Hindawi
Discrete Dynamics in Nature and Society
Volume 2024, Article ID 9830769, 1 page
https://doi.org/10.1155/2024/9830769

Retraction

Retracted: Dynamic Modeling and Analysis of Micro-Video Teaching System Based on Cloud Computing in College English Teaching

Discrete Dynamics in Nature and Society

Received 23 January 2024; Accepted 23 January 2024; Published 24 January 2024

This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

(1) Discrepancies in scope

(2) Discrepancies in the description of the research reported

(3) Discrepancies between the availability of data and the research described

(4) Inappropriate citations

(5) Incoherent, meaningless and/or irrelevant content included in the article

(6) Manipulated or compromised peer review

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

References

[1] Y. Chen, "Dynamic Modeling and Analysis of Micro-Video Teaching System Based on Cloud Computing in College English Teaching," *Discrete Dynamics in Nature and Society*, vol. 2022, Article ID 6402094, 10 pages, 2022.

Hindawi
Discrete Dynamics in Nature and Society
Volume 2022, Article ID 6402094, 10 pages
https://doi.org/10.1155/2022/6402094

Research Article

Dynamic Modeling and Analysis of Micro-Video Teaching System Based on Cloud Computing in College English Teaching

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Received 4 November 2021; Revised 6 December 2021; Accepted 10 December 2021; Published 7 January 2022

Academic Editor: Gengxin Sun

The era is developing and the society is improving. The application research of computer technology in the field of education is a hot topic at present. The cultivation of talents required the training of schools and teachers. How to cultivate talented person who meets the needs of society lied in the comprehensive ability of teaching in colleges and universities, so the college English education professional grammar teaching model is studied based on dynamic programming algorithm. After a brief overview of the dynamic rule algorithm, an algorithm for evaluating English grammar learning in colleges and universities is designed by using dynamic algorithm. The algorithm is composed of dynamic rule algorithm, language processing technology, and regular expression. In the subsequent experiments, it is proved that the algorithm has a good evaluation effect and can meet the actual application requirements.

1. Introduction

After the first industrial revolution, in the steam era, people improved from manual labor to mechanical labor, and the global development power was promoted by the second industrial revolution in the era of electricity. Now we are in the third industrial revolution information era to link the world together [1]. The world was linked not only to the industrial reform and development but also to the military, transportation, commerce, and life. The world's most used language for communication is English. In order to meet the requirements of this era, we should be in colleges and universities. Regarding follow-up on teaching, the level of English was not whether you can pass CET-4 or CET-6 but whether you can use it in real life, which needed to evaluate the comprehensive ability of English teaching in colleges and universities. [2]. The information age is an era of large-scale application of information technology. This application is not limited to aerospace and other advanced science and technology fields; it is a technology that covers all fields [3]. Because of this extensive coverage, information technology has become an indispensable part of social production and life. The vast needs of the society further push forward the development of information technology. Therefore, depending on the application of information technology, information technology is divided into different professions, such as our common intelligent technologies, control technologies, and communication technologies [4]. The continuous development of informatization technology has prompted experts and scholars in various fields to continuously apply their research to it [5].

In all areas of the current society, the field of education is an extremely important field [6]. In the field of education, as a professional organization for cultivating talents, it provides a constant stream of fresh blood for the development of society, and it is also a frontier for the development of science and technology [7]. It can be said that the development of contemporary human society is inseparable from the support of the educational neighborhood [8]. It is precisely because of this that the application of information technology in the field of education has been an important topic in the application of information technology [9]. In view of this, this paper proposes studying the grammar teaching model of college English education based on dynamic programming algorithm, hoping to provide a meager force for the development in this area [10].

Therefore, how to cultivate talents to meet the needs of society depends on the comprehensive ability of college teaching. This paper studies the grammar teaching model of college English education major based on dynamic programming algorithm. This paper creatively designs a college English grammar learning evaluation algorithm by using dynamic rule algorithm. The algorithm has good teaching evaluation effect and solves a series of problems in practical teaching application.

This paper is based on the high subjectivity of grammar teaching. Based on the dynamic rule algorithm, a grammar teaching effect evaluation algorithm is designed. The algorithm integrates dynamic rule algorithm, rule matching algorithm, minimum editing distance algorithm, and language processing technology. Then the algorithm is verified by practical verification method. This paper is divided into four parts. The first part expounds the research background and explains the computer research in the field of education. The second part introduces and changes some research literature. The third part studies the research and analysis of college English teaching comprehensive ability evaluation system based on association rules algorithm. Finally, the experimental results are described. The similarity threshold of the algorithm is small, and the prediction result is closer to the real result.

2. State of the Art

Each school has different conditions and different students, and there is different teaching infrastructure for running schools [11]. It was impossible to evaluate the teaching level of a schoolteacher through a pass rate. From the teacher's point of view, students' pass rates indicated their own teaching standards. It will ignore the fundamental purpose of teaching. From the student's point of view, the purpose of obtaining the CET-4 and CET-6 certificates was to ignore the practical application of language and put the basic purpose of learning English aside [12]. In response to the above problems, Chinese research scholars have developed a new comprehensive evaluation system of English teaching ability, which can reasonably and correctly evaluate the actual situation of students' learning and the teaching level of teachers [13]. Another problem is that although teachers and students in colleges and universities have a large amount of information data, their ability to extract system operation is limited [14].

The dynamic programming algorithm is an algorithm that first finds the optimal solution properties of the problem and then uses structural features to divide the problem into subproblems [15]. Its core idea is to separate and resolve ideas and solve redundancy. The divide-and-conquer idea is widely used in computer algorithms. Under normal circumstances, the problem is decomposed into two subproblems. Therefore, this method is also called dichotomy [16], and the main problem using dichotomy is often composed of multiple subproblems. [17]. The solutions to these subproblems can be given in some appropriate way [18]. However, in the process of solving the dynamic algorithm, the decomposed subproblem does not exist alone. If only the dichotomy method is used to perform the calculation method, these subproblems will have the problem of repeated calculations. Therefore, the solutions can be resolved during the solution process. The subproblems are saved and then can be queried when needed. This has the advantage of avoiding double counting, which is of great help in improving computational efficiency [19]. In the process of dealing with this problem, the dynamic algorithm solves the problem by storing the solution of the calculated subproblem. The above is the basic concept and idea of the dynamic algorithm. In fact, because the problems faced by the algorithm are very different, the algorithm will segment many types of dynamic algorithms. However, in the process of saving the subproblem solution, the filling method of these dynamic algorithms is still the same [20].

3. Methodology

3.1. Research and Analysis of College English Teaching Comprehensive Ability Evaluation System Based on Association Rules Algorithm. The English teaching comprehensive ability evaluation system generally has the following functions: first, it can quickly retrieve relevant information. Second, it has its own ability to collect and store information. Third, it was the ability of extracting a large amount of data and information, and fourth it was the ability of artificial intelligence and human interaction. The main function of the comprehensive assessment of English teaching ability was to evaluate the level of English teaching in schools. This system should be able to exclude external causes, such as the grades of schools, the different sources of students, and the differences in teaching facilities, and so on. Effective understanding of the school specific teaching situation, fair and reasonable and correct evaluation of different schools, and different grades of teaching level, to give schoolteachers and students a reasonable evaluation, improve the supervision of the operation of school activities. According to the function of the comprehensive ability of English teaching, we can see that this system was a combination of student evaluation, data mining, and computer technology. It was an objective and fair view of the operation of the school's educational administration system. In addition, there was artificial intelligence and human-computer interaction ability, which can ask questions for comments. The system will give feedback according to request, reasonably carry out curriculum design and teaching design, lighten the burden on teachers, and optimize teachers' teaching plans to promote students' enthusiasm and efficiency in learning. The following was the application of association rules algorithm and comprehensive capability assessment system in various fields (Table 1).

We can clearly see from the survey rules of the association rules algorithm and comprehensive ability assessment system in various fields that the application of association rules algorithms had a high probability of application in areas, such as education and teaching, transportation, food and clothing, and exercise. In the comprehensive ability evaluation system, because the comprehensive ability assessment system was an emerging

Table 1: The application of association rule algorithm evaluation system in various fields.

	Educate teaching (%)	Transportation (%)	Food to match (%)	Exercise to toughen (%)
Connection rule calculation way	83	79	66	88
Comprehensive ability evaluation system	60	55	61	59

system, it was not fully popularized. I believed that his unique functional appeal can be applied more in various fields to benefit the society. The association rules algorithm had several operation forms. The system selected the appropriate algorithm according to the actual situation and artificial intelligence, which was more conducive to the operation of the system and the extraction and processing of data.

The research and analysis of college English teaching comprehensive ability evaluation system based on association rules algorithm mainly consists of performance design, basic information maintenance module design, user management module design, the design of data processing module, the optimization of association rules algorithm, the design of prediction module, and so forth. The research and analysis of the college English teaching comprehensive ability evaluation system based on the association rules algorithm was divided into the following steps: first is the evaluation of system performance design. Therefore, our system design performance was precisely retrieved by the customer, evaluation of content identification, specific website establishment, and teaching information. With real-time updates and parental comments, this performance set combines teaching, evaluation, and feedback. At the same time, it can also continuously improve its system performance according to the actual situation. The real-time updating of teaching information was an important function of the entire performance. Teaching information is divided into a series of data information, such as student timetable and student achievement. This information needed to be constantly updated, and a sound educational management system can promote a series of functions of performance design. The updating of teaching information required information. The collection also required information updates. This required manual collection of information and input into the system to complete the updating of teaching information in real time, and background workers played an important role here. The second was the basic information maintenance module design. Information included departments, majors, classes, student status, faculty, and courses. This module mainly sets up basic information such as students, teachers, and courses. Maintenance, laying the foundation for the design of other modules, was the key to the entire study. We must be very rigorous in this regard and do not make mistakes. For example, if the student's student information was wrong, she will inquire about the student's learning situation in the school. The graduated information will also be inaccessible, which will cause great trouble for further studies. For this purpose, we must identify the system through the system authentication and need the cooperation of artificial intelligence technology. We need the background personnel to improve the system according to the feedback, so as to ensure the normal operation of the system. The operation provided guarantee for the quality of education and teaching in the entire school and in order to train the social demand talented person to make the due contribution. The third was the user management module design. The user management module was divided into two parts. One part was the permission setting management. Different identities can view different contents. After logging into the system, teachers can view the examination schedule and other information of all students in advance; and students can only view their own timetable and their own student registration information, which was the different permissions; permission settings can guarantee student information and security and prevent information leakage; the other part was the management of the account; a person has only one login account and needs verification code and password to ensure the safety of their information. After the graduation of the student account to cancel, new students can be registered, and the account set according to the deadline for admission will not be repeated. The student status information will not be confused, and the whole system will be run in a more organized way. The fourth was the optimization of data processing module and association rules algorithm. This part was the core content of the whole research. The data information processing can include the optimization of the association rules algorithm. The data processing module contained the original data, teaching parameter setting, and teaching evaluation reports; the association rules algorithm was used to optimize the evaluation parameter setting and evaluation result report. Association rules algorithm extracts important information from a large amount of data. In addition, the algorithm also includes valuable information retrieval related to it. By using this algorithm, the workload of the system is reduced, the operation speed of the system is accelerated, and the work efficiency of the system is improved. The stable operation of the system was ensured. The fifth was the prediction module design. The change of evaluation parameters will change the teaching evaluation result. This module judged the teacher's teaching ability by assessing and predicting the teacher's comprehensive teaching ability through the budget of the evaluation result parameter. The analysis of the comprehensive ability evaluation system for college English teaching based on association rules algorithm is shown in Figure 1.

3.2. The Analysis and Formula Calculation of College English Teaching Comprehensive Ability Evaluation System Based on Association Rules Algorithm. Meilian rule is widely used knowledge in data mining. It is used to find the correlation

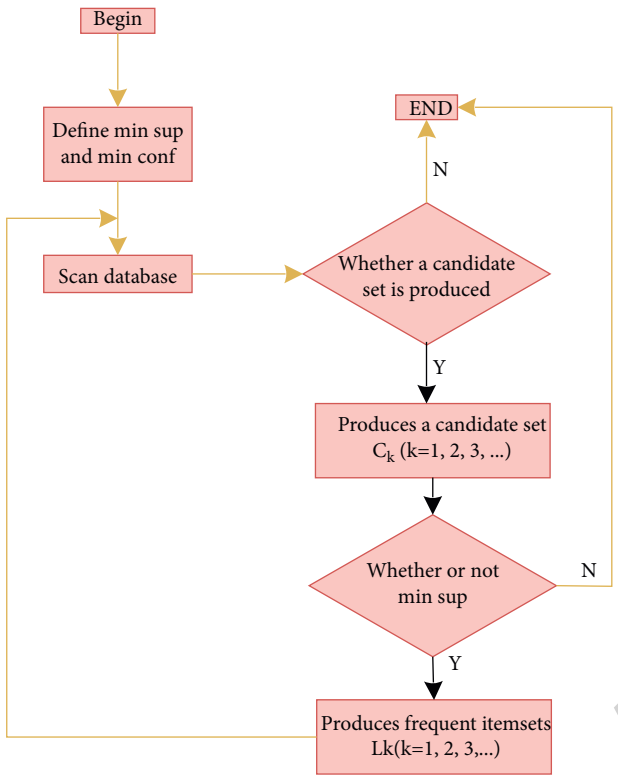

Figure 1: Flow chart of association rules method for comprehensive ability evaluation system of senior high school English teaching.

or interdependence between one thing and other things. The typical correlation analysis is embodied in the shopping basket analysis based on transaction data, for example, the impact of purchasing a certain commodity on the purchase of other educational products. This influence is sometimes positive and sometimes negative. For example, 90% of customers buy commodity A and commodity B at the same time, indicating that education product A is positively correlated with B. This rule can be expressed as A = > B°, indicating that the customer is willing to buy B under the condition of purchasing commodity A.

The research and analysis of the evaluation system of college English teaching comprehensive ability based on association rules algorithm was a part of the basic performance design and data processing module of the evaluation system. Next, we talked about the formula calculation of the comprehensive ability evaluation system of college English teaching based on association rules algorithm. Because the association rules algorithm was very strong in data mining ability, it can mine all kinds of valuable information in different fields of associated information. This time, English teaching was used as the mining object to mine the hidden information in English teaching and valuable information. Here is the specific formula calculation section of the genetic algorithm.

For the association rules algorithm, we should pay attention to the support and confidence interval, support to define the availability of rules, and confidence interval to define the certainty of rules:

$$\sup(A) = \frac{\text{count}(A \cup B)}{|D|}. \tag{1}$$

$A \Rightarrow B$. Support was the probability of things that contain $A \cup B$ in D.

$$\text{support}(A \Rightarrow B) = P(A \cup B). \tag{2}$$

If the confidence of $A \Rightarrow B$ was D, if it contained A, then the probability of B was also included:

$$\text{confidence}(A \Rightarrow B) = \frac{\sup(A \Rightarrow B)}{\sup(A)}, \qquad \text{confidence}(A \Rightarrow B) = P\left(\frac{B}{A}\right), \tag{3}$$

where A And B were item sets, and the estimation model of teaching evaluation was evaluated. The error RMS calculation formula was shown as follows:

$$\text{rmserror} = \sqrt{\frac{1}{k}\sum_{t=1}^{k}(y-x)^2}, \tag{4}$$

where k was the item value. The formula for predicting the average absolute error was

$$\text{MAE} = \frac{1}{k}\sum_{t=1}^{k}|y-x|. \tag{5}$$

The above is the calculation formula of association rule algorithm in college English teaching comprehensive ability evaluation system. Figure 2 shows the specific flow chart of formula calculation for the association rules algorithm.

In many fields, association rules algorithms and comprehensive capability assessment systems were used. Association rules algorithms can mine related information and comprehensively understand the content involved in a field, which helps us to extract valuable information and complete tasks faster. The comprehensive ability assessment system is a system that has emerged in recent years and can effectively summarize and evaluate the level of a project. The two applications were then rated in biopharmaceutical, transportation, diet, exercise, and other areas. Table 2 shows a research on the evaluation system of college English teaching comprehensive competence based on association rules algorithm, analysis of the use of association rules algorithm, and comprehensive ability assessment system in all aspects of the scoring.

The usage of association rules algorithm and comprehensive capability evaluation system in all aspects is shown in the table. The algorithm has high adaptability in transportation and food calculation. The contents involved in these two fields are explained, which is more helpful for us to extract valuable information and complete the task faster.

3.3. Dynamic Programming Algorithm Ideas and English Grammar Intelligence Evaluation Algorithm Design Ideas. In the current college English grammar teaching, although a large number of new technologies are used in teaching, there are still many problems. Because the current teaching mode

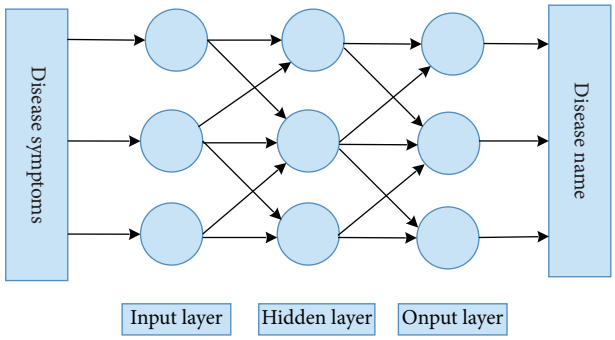

Figure 2: Connection rule flow chart.

Table 2: Association rule calculation method and comprehensive ability use scoring table.

	Connection rule calculation way	Comprehensive ability evaluation system
Living creature system medicine	78	51
Transportation	82	82
Food to match	89	75
Exercises to toughen	76	76

adopts many techniques such as remote video teaching and information management, it still cannot be separated from the students' learning and teacher teaching and evaluation. Although information technology plays a very important role in this process, there are still major problems in the face of some nonstandard issues. The teaching of English grammar studied in this paper is a nonstandard issue. Although more information technology can be used to change the traditional teaching mode in the process of teaching, it is still time to evaluate student learning back to the traditional manual evaluation mode. Therefore, in the research of the college English education professional grammar teaching model based on the dynamic programming algorithm, the focus is on realizing the students' grammar learning intelligent assessment. Because of the flexibility and uncertainty of the language itself, dynamic programming algorithms and other information technologies are required to perform the processing before it can effectively complete the evaluation.

The dynamic programming algorithm is a kind of algorithmic idea to solve the problem under constraint conditions. The core of the calculation is to dismember the problem into subproblems that are related to each other and restrict each other. After solving the subproblem, the related algorithm is used to solve the problem. Because it is solved under constraint conditions, the solution of the subproblem is carried out in a layer-by-layer manner. That is, the solution of the subproblem in this stage is based on the solution of the subproblem in the previous stage. The entire calculation process is divided into several phases as shown in Figure 3. The first is to determine the state of the original problem and the variables of the state, which can be represented by state and *sk*, respectively. The state refers to each stage of the subproblem, and the state variable is the solution value of the

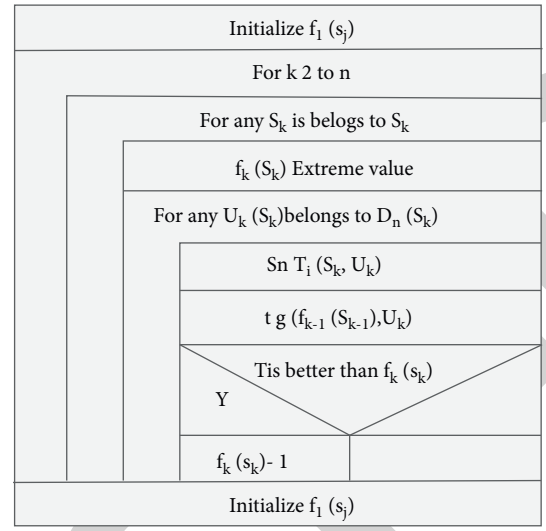

Figure 3: The basic process of solving dynamic algorithm.

subproblem at this stage. The second is the decision-making and decision-making variables, represented by decision and *dk*, respectively. The decision-making method adopts the methods adopted by the next state, and the decisions adopted for continuous state advancement can be represented by D_1, D_2, ..., D_n. The decision variable is the optimal solution in this state. It can be seen that the strategy is a set of D_1, D_2, ..., D_n, which satisfies the optimal solution of the optimal solution. Assume that the state of the progressive function is t, and the state of the progress is the current state of i and its decision variable di is mapped to the process of the next state j. This process can be written as $t(i, di) = j$. The progression equation of the correspondence between the state variables is set to (f). This equation is the calculation formula of the optimal solution in the state of i, that is, si. The optimization conditions can be represented by the function $si = f(sj, dj) \mid i = t(j, dj)$, and then a feasible set can be obtained for all feasible values of dj. Then, through programming, the solution of the dynamic programming algorithm can be achieved (see Figure 4).

In the English professional grammar teaching activities, students' grammar learning is evaluated intelligently, and it needs to be characterized by grammar teaching. In China, the teaching of English grammar is often expressed and evaluated in the form of composition. Therefore, the main task of the whole evaluation algorithm is to evaluate student's composition. Considering that English grammar teaching is a very subjective teaching method, the evaluation algorithm must combine dynamic rules algorithm, language processing technology, and regular expressions to perform a comprehensive diagnosis of the student's English grammar, structure, and word spelling. Then, based on the above analysis, the entire algorithm needs to establish the rule base of grammar and vocabulary of the college English syllabus. The second is the initialization of the rule engine, which means that the sentence rules in students' compositions are unified. The third step is to filter out important statements. The fourth part is to match the filtered sentences with the

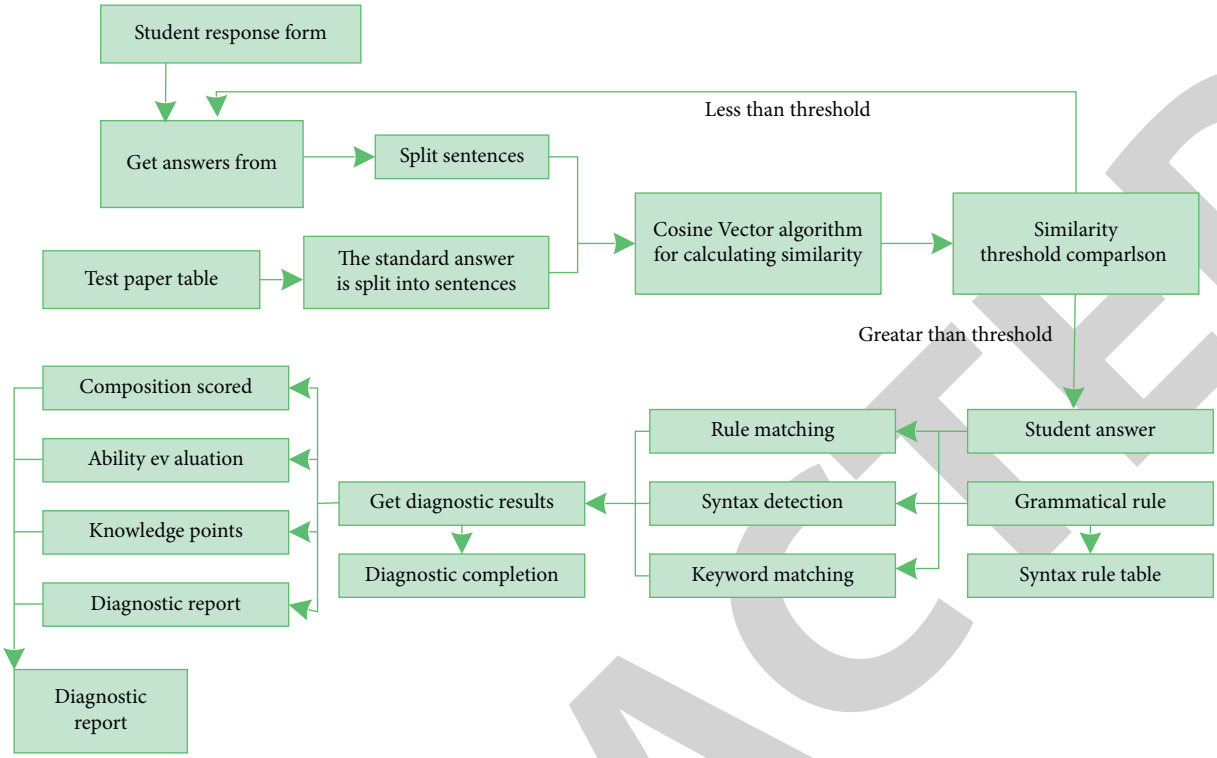

Figure 4: Activity diagram of English grammar evaluation based on dynamic programming algorithm.

corresponding database, calculate the minimum editing distance, and finally get the rule with the maximum total score. Finally, record the knowledge points corresponding to the maximum rule, and then repeat the processing of the next statement until all rules are exhausted. The whole algorithm is to use the core idea of the dynamic rule algorithm. The whole article is calculated as a problem. When calculating, the article is divided into mutually linked but independent subquestions, and then the regular matching algorithm and minimum editing are used. Algorithms such as distance algorithm and vector space cosine algorithm judge a single subproblem and then judge the entire article according to a single sentence for evaluation.

3.4. Design and Implementation of English Grammar Assessment Algorithm Based on Dynamic Algorithm. English grammar is a highly subjective knowledge point in English teaching. If you want to use computer technology for intelligent assessment, this is a very difficult thing. Therefore, this article uses the dynamic rule algorithm idea as the core to evaluate the effectiveness of college English grammar teaching. According to the above algorithm idea, the basic flow of English grammar assessment algorithm can be summarized into the following steps. The first is to split the student's answer according to the rules. Then all the rules corresponding to students' answers are extracted from the corpus, and the mapping structure is initialized by the rule engine. Then the cosine vector algorithm is used to calculate the sentence similarity and set the initial similarity threshold. When the degree of similarity is greater than the threshold, a regular matching algorithm is used to perform the matching, and syntax, keywords, and the like are detected, and then the detection structure of the statement is stored in the corresponding data table. The threshold selection in this procedure is obtained through multiple trainings of the algorithm. From the basic process of the above algorithm, it can be seen that the key of the entire algorithm is the initialization of the rule engine, the calculation of sentence similarity, the cosine vector algorithm, and the regular processing of rule matching. Then here are some of the key technologies in the algorithm for detailed design.

The initialization rule engine in the algorithm is mainly designed based on the principle of Drools. Generally speaking, the rule engine is divided into two methods, forward chain method and reverse chain method. These two methods correspond to the deductive method and the induction method in human thinking, respectively. The core algorithm is the Rete algorithm, which uses the principle of *Drools*. The designed English grammar assessment initialization rules flow chart is shown in Figure 5. Before the execution of the initialization rule, the content of the evaluation is judged. If it is a nonsubjective question, then the algorithm is ended. If it is a subjective question, then it will get the rule and enter the *Split* link. This link contains two flows of rules and answers. At the same time, it judges whether the two flows contain the same flow. If they are, they enter the corresponding *put* link and enter the *Join* link and finally get the initialization rule.

The minimum edit distance algorithm is for the misspelling of the words in the grammar process, and the word deformation is wrong. This case is for the students to master

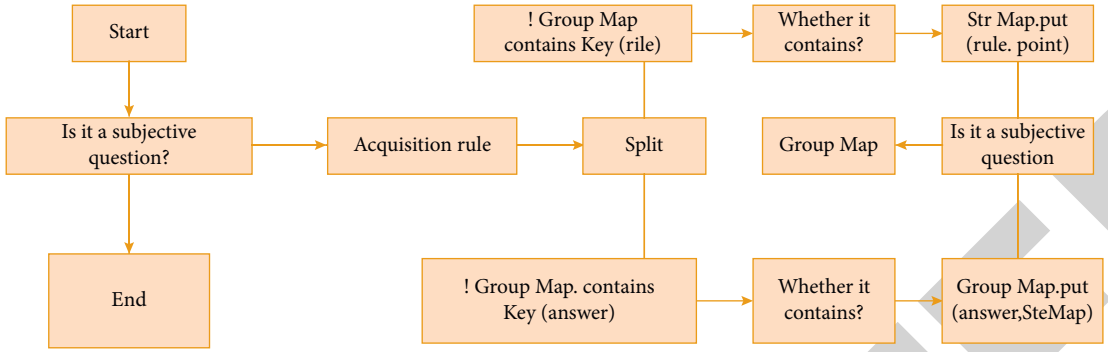

Figure 5: English composition rule initialization flowchart.

the vocabulary. Editing distance is to take a string as a reference and then judge the editing times from the string to the reference word according to the reference word. The total number of edits is the edit distance. The larger the distance, the greater the difference between the two. The more obvious it is, this article judges whether the student has a spelling mistake in the grammar and judges it by the editing distance. In general, string editing includes insert, delete, replace, and transpose. Let input string and standard string be $P_m = p_1p_2p_3, \ldots, p_m$ and $W_n = w_1w_2w_3, \ldots, w_n$, respectively. The edit distance between the two is represented by $D(P_m, W_n)$. In all operations where the input string is converted to the standard string, set the original string to p_i, and then insert and delete. Replacement and substitution refer to the insertion of w_j after p_i, deletion of p_i, replacement of w_j, replacement of p_i, and exchange of p_{i-1} and p_i. The recursive definition is expressed by the following formula:

$$D(Pi, Wj) = \begin{cases} 0, & i = j = 0, \\ \infty, & i < 0 \text{ or } j < 0, \\ D\left(P_i, W_{j-1}\right) + 1, \\ D\left(P_{i-1}, W_j\right) + 1, \\ D\left(P_{i-1}, W_{j-1}\right) + S_{ij}, \\ D\left(P_{i-2}, W_{j-2}\right) + R_{ij}, \end{cases} \tag{6}$$

$$R_{ij} = \begin{cases} 1, & p_i = w_{j-1} \text{ and } P_{i-1} = w_j, \\ \infty, \end{cases}$$

$$S_{ij} = \begin{cases} 0, p_i = w_j, \\ 1, p_i! = w_j. \end{cases}$$

In formula (1), when $i, j \le 0$, $p_i = w_j = \varnothing$. In the top-down order, the third to sixth formulas in (1) apply insertion, deletion, replacement, and transposition, respectively.

For similarity calculation of sentences, in the general case, sentence similarity calculation generally uses cosine theorem in vector space and singular value decomposition in matrix operation. This article will use the cosine theorem to calculate. The similarity between singular value decomposition and cosine theorem calculations is based on *TF/IDF*. *TF/IDF* is obtained using relative entropy. The main role of relative entropy is to measure the similarity of two positive functions. In the calculation of cosine theorem, similar calculations can be calculated using the following formula:

$$\cos\theta = \frac{\sum_{i=1}^{n} x_i y_i}{\sqrt{\sum_{i=1}^{n} x_i^2} \sqrt{\sum_{i=1}^{n} y_i^2}}. \tag{7}$$

x and y in the formula correspond to the space vectors of sentences X and Y, respectively. When the value of cosine is 1, it means the two sentences are completely duplicated rule matching regular processing and composition optimal solution evaluation. The rule matching in this paper is based on the corpus. After relevant rules are extracted from the corpus, corresponding patterns can be used to place the patterns in the set. After similarity filtering, sentences and patterns are matched to achieve the highest score value. The rules are taken out and the corresponding grammar knowledge points and scores are entered into the list. After all the sentences have been parsed, the maximum score of the composition can be obtained. The initialization of the rule will result in a two-dimensional structure tree. *key* and *value* in the structure tree correspond to rules and scores, respectively. After gradually parsing the grammar in the English composition, the similarity and regular matching are used to match the rules and syntax in the structure tree. It is calculated and get the highest score and delete its corresponding rule until all statements are completed; the final score is the result of grammar evaluation. This is the problem's optimal solution in the dynamic rule algorithm, which can be expressed by the following formula:

$$\max \quad f(x_1, x_2, \ldots, x_n) = \sum_{i=1}^{n} c_i x_i,$$

$$\text{s.t} \begin{cases} \sum_{i=1}^{n} w_i x_i \le p_i, \\ x_i \in \{0, 1\}, \quad (i = 1, 2, \ldots, n), \end{cases} \tag{8}$$

where x_i in the formula is a decision variable. When it is equal to 1, it means that the rule matches the English sentence successfully; when it is equal to 0, it means that the match fails.

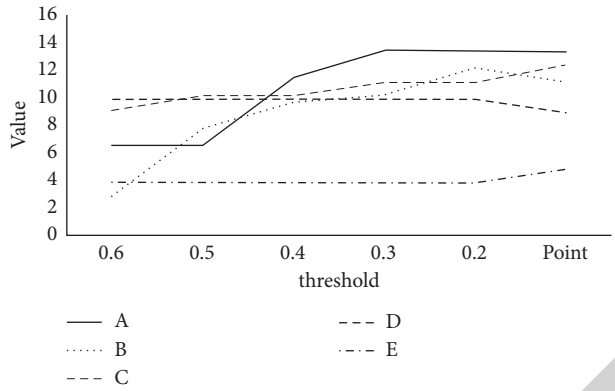

Figure 6: Statistical results of algorithm intelligence evaluation.

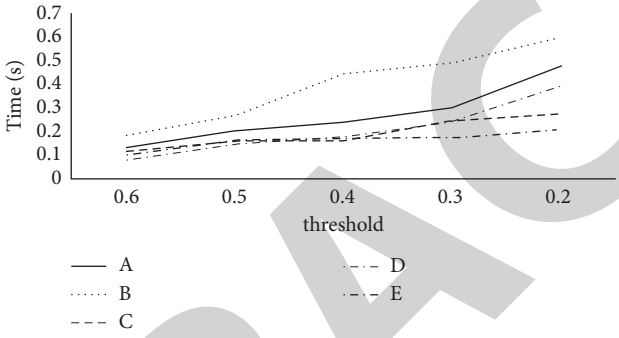

Figure 7: The running time of the algorithm under different thresholds.

4. Result Analysis and Discussion

This paper verifies the effectiveness of the rule algorithm in college English grammar teaching. The algorithm first evaluates five students' English grammar learning results, and the results of the evaluation are shown in Figures 6 and 7. Figure 6 shows the score results of the evaluation. Figure 7 shows the running time statistics of the algorithm. First look at the test results of the score. The ordinate in the figure is the score and the abscissa is the threshold. The last point is the student's standard score, and the rest corresponds to the similarity threshold. It can be seen from the figure that the grammar scores of the five students are at different levels, and the scores of the algorithm assessments are also quite different under different similarity thresholds. As can be seen from the figure, the grammar test results of the remaining four students all changed with the threshold value, except that the score of student E did not change with the change of the threshold value. The change is that as the threshold decreases, the score gets closer and closer to the standard score. This result shows that the smaller the similarity threshold is, the more accurate the measurement results are.

The result shown in Figure 7 is the statistical result of the operation time with the change of the threshold during the evaluation of five students. As can be seen from the figure, as the threshold value decreases, the running time of the algorithm obviously increases. From the perspective of vertical analysis, the higher the score is, the higher the algorithm runs. From the perspective of horizontal analysis, the higher the score, the greater the increase in operating time as the threshold decreases. The analysis concludes that as the threshold decreases, the number of rules matching the composition increases, leading to a gradual increase in the time of calculation. The higher the composition is, the higher the degree of similarity of the essay is, and the matching rules will gradually increase, which will result in an increase in the running time. Combined with the analysis results in Figure 6, the higher the level of grammar work, the closer the algorithm's evaluation results to its true score, and the corresponding algorithm's running time will increase; otherwise, the error will be greater. For the calculator itself, the smaller the threshold is, the longer the algorithm runs, but the closer to the actual level the evaluation results are. The threshold value of the algorithm should be around 0.2.

The practicability of the algorithm is further verified. This paper actually evaluates the grammatical performance of 52 students. The evaluation results are shown in Figure 7. Firstly, from the statistical time in the figure, it can be seen that the running time of the algorithm used to measure the grammar scores of 52 students is basically between 9 and 10 seconds.

Compared with the statistics in Figure 8, it can be seen that this number increases, which will cause the algorithm to run longer. However, in the process of reducing the threshold, the growth rate is very low, indicating that the more the number of people, the less the impact of the threshold on the running time of the algorithm. For score evaluation results,

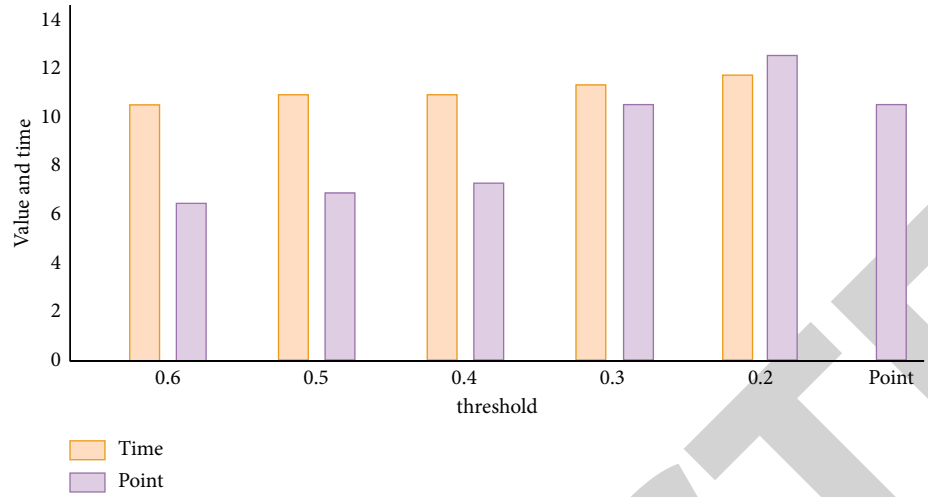

Figure 8: Statistics of class grammar evaluation results.

the lower the threshold is, the closer the standard score results are. When the threshold is 0.2, the error between the results of the algorithm evaluation and the standard score is 9%, indicating that the requirements are met.

5. Conclusion

The widespread application of computer technology is a common trend in all areas of society. As an important institution for cultivating students and scientific research, the field of education has always been a very important aspect of research on the application of computers. Therefore, this paper proposes studying the college English education professional grammar teaching model based on dynamic programming algorithm. This article is based on the highly subjective nature of grammar teaching. A grammar teaching effect evaluation algorithm is designed based on the dynamic rule algorithm. The algorithm integrates dynamic rule algorithm, regular matching algorithm, minimum edit distance algorithm, and language processing technology. Then the algorithm is tested by the actual verification method. The experimental results show that the similarity threshold of the algorithm is smaller, and the predicted result is closer to the real result. This paper presents a research on grammar teaching model for college English majors based on dynamic programming algorithm. Based on the high subjectivity of grammar teaching, this paper briefly introduces the dynamic rules. This paper designs a college English grammar learning evaluation algorithm using dynamic rule algorithm. The algorithm can effectively evaluate university teaching. However, with the increase of the number of test persons, the running time of the algorithm has also increased; and the worse the level of grammar learning is, the greater the error is. This shows that the algorithm still has room for further improvement and will also be the direction for further research in the future.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The author declares no conflicts of interest.

Acknowledgments

The study was supported by the Heilongjiang Higher Education Teaching Reform Project in Heilongjiang, China (Grant no. SJGY20170451).

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