sets by calculating the similarity of data, and finally get each grouping, the required center set and K value, as shown in (5).

$$P_i(t) = \sum_{i=1}^N R_{in} \frac{1}{r} e^{ik} \frac{A}{r} s^{jkr} \quad (5)$$

The mutual information feature quantity of mass data of universities English education behavior features is extracted, and the feature distribution value of geometric neighborhood of mass data cluster of universities English education behavior features in nonlinear space is shown in (6).

$$f(j) = \begin{cases} a, x \in Levf \\ f(j), x \in Levf \end{cases} \quad (6)$$

Combined with the joint association rule detection method, the statistical analysis of multidimensional text data of universities English education behavior characteristics is carried out.

In the clustering space matrix, the basis vector of data clustering is obtained, and the joint disturbance characteristic equations set of multidimensional text data clustering of universities English education behavior characteristics is constructed as shown in (7).

$$f(j) = \begin{cases} \max(X_{ac}) = \log_j k \\ a(X_{ac}) = 1 - \frac{\max(X_{ac})}{X_{ac} + l} \end{cases} \quad (7)$$

By analyzing the boundary value convergence conditions of accurate clustering of multidimensional text data of universities English education behavior characteristics, the stability and convergence of the whole data clustering mathematical model are ensured. Using data mining method, the boundary solution vector functions of multidimensional text data clustering of universities English education behavior characteristics are constructed as shown in (8) and (9).

$$w_{ji}(k+1) = z_{jk}(k) - \alpha \frac{\partial F}{\partial z_{jk}} \quad (8)$$

$$z_{ji}(k+1) = w_{jk}(k) - \alpha \frac{\partial F}{\partial w_{jk}} \quad (9)$$

Spatial clustering of data clustering centers is shown in (10).

$$d_i = \sum_{i=k}^{k-1} \log(x_i(j) - \varpi_{ij}(j)) \quad (10)$$

When the clustering center meets the convergence condition of data mining, the detection statistics of multidimensional text data of universities English education behavior characteristics meet the convergence condition of clustering. The ultimate goal of generating a data mining model is to find a query, and use this query to predict unknown values from test cases, so as to get university students' learning rules. The model is used to predict the new data. At the same time, a large number of prediction functions are developed in OLEDBForDM. By using these prediction functions, a large amount of additional information can be obtained, such as prediction accuracy, statistical deviation of the most probable lines and so on. To create and train data mining models through applications on the server side, only decision support objects can be used. Decision object is a class library of component object model and its interfaces, which can access the core part of AnalysisService engine. The objects exposed in DSO embody the internal structure of the objects in AnalysisService, which makes it easier to manage and control AnalysisService through programming.

4 EXPERIMENTAL EFFECT TEST AND RESULT ANALYSIS

4.1 Clustering Effect Simulation

The virtual learning community actively constructed in the network is consistent with the learning organization actively constructed in the knowledge management, both of which are aimed at promoting the knowledge sharing and exchange between teachers and learners. E-learning is the use of tools to acquire, process, process and apply information and knowledge, and it is a typical constructive learning, adopting the learning forms of autonomy, cooperation, discovery and inquiry. Knowledge management is a knowledge process of knowledge accumulation, application, sharing,

exchange and innovation. It pays attention to human resources network, knowledge management habits, learning culture and atmosphere of sharing and exchange, and embodies the concept of constructive learning activities.

In order to test the performance of this method in clustering multi-dimensional text data of universities English education behavior characteristics, a simulation experiment is conducted. The experiment is based on Deep Web database, and the data clustering algorithm is designed with Matlab. The attribute of mass data samples is set to 14, the initial confidence of data clustering is 92%, the critical value is 2.47, and the judgment threshold is 0.22. The embedding dimension of the feature distribution is set to 75, and the data length of the test sample set is 100. According to the above simulation environment and parameter settings, the multi-dimensional text mass data clustering analysis of universities English education behavior features is carried out. In this section, artificial data and real data are used for numerical experiments, and the original data distribution is obtained as shown in Figures 3 and 4.

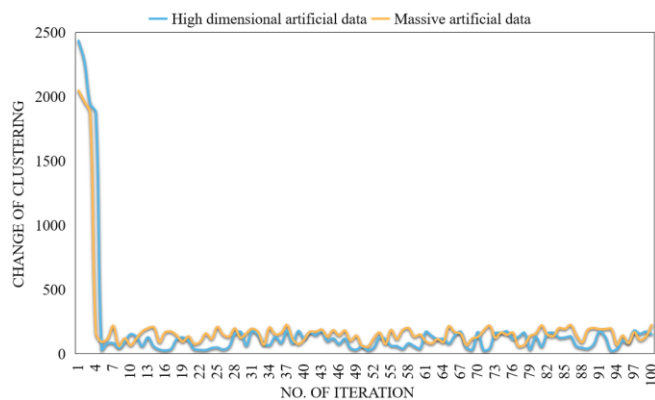


Figure 3: Convergence line of artificial data.

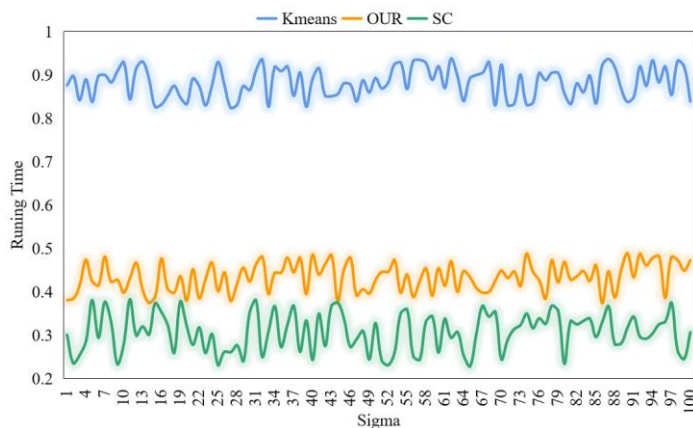


Figure 4: Running time in artificial data environment.

The comparison results of serial calculation time are shown in Table 2.

<i>Algorithm execution</i>	<i>Yarn calculation time /s</i>	<i>Serial calculation time /s</i>	<i>MapReduce calculation time /S</i>
<i>Step 1</i>	<i>13118</i>	<i>7065</i>	<i>1799</i>
<i>Step 2</i>	<i>7642</i>	<i>15496</i>	<i>12291</i>
<i>Step 3</i>	<i>8580</i>	<i>2572</i>	<i>14374</i>
<i>Accumulated time</i>	<i>29340</i>	<i>25133</i>	<i>28464</i>

Table 2: Calculation speed of 2-node Yarn clustering algorithm.

This model can be programmed by computer, it is easier to use, more operable, and has strong practicability in universities English teaching evaluation. The evaluation index coefficient of the model can be adjusted according to the needs of experts and actual teaching. It is only applicable to the comprehensive evaluation of the quantitative and non-quantitative mixture of online autonomous learning of universities English. Using college students' online learning platform for personal knowledge management and autonomous learning can interact with other users of the system and promote informal learning. In addition, students can also participate in project-based learning groups organized by teachers, and complete the construction and sharing of knowledge through collective collaboration.

When designing the content section of English online learning platform, it is necessary to improve the differentiation setting of English education content section, optimize the design according to university students' real-time feedback, arrange teaching resources reasonably according to different subjects, types and contents, and make the page layout clearer. At the same time, teachers should guide university students to choose their own learning content according to their actual learning situation, so that university students can learn more pertinently on the Internet platform; Secondly, it is necessary to provide teachers and university students with the function of self-designed plate, so as to meet the diverse needs of different groups of people for online English education platform. In addition, university students can fully put forward their own opinions when using the online English education platform, which is not only conducive to the better improvement of the online English education platform, but also conducive to cultivating university students' exploration and discovery ability, improving their learning interest, and enabling university students to get real exercise in the online English education platform to meet the individual needs of university students at different stages. Because the Internet has many characteristics, such as fast information dissemination, rich information resources, and a wide audience. Therefore, in order to establish a more scientific Internet teaching system in universities English teaching, we must pay attention to the establishment of the English network platform teaching system. First of all, it is necessary to concentrate resources on the official teaching platform, then unite teachers, university students and schools to establish an Internet teaching system in time, publish excellent English education resources on the platform, drive more university students to integrate into the process of English education, establish a diversified Internet learning system, and constantly improve the overall Internet teaching system. Therefore, the establishment of a perfect English online platform teaching system plays a vital role in improving university students' English online learning.

4.2 Cluster Analysis of Universities English Education Characteristics

The platform consists of four systems, namely, classroom resources, classroom evaluation, classroom monitoring and classroom interaction. Classroom resources mainly refer to the textbooks used by university students, teachers' reference books and other extracurricular materials; Classroom evaluation is conducted by teacher evaluation, self-evaluation and mutual evaluation between university students and university students; Classroom monitoring relies on teachers' on-site supervision of each group's activities, post supervision of the tasks completed by the group and mutual restraint among the group members; Classroom interaction is the mutual communication

and exchange between teachers and university students, group members and groups. university students output information according to the classroom resources they have mastered. In this platform, each group negotiates and discusses the low-level tasks proposed by teachers, and finally forms group wisdom. Because the dimension of text data itself is high, when the volume of data increases gradually, the computational efficiency becomes lower and lower, and the algorithm has great advantages in both running time and clustering accuracy. Similar to other experiments. Different initial values of may have some influence on clustering accuracy, as shown in Figure 5.

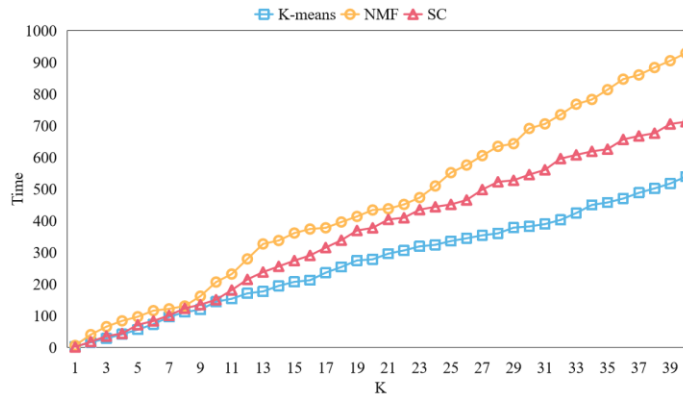


Figure 5: Comparison of running time on database.

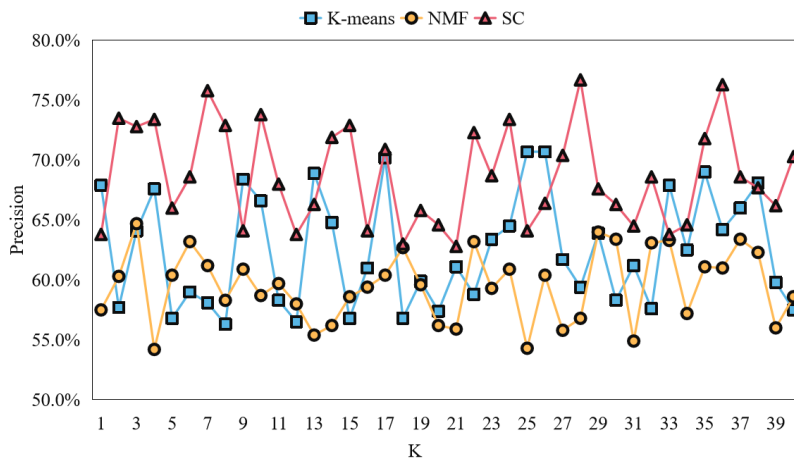


Figure 6: Comparison of clustering accuracy on database.

There are some difficult problems in the clustering algorithm of high-dimensional data based on dimensionality reduction. First, whether low-dimensional data is the main feature needed in clustering of practical problems. Secondly, whether the mapping of the distance between low-dimensional data points is conducive to clustering. Generally speaking, data dimensionality reduction and low-dimensional clustering are two important parts in the process of mass data clustering: data dimensionality reduction clears the way for low-dimensional clustering; Low-dimensional clustering is the ultimate goal of clustering. In order to get a good processing effect, in the mass data clustering

problem, the two processes of data dimensionality reduction and low dimensionality clustering should complement each other and match each other. In the classic mass data clustering model, people usually choose the mean value of data points as the clustering center, and the initial value is randomly selected. Starting from any initial value, the clustering results of the original space and feature space are shown in Table 3.

	<i>K-means</i>	<i>SK-means</i>	<i>K-medoids</i>
$d=1000$	0	1.418	0
$d=2000$	2.976	2.935	2.313
$d=3000$	1.485	3.052	1.855
$d=4000$	1.607	2.051	0
$d=5000$	2.143	2.812	2.285
$d=6000$	3.465	0	2.534
$d=7000$	2.662	0	1.332

Table 3: Comparison of objective functions on artificial data.

Test the performance of different methods for mass data clustering, and get the comparison results as shown in Figure 7.

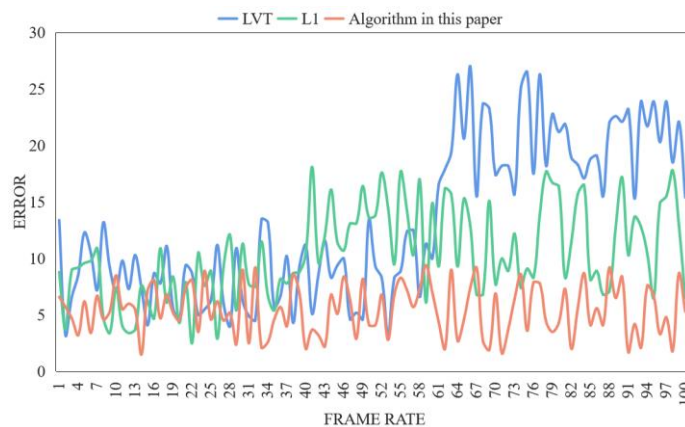


Figure 7: Comparison of data clustering performance.

As can be seen from the figure, the average error of data clustering in this algorithm is 5.45, while the average errors of LVT and L1 models are 13.18 and 10.37, respectively, which shows that the error rate of mass data clustering in this method is low, and its performance is better than that of traditional methods. The above experimental results show that cooperative learning based on the mixed environment of network and classroom is complementary to each other and beneficial to university students' progress. It is helpful to overcome university students' loneliness and improve their self-confidence and interpersonal skills. Under the network environment, cooperative learning communicates with each other through the network. Although university students can communicate through video, text and audio, they still lack the directness of face-to-face communication and emotional richness. At the same time, cooperative learning in the classroom environment is difficult to find information conveniently and quickly, which leads to the lack of depth and breadth of communication between university students. Therefore, only by combining the two learning

environments can the above shortcomings be overcome. university students can make use of the network to carry out cooperative learning, find information, and make the problems discussed have depth and breadth. Then, they can carry out cooperative learning and face-to-face communication in the classroom environment according to the prepared content. With mutual support and encouragement among university students, their interpersonal relationship can be well developed, and the strangeness among university students will naturally disappear, so that they can express their views on problems with confidence.

5 CONCLUSIONS

Cooperative learning strategy based on the network and classroom environment is conducive to language learners' acquisition of language knowledge and cultivation of innovative and cooperative spirit. It has a positive effect on university students' learning ability, attitude, emotion and experience, which is in line with the characteristics of university students' physical and mental development and the spirit of universities English curriculum reform. In this process, teachers can guide individual university students' learning situation and evaluate their learning records. university students can request learning materials in real time, and teachers can answer questions when they are in doubt, or organize university students to have group discussions and start learning exchanges.

To sum up, with the rapid development of Internet, cloud computing and other technologies, the explosion and growth of large-scale data have been triggered, and all kinds of data resources have continuously become an important factor affecting the development of various fields of society. The advantages of mass data in the development of English teaching and education also point out the direction for universities English teaching reform. At the same time, due to the upgrading of network technology, higher standards are put forward for the construction of English mass data teaching platform. Therefore, the construction of universities online learning platform based on teaching mass data must enrich the content design of English online learning platform, establish a perfect online learning platform teaching system in time, realize the accurate positioning of online learning platform teaching, and carry out comprehensive activities online and offline, and then provide university students with a new mode of classified online learning of universities English, thus realizing the reform and innovation of universities English online learning platform.

The development platform of e-learning system developed in this paper only realizes some functional modules in the platform. It is necessary to further improve the functions of the platform, especially the communication and collaboration tools, including group news system, group online discussion, group knowledge base, group favorites, etc., so as to provide more support for project collaborative learning. It is not only the problem of technology development, but also the reconstruction of related organizations and systems, all of which are complex systems engineering, and it takes a lot of manpower and material resources to conduct more in-depth research.

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