Building a Diversified College English Teaching Evaluation Model Using Fuzzy K-means Clustering in E-Learning

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Abstract. With the innovation and development of diversified colleges, the Construction of a College English Teaching Algorithm Based on Fuzzy K means clustering. For a long time, the evaluation form that university teaching has been carrying out is the summative evaluation based on paper and pencil test results. This single evaluation form can't evaluate students' all-round development in multiple dimensions and can't make everyone's ability be reflected. Therefore, the English teaching ability evaluation algorithm in the past needed to be more accurate in classifying ample data information. A k-value algorithm was proposed to estimate the missing or incomplete data. Firstly, the original error data collected by K-means clustering is deleted from the unreliable data, and the weight coefficients of the modified fuzzy logic algorithm are obtained from the rest of the valid data. On this basis, the multimodal test network is used for grouping and integrating indicators to achieve indicators and make the algorithm of college English teaching ability have its corresponding allocation scheme of teaching resources to carry out ELT. Result representation K-means fuzzy K-means clustering algorithm can adapt to the characteristics of data sets and has better performance. Compared with other algorithms, it ensures the accuracy.

Keywords: K-means clustering, diversification, college English teaching evaluation; Clustering in E-Learning
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1 INTRODUCTION

The reform of teaching evaluation is an integral part of teaching reform in English teaching [5]. Traditional English teaching ability evaluation algorithms often have problems Where the data classification is incorrect. Moreover, with the continuous development of computing and massive data analysis, the computer technology of networks and algorithms is increasingly being developed. In the context of the social development of a large amount of data, it is crucial to transform complex

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and inaccurate things into simple things through efficient new technology algorithms.[10].Therefore, An Algorithm for Evaluating English Teaching Ability Based on Data Acquisition Algorithm and K-means Integration is proposed to evaluate the information of teaching resources. English proficiency assessment has brought many benefits. Therefore, detailed analysis is necessary knowledge[23].

Aiming at the diversity evaluation of colleges, This paper studies the evaluation of English learning ability based on massive data analysis [22]. There are many restrictive factors in the assessment of English teaching ability; this paper analyzes English teaching level through quantitative tests, establishes the Using the parameter model and big data analysis model, big data fusion and clustering methods that limit English teaching level, this paper evaluates English teaching technology and establishes the parameter model of limited ability. Establish a target function and statistical analysis model for assessing English teaching skills using big data fusion and clustering methods. Improve quantitative prediction's ability to evaluate college English teaching skills[25].

Given the advantages of the K-means algorithm, this paper adopts the fuzzy K-means clustering method for diversified college English teaching evaluation to improve the effectiveness and accuracy of college English teaching evaluation and better enable scholars to be more aware of their own and others' shortcomings. Problems, and at the same time, help teachers to improve teaching quality so that teachers can teach students pertinently and improve efficiency[1].

2 RELATED WORK

With the rapid development of cloud PC and mobile Internet PE technology, massive data analysis has become the basis of enterprise strategic decision-making and marketing promotion, and massive data mining is becoming increasingly important. Traditional clustering analysis Has yet to meet the requirements, such as absolute data division and low accuracy. This paper presents a new idea of the clustering algorithm, and a fuzzy K algorithm, which classifies, is proposed. He based his data on the membership relationship, thus significantly increasing the accuracy of data mining.

Jia-Jun X U studied the fuzzy K-means algorithm using kernel function instead of Euclidean distance. This method can reduce the problem of similar feature amplification to a certain extent and improve the clustering speed and the clustering effect [9]. Zhao Yet al. improved the kernel function, and the improved weighted fuzzy K-Means algorithm can simultaneously adjust the weights according to different characteristics of data [24]. Yan H thinks that everyone has eight other intelligences at the same time.[20]. Professor Chen S and Yang J studied the influence of formative assessment on the English writing ability of non-English majors [2]. Wang Q Y emphasized the significance of implementing diagnostic test assessments in foreign language teaching. They believe diagnostic tests can test the teaching effect and be the primary way to find problems [15]. Wu Y summative assessment is carried out after the course implementation, which mainly evaluates the phased teaching effect as a whole. Formative assessment is implemented to collect the achievements and shortcomings of a particular teaching stage and find students' weaknesses to make appropriate teaching adjustments in the next stage[19]. Qin C established a parameter distribution model to evaluate English learning ability in high-dimensional distribution space. The main parameters that restrict English learning ability are teachers' level, the contribution of educational institutions, policy relevance, etc. [13]. Li Haiqing proposed an information fusion method combining nonlinearity. English learning ability restriction The parameter is a nonlinear time series. [6]. Combining big data information fusion and K-means clustering algorithm, based on clustering and synthesizing the indexes and parameters of English learning ability, this paper designs the corresponding teaching resource allocation scheme and realizes the evaluation of English learning ability.

3 METHODOLOGY

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3.1 Fuzzy K-Means Clustering Step

Firstly, cluster analysis classifies individuals or objects, Making objects of one class more similar than those of other classes. Objective: To maximize the uniformity of objects within a class and the heterogeneity between classes. The most widely used clustering method is workflow to select fuzzy randomly. However, it can't deal with classified data and clusters with non-convex shapes, which is not the optimal method. Its cost function is defined as formula(1).

$$Y = \sum_{i=1}^{c} \sum_{x_k \in g_1} \|x_k - C_i\|^2 \tag{1}$$

Therefore, fuzzy K-means clustering algorithm and paste K-means clustering algorithm are also used in iterative computing class.

Heart. For the class K fuzzy algorithm, please perform the following steps. Firstly, the Estimate of the threshold of each element attribute of the data set to get the standard threshold, followed by hierarchical clustering of data sets, stops when it reaches a predetermined legal threshold, and data sets are repeatedly grouped until the clustering results change. The cost function of the clustering algorithm to stop it is usually expressed in formula (2).

$$J_S = \sum_{i=1}^{c} \sum_{j=1}^{y} p_{ij}^{s} \| x_i \tag{2}$$

The iteration of each center is expressed as formula (3)

$$c_j = \frac{\sum_{i=1}^{n} p_y^x b_i}{\sum_{i=1}^{n} p_y^x} \tag{3}$$

Fuzzy K-means clustering, which introduces unclear relations and membership degrees as only parameters, has a better effect than ordinary K-means clustering. Applying the fuzzy K clustering algorithm to diversified colleges can better construct a teaching evaluation mode.

3.2 Signal Model

We need to create a signal model to improve the application of the fuzzy K- K-means clustering Algorithm in the Diversification college evaluation model.

Set an array antenna containing x elements, and y far-field narrow-band signals are incident on the array (Y>X). The vector of the received data of the U group of the variety is expressed as formula (4).

$$U(x) = B(P)F(x) + Y(x) \tag{4}$$

The background's characteristic values differ according to the network signal model above. Both distinct values are a subset of noisy subspace, signal subspace, noisy subspace, or white noisy background; please do the following between the properties values is small. Under the background of color noise or when sample data is quickly acquired, the difference in noise characteristic values is also quite significant. Therefore, it is assumed that the algorithm has good estimation performance in the background of colored noise, where the difference between eigenvalues is the relationship between two eigenvalues, and the relationship is used as the characteristic attribute of grouped objects, such as formula (5).

$$T_i = \lambda_i / \lambda_i i, j = 1,2, \ldots, Mi \neq j \tag{5}$$

When defining the characteristic attributes of grouped objects, the object attributes are determined based on the proportional nearest neighbor criterion. Therefore, the criterion for identifying object

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allocation is inconsistent with the traditional K-grouping algorithm. The basic idea is based on the improved K-clustering:

1. using formula (5) to calculate the correlation matrix r of the received data;

2. The order of eigenvalues from large to minor can be obtained by feature decomposition of the correlation matrix.

3. Select two initial class mean signal and noise values, such as formula (6).

$$\lambda_y^x = \frac{1}{N}\sum_{x\in d_1}\lambda_x \quad (6)$$

$$y = 1$$

Therefore, improving fuzzy K clustering retains the advantages of the original algorithm. Dynamic clustering with specific adaptability. Here, on the new residual dispersion estimation problem, the matrix eigenvalues are divided into signal and noise eigenvalues at the relevant time. If these resource values are arranged in the order from high to low in the initial state, the cluster center is easy to choose. Thereby overcoming the shortcomings of the original R algorithm. Select the resource quantity ratio as the characteristic attribute of the cluster object. This algorithm can be applied when the feature quantity differs under the background of color noise. In addition, the above export process does not apply to antenna arrays. Due to structural limitations, this method applies to any structural frame. Please get in touch with the variety.

3.3 Implementation Process

The fuzzy K-means algorithm is analyzed and designed as a formula to realize better the analysis of the fuzzy clustering mean algorithm (7).

$$F[u_1(x_i)] = \sum_{j=1}^{k}\sum_{i=1}^{n}\left(\left[u_j(x_i)\right]^x\left\|x - c_j\right\|^2\right) \quad (7)$$

Among them, the fuzziness constant can control the fuzzy clustering result to obtain the optimal solution, such as formulas (8) and (9).

$$s_j\frac{\sum_{i=1}^{p}\left[p_j(x_i)\right]^b x_i}{\sum_{i=1}^{p}\left[p_j(x_i)\right]^b}c = 1,2,\ldots K \quad (8)$$

$$p_j(x_i) = \frac{1}{\sum_{n=1}^{n}\left(\frac{\left\|x_i - c_j\right\|}{\left\|x_i - c_n\right\|}\right)}i = Y,X\ldots j = X,Y\ldots \quad (9)$$

3.4 Optimization of English Teaching Ability Evaluation Model

Evaluation is a comprehensive evaluation form adopted by social construction theory education departments. The examination system based on examination and achievement prevents teachers and students from fully understanding students' learning processes and stages. Some examinations even have defects in reliability and efficiency, making it more difficult to evaluate students' achievements through performance appraisal. In the traditional teaching evaluation, students accept the evaluation but need to know the content and standard of the evaluation. Humanism holds that education should aim at students' all-round development, not just cultivating students' intelligence. Cultivate non-intelligence factors such as emotion, will, self-esteem, interest, and students' needs. Education evaluation must also include students' whole learning process and academic achievements. Students evaluate their emotions, attitudes, daily strategies, performance, and

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development according to the observation, recording, and thinking of the whole learning process to encourage them to manage their teachers, build their confidence in themselves, promote the evaluation of education in the spirit of cooperation, and make students change from passive acceptance to active participation.

At the same time, many schools take the Evaluation based on the school's overall quality, which needs to be corrected. Therefore, The evaluation attribute of college English teaching quality should be externalized and internalized, and things should be analyzed in various ways. It should have internal and external factors such as students, environmental, and cost factors, as shown in Figure 1.

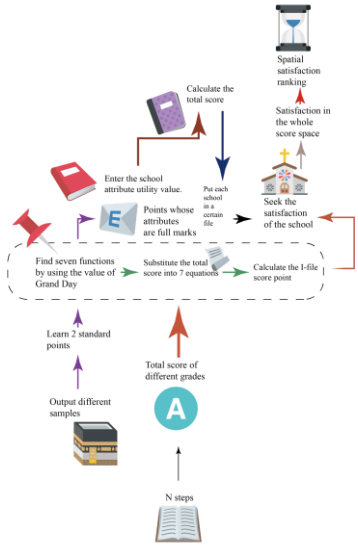

Figure 1: Flow chart of comprehensive evaluation mode of English teaching ability.

For example, English teaching is evaluated correctly, and a limited number of 30 nonlinear information integration and time series analysis methods are adopted. English learning ability restriction index parameters are a set of nonlinear time series. The parameter exponential distribution model of Feature distribution space is established, and the English ability evaluation is given. The parameters that restrict it are the level of teachers, the investment of educational institutions, and the level related to policies. The information flow model used to construct the differential equation expressing the restrictive parameters of English learning ability is formula (10).

$$r_s = r(y_o + i0u) = y[r(y_o + i0u)] + r_s \tag{10}$$

Among them, E, English learning ability has multiple evaluation functions and evaluation error functions. Distribution in high-dimensional space, w the decision vector of English learning the corresponding integral method, and the features of English learning ability evaluation are obtained.

3.5 Evaluation Mode and Influencing Factors of Diversified English Teaching

Diversified college English teaching should be formative, open, and flexible. It should not only evaluate students but also cover many aspects of Listening, speaking, reading, and writing skills.

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First, observation is the primary way to evaluate teaching behaviors and skills, including exact and informal ones. We will observe some students' behavior rules, and the other part will collect them. We will use standardized observation methods to discuss classroom events. We can see students' daily reading, writing, listening, and talking experiences, teachers and students. You can observe students' learning progress at any time. As you can see, teachers can learn what students have learned by tracking them through records or evaluation forms.

Secondly, the interview and discussion between teachers and students are also essential to positively assessing students' achievements and requirements. When discussing problems, teachers can find out students' feelings and views on their progress in their studies. A simple discussion can put the interview into a separate course at any time in class. For example, teachers can design interview questions for students' feedback while discussing or explaining knowledge points in educational plans. Teachers can also combine the training content to develop training programs, which can be short-term projects, such as two-week interviews, or long-term and more complex projects, such as environmental planning, within two months after the completion of the program. After completing the project, teachers can ask students to make relevant written reports and classroom demonstrations. In these activities, teachers and students should jointly formulate the grading standards.

Self-evaluation and mutual evaluation are also critical in forming evaluations. For students, evaluating themselves and others reflects their knowledge, assessment, and identification. When conducting self-evaluation and joint evaluation, teachers can arrange an evaluation form for them to learn, which students can evaluate according to standards or students who choose evaluation standards. Then, they will carry out evaluation algorithms in person or cooperation with other categories of people. The evaluation process is systematic and personalized enjoyment. Each student has their own needs and evaluates students who have the opportunity to check their grades in school. Of course, the influencing factors of the college English assessment model are the above points and students' internal and external factors.

External factors include social factors, environmental factors, and natural factors.

Social factors can influence learners' motivation and attitude to a great extent. With increasingly frequent international cultural exchanges, English as a global lingua franca becomes More important; other factors of students' interest in learning English include students' family economic situation, family environment and parents' role models, family structure, social habits, etc.

Learning factors include teachers, teaching materials, learning hardware, and other conditions. The natural environment factor is the natural and humanistic environment around the school. Figure 2 and Figure 3 point out the influence of the above-mentioned conditional factors on learning quality. Figure 3 indicates the proportion of each factor in the assessment.

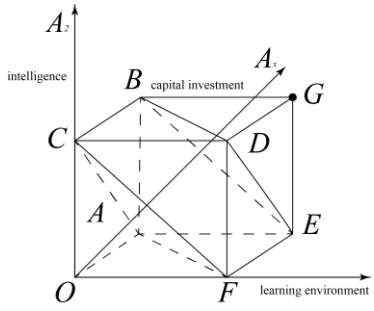

Figure 2: Evaluation model and influencing factor model of diversified English teaching.

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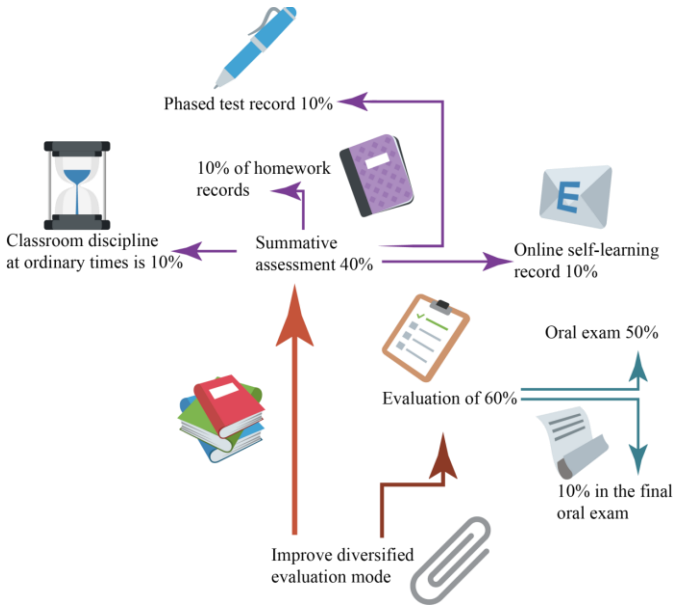

Figure 3: Improved diversified evaluation model.

4 RESULT ANALYSIS PART

4.1 Analysis of Experiment Based on Improved Clustering Algorithm

After that, we verified the practicability of the experimental algorithm. Assume that ten sensors combine a characteristic parameter value at a given time, n = 10. The gradient of the measurement sensor is shown in Table 1.

Serial number of sensor	*difference*	*The resulting value*
1	***0.015***	***0.125***
2	*0.12*	*0.98*
3	*0.07*	*1.00*
4	*0.21*	*0.90*
5	*0.32*	*0.50*
6	*0.20*	*0.60*
7	*0.10*	*1.05*
8	*0.20*	*1.05*
9	*0.15*	*1.04*
10	*0.30*	*1.50*

Table 1: Difference conclusion data of measurement sensor settings.

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The selected fusion data set is fused by formula, and the best fusion result is 1.004 6. The simulation of fuzzy logic weight is based on the K class and an improved front panel. The fuzzy logic algorithm is shown in Figure 3 below.

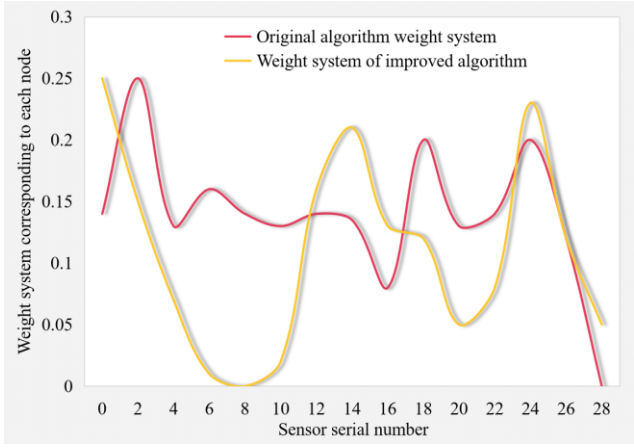

Figure 4: Comparison between the improved algorithm and the original algorithm.

As shown in Figure 3, the weight of the separation point between the improved fuzzy logic algorithm based on the K-means class and a single logic fuzzy algorithm (such as sensor 5) is very different. Fig. 4 depicts the result fusion simulation diagram based on weighted, logical mixing, adaptive, weighted mixing, minimum, and fuzzy algorithms, which is used to fuse the average into the K-means clustering improved fuzzy logic algorithm.

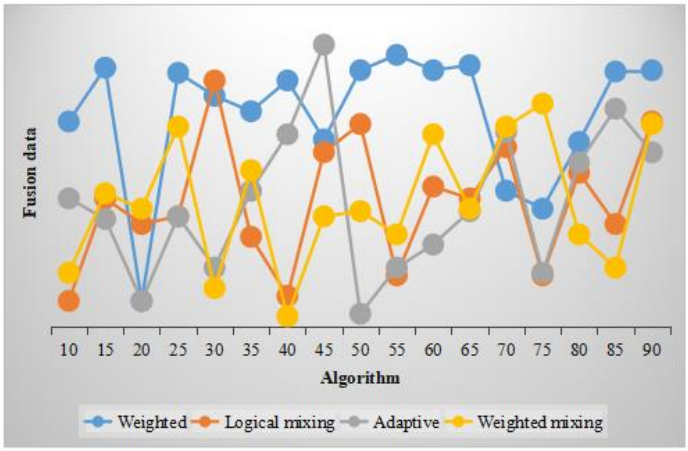

Figure 5: Comparison of different fusion algorithms.

To verify the validity of the analysis, the validity of teachers and the results of relevant data analysis are statistically analyzed, as shown in Figure 5 above.

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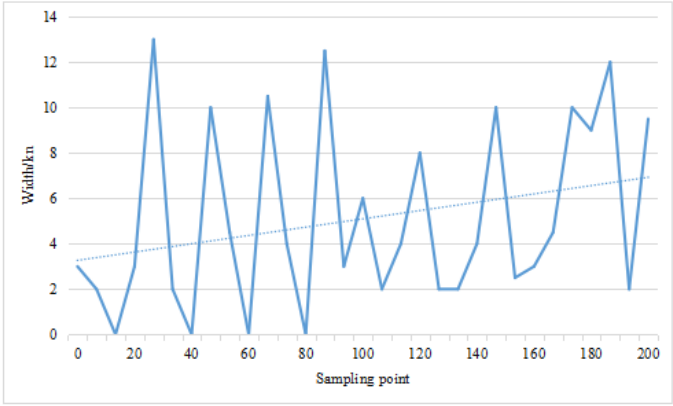

Figure 6: Time domain waveform of extensive data time domain distribution.

The respondents selected statistical data for the above indicators and parameters, grouped it, and combined it with the information to evaluate teachers' competence. The test results are shown in Table 2. The test results show that this method has high accuracy in assessing college English education and improves the utilization rate.

Evaluation period	*Methods of this paper*		*6 Literature method*		*7 Literature method*	
	accuracy%	*Usagerate%*	*accuracy%*	*Usagerate%*	*accuracy%*	*Usagerate%*
1	*99.5*	*89.3*	*86.5*	*89.1*	*82.1*	*79.9*
2	*98.3*	*87.6*	*85.3*	*84.3*	*80.6*	*79.6*
3	*96.9*	*88.4*	*89.5*	*87.6*	*81.4*	*79.3*
4	*99.4*	*84.8*	*87.8*	*85.5*	*85.7*	*78.4*

Table 2: Comparison of performance tests.

For middle school management, student evaluation and the best choice of students are very important. Higher education institutions are based on students' and ordinary grades, followed by weighted average and straightforward scores. With the development of higher education and social demand, the demand for students is increasing; new practical courses have been set up in schools to improve students' comprehensive skills, so new extensive evaluation methods and standards for students are also needed. As there are many subjective uncertainties in the actual evaluation, it is necessary to implement the algorithm in this paper. Combining the comprehensive performance of theoretical and practical courses, the experiment is conducted, and four aspects of political thought, enterprise resource planning, sand table deduction, and simulation comprehensive practice are mainly selected for evaluation and analysis.

4.2 Computer Simulation Experiment

Because the improved K-means clustering retains the advantages of the original algorithm, it can realize dynamic clustering and has specific adaptability. In the problem of the estimation of the spread of information, only the eigenvalues of the correlation matrix of the elegant class need to be divided into signal eigenvalues and noise eigenvalues. When these eigenvalues are arranged in descending order, the initial clustering center is easy to choose, thus overcoming the shortcomings

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of the original R algorithm. Select the ratio of eigenvalues as the characteristic attribute of the object to be clustered. This algorithm is still applicable even when the eigenvalues diverge in the background of colored noise. In addition, the above derivation process does not restrict the antenna array structure, so this method is suitable for any space array structure.

100. Compare the MDL, the Zaner disk, and the improved K-means clustering methods, and conduct 100 Monte Carlo experiments on each signal-to-noise ratio to count the change of the estimation success probability with it. The simulation results are shown in Figure 6.

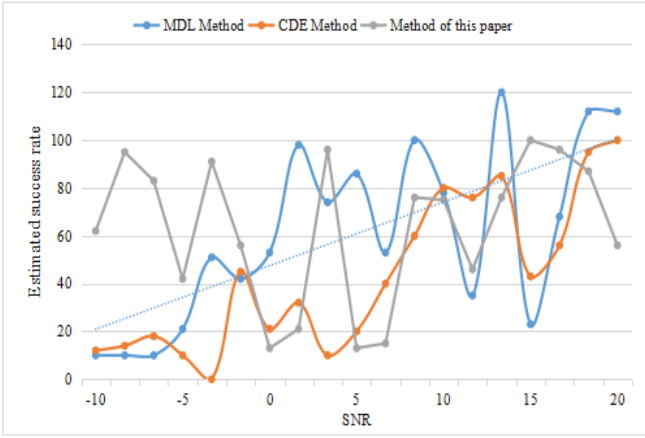

Figure 7: Relationship between estimation success rate and signal-to-noise ratio.

In the experiment, an antenna array with an arbitrary structure is used; the coordinate unit is mm, the frequency is 5 GHz, the signal-to-noise ratio is 8 dB, and the number of snapshots is 100. MDT, quasi-discrimination, Gale disk method, and improved K-means clustering method are used to estimate the figures of different sources. When there is only one signal incident, the MDL criterion, Gale's disk method, and improved K-means clustering method are used for comparison. Each technique is tested ten times; the results are shown in Figure 7.

All the students in the middle class passed, with an average score of 82.63% and above 90, especially those with a weak English foundation. The results of CET-4 also make students very satisfied, with a pass rate of 8%. Compared with the same major, it has obvious advantages. The results of the two tests show that most students have made some progress in English learning after a semester of hard work. Figure 8 shows the satisfaction degree after applying the diversified college English teaching evaluation model of paste K-means clustering.

5 CONCLUSIONS

A diversified college English teaching evaluation model based on fuzzy K is proposed. By calculating and improving the fuzzy K clustering algorithm, this paper applies innovative means to constructing the college English teaching evaluation model, combining and improving the traditional English teaching evaluation model. Compared with the conventional English teaching evaluation, the data classification of its evaluation algorithm is more fuzzy.

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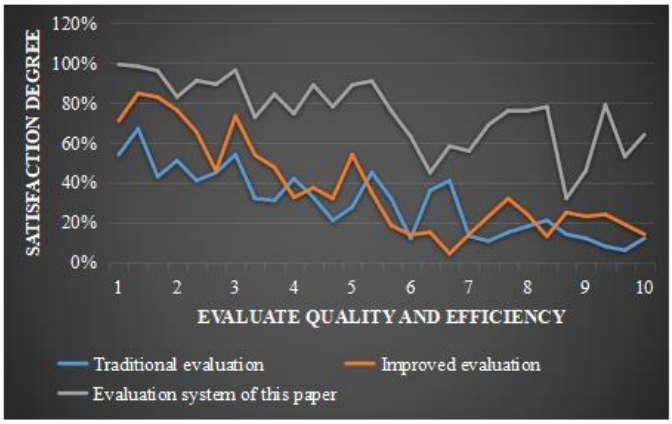

Figure 8: Comparison between fuzzy K-means clustering evaluation model of college English teaching and other evaluation models.

A big data fuzzy K-means clustering algorithm is proposed, synthesizing the English evaluation model's index parameters and applying the constraint feature information. The experiment shows that using the fuzzy K clustering algorithm improves teaching quality and efficiency. Fusing fuzzy K-means clustering and diversified evaluation metrics in e-learning heralds a transformative era in college English teaching assessments. This approach enriches the understanding of language proficiency and paves the way for tailored, adaptive learning experiences, enhancing the efficacy and inclusivity of language education in the digital age.

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REFERENCE

[1] Chen, D. S.; Yang, J.: Fuzzy clustering method in the college's evaluation, Journal of Zhengzhou Institute of Light Industry, 8 (13), 2006, 119-130.
[2] Chen, D. S.; Yang, J.: Fuzzy clustering method in the colleges evaluation, Journal of Zhengzhou University of Light Industry(Natural ence), 16(14), 2006, 148-152.
[3] Fang, W.: To construct diversified evaluation system, to promote the English teaching in higher vocational colleges, Journal of Jiamusi Education Institute, 9(38), 2012, 641-623.
[4] Guo, X. Y.: Diversified Design for Evaluation Model of English Writing, Journal of Beijing University of Posts and Telecommunications (Social Sciences Edition), 20(8), 2011, 135-141.
[5] Guoliang, G. E.; University, T.: Research of English teaching capability evaluation algorithm based on fuzzy K-means clustering of big data, Modern Electronics Technique, 23(16), 2017, 168-179.
[6] Hai-Qing, L. I.; University, H.: Action Research on Diversified Evaluation of College English Teaching Under the Mode of Group Learning, Journal of Huzhou University, 35(19), 2015, 232-254.
[7] Hogo, M. A.: Evaluation of E-Learners Behaviour using Different Fuzzy Clustering Models: A Comparative Study, International Journal of Computer Science and Information Security, 7(2), 2010, 381-393.

© 2024 U-turn Press LLC, http://www.cad-journal.net

[8] Hua, L.: Based on Employment-oriented Diversified Evaluation Model of Higher Vocational English, The Science Education Article Collects, 47(23), 2016, 701-726.
[9] Jia-Jun, X. U.; English, D. O.; University, H. I.: Study on diversified college English evaluation system, Heilongjiang Science, 41(23), 2018, 62-64.
[10] Jiang, X. J.: The Fuzzy Optimization Model for College English Teaching Evaluation, Heilongjiang Researches on Higher Education, 12(8), 2007, 12-24.
[11] Jie, Q. U.; Xiao, N.: Analysis of Fuzzy Clustering and the Mixed Model in Graduate Student Education Level Evaluation, Journal of Hebei North University (Natural Science Edition), 20(24), 2008, 137-147.
[12] Qian, Z.; Nianyun, S.; Qiangsheng, Z.: et al. Evaluation model based on fuzzy clustering in teaching quality of teacher, Computer System Application, 7(12), 2016, 168-172.
[13] Qin, C.: Research on the Diversified Teaching Evaluation Model of Basic English Course Based on Micro-course, The Science Education Article Collects, 32(47), 2019, 129-138.
[14] Tae.; Bok.; Yoon.: et al. A method for learning users' preference on fuzzy values using neural networks and k-means clustering, Journal of Korean Institute of Intelligent Systems, 16(6), 2006, 716-720. https://doi.org/10.5391/JKIIS.2006.16.6.716
[15] Wang, Q. Y.: The Assessment Model of Students Based on Fuzzy Clustering Analysis, Journal of Yangtze University, 8(8), 2011, 524-533.
[16] Wu, C.: Application of diversified evaluation in middle school English teaching, Modern Salt Chemical Industry, 39(16), 2019, 320-341.
[17] Wu, C.: Application of diversified evaluation in middle school English teaching, Suyan Science and Technology, 46(1), 2019, 149-150.
[18] Wu, C.; University, A. N.: Application of diversified evaluation in middle school English teaching, Modern Salt and Chemical Industry, 42(36), 2019, 813-821.
[19] Wu, Y.: A Brief Talk on How to Use Multimedia Technology to Construct A Diversified Evaluation System in English Teaching, Journal of Physics Conference Series, 174(4), 2021, 24-58. https://doi.org/10.1088/1742-6596/1744/4/042058
[20] Yan, H.; Liu, Z. Y.; Hao, Y.: The Research on Evaluation of Teaching Quality in Transitional Colleges and Universities Based on the Fuzzy Comprehensive Evaluation, Journal of Liaoning Higher Vocational, 21(7), 2016, 124-133.
[21] Zhan, X.: On the Application of Diversified Evaluation System in Higher Vocational English Teaching, Journal of Jiamusi Vocational Institute, 29(41), 2017, 701-714.
[22] Zhang, A. R.: A Study of Practice of Diversified Evaluation Modes in College English Teaching, Journal of Neijiang Normal University, 21(26), 2012, 51-56.
[23] Zhang, Q.; Shi, N. Y.; Zhang, Q. S.: Evaluation Model Based on Fuzzy Clustering in Teaching Quality of Teacher, Computer Systems & Applications, 7(12), 2012, 141-152.
[24] Zhao, Y.: Research on the Diversified Evaluation Index System and Evaluation Model of Physical Education Teaching in Colleges and Universities, Journal of Computational and Theoretical Nanoscience, 14(1), 2017, 99-103.
[25] Zhu, J. S.; Qin, G. L.; Chen, M.: Constructing a Diversified College English Curriculum Evaluation System in Medical Colleges, Education Teaching Forum, 34(123), 2018, 182-194.

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