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*Retraction*

# Retracted: Optimization of Business English Teaching Based on the Integration of Interactive Virtual Reality Genetic Algorithm

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1].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.

In addition, our investigation has also shown that one or more of the following human-subject reporting requirements has not been met in this article: ethical approval by an Institutional Review Board (IRB) committee or equivalent, patient/participant consent to participate, and/or agreement to publish patient/participant details (where relevant).

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] X. Ma, "Optimization of Business English Teaching Based on the Integration of Interactive Virtual Reality Genetic Algorithm," *Journal of Electrical and Computer Engineering*, vol. 2022, Article ID 2455913, 9 pages, 2022.

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*Research Article*

# Optimization of Business English Teaching Based on the Integration of Interactive Virtual Reality Genetic Algorithm

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With the continuous advancement of the global economy and the deepening of internationalization and openness, it is also necessary to keep pace with the times in the optimization of business English teaching. At this point, a genetic algorithm based on the interactive virtual reality (VR) should be established for the optimization of business English teaching to adapt to the future trend in business English teaching optimization more appropriately. In the business English teaching process at present, it is required to change the traditional teaching concept, adjust the previous teaching ideas, widen the horizon continuously, establish an international and diversified English teaching and training program, incorporate the outstanding foreign teaching models, and proactively absorb the excellent educational concepts to drive the development of the domestic business English teaching model more effectively. The results of the simulation experiment indicate that the improved algorithm designed in this article can reduce the computational overhead of the meta-algorithm to a great extent, and the improvement strategy is designed based on the evaluation results of practical examples.



## 1. Introduction

With the continuous progress of the economy, many domestic companies have started to develop overseas markets as China joined the World Trade Organization (WTO); and many foreign companies have also started to flood into the Chinese market and gradually implemented cross-border mergers, acquisitions, and joint ventures, which have tremendously improved the comprehensive strength of the enterprises [1, 2]. However, as foreign enterprises access the domestic market, there are cultural conflicts between company operators with different cultural backgrounds in various countries, which can lead to increasingly prominent conflicts and contradictions in the business cooperation and management of both parties and severely affect the healthy growth of the enterprises. Students majoring in English at colleges and universities are the future workforce of foreign company employees, and it is crucial to develop the intercultural communication skills of this workforce. In fact, many foreign language teachers have started to enhance the cultural competence of students, especially their cultural competence, in their practical teaching process. Classroom teaching of English is mainly focused on communication activities between teachers and students, and it is a system with significant social features. The corresponding evaluation indicator system and teaching model form the level of education weighed by business English evaluation indicators, which need to be combined based on the principle of stipulations before teaching and satisfaction after teaching. At present, with cloud computing, computer technology, big data analysis, and hypermedia technology as a basis for driving the continuous development of modern information technologies, it is possible to offer virtualized teaching services and fast teaching services to English learners and implement data information technology services such as universal interconnectivity, intelligibility, and data information mining on a huge data scale. The image-friendly learning interfaces can not only effectively improve the environmental atmosphere of business English teaching but also change the previous view of English teaching and the learning-based relationship between teachers and students.

In this article, an optimization model for the effectiveness of higher vocational business English teaching is designed based on interactive virtual reality genetic algorithm according to the features of higher vocational business English teaching. The optimization of business English teaching is implemented based on traditional education. It is evidently more advantageous and can drive students' motivation and enthusiasm for learning. The optimization of business English teaching is not merely a tool to assist education, but a game changer of modern education for improving and rebuilding learning methods, which is a qualitative leap of traditional education.

The ultimate goal of English learners is to be able to communicate fluently and effectively in business English, while a solid basic knowledge of English is a prerequisite to achieve this goal. It is evident that beginners need to pass a stage test before they can proceed to the next stage of their studies successfully. In general, business English learners have better performance in English studies, whereas non-business English learners have better performance in basic knowledge. In fact, students who achieve excellent results in the entrance exams may not have good skills in language expression in the current education system [3, 4]. Business English is not only about high test scores, but also about the learners' overall perception of language expression, the knowledge of language use, and the ability to express themselves. It is also crucial to pay attention to the "words" and "reasoning." However, in the practical teaching process, relying solely on "words" is not feasible because learners have different learning levels and abilities, and some students have relatively strong listening and speaking skills. There is still a gap in the oral and written language output levels among the students from the practical requirements, and not all students can achieve fully unimpeded English expression and communication.

As a branch of English for special purposes, business English is the English subject that people use when they are engaged in business activities in the workplace, which has professional, practical, and cross-cultural communicative features. At present, most of the courses in business English in China focus on cultivating students' basic language skills such as listening, speaking, reading, writing, and translating in English, as well as improving their business communication skills. However, the number and proportion of business English courses are often limited, and most of them are still at the theoretical level. As a result, the business practice and cross-cultural business communication skills of students cannot be effectively improved in teaching activities, which is a common issue business English teaching facing in China at present. In addition, due to the rapid progress of the economy and society, the areas involved in business activities are gradually expanding. The timeliness of the business English curriculum, that is, the ability to follow the development of the times and constantly update changes, is also an aspect that the construction of the business English curriculum system focuses on. In the society nowadays, whether the new economic situation can be effectively used to make up for the lack of professional curriculum construction and whether new ideas and thinking can be delivered in teaching activities are the issues that need to be considered in the overall development of the specialty.

## 2. Based on the Interactive Virtual Reality Genetic Algorithm

*2.1. Interactive Virtual Reality Genetic Algorithm.* The process of optimizing the effectiveness of higher vocational education business English teaching model based on interactive virtual reality genetic algorithm is described as follows:

$$I(S_1, S_2, \ldots, S_n) = \sum_{i=1}^{n} - p \log_2(p_i). \tag{1}$$

In the previous equation, $p_i = |C_i|/|S|$ stands for the probability of each sample in the category $i$.

Firstly, it is necessary to establish a sample model of information that constrains the optimization model of business English teaching and evaluation capacity [5, 6]. In combination with the nonlinear information fusion methods and time-series analysis methods, statistical analysis is carried out on the teaching competencies of internationalized English education. The business English teaching optimization model and the evaluation capability constraint indicator parameters are taken a set of nonlinear time series to establish a high-dimensional feature distribution space, which stands for the distribution model of business English analysis and evaluation parameters. The primary indicator parameters are constraints to the teaching capability of English international education, teacher level, investment in educational facilities, and policy relevance. Subsequently, a differential equation is established to build an information flow model representing the parameters that constrain the capacity to rank English international education.

$$x_n = x(t_0 + n\Delta t) = h[z(t_0 + n\Delta t)] + \omega_n. \tag{2}$$

In the previous equation, $h(\cdot)$ stands for the multivariate value function for the analysis and evaluation of the English international education pendulum class. In the feature distribution space, the following conditions need to be met to obtain the feature training subset:

(1) $\Sigma = \mathrm{diag}(\delta_1, \delta_2, \ldots, \delta_r), \delta_i = \sqrt{\lambda_i}, \forall i \neq j$;

(2) $\cup_{i=1}^{L} S_i = V - v_s$.

In the previous equations, $x_{n+1} = \mu x_n(1 - x_n)$ indicates the optimization evaluation indicator. With regard to multiple variable groups, the sequence of characteristic distributions $x(n)$ corresponding to the business English teaching optimization evaluation statistics can be used to construct the business English teaching optimization model based on the initial teaching-level measurement values as follows:

$$\begin{aligned} c_{1x}(\tau) &= E\{x(n)\} = 0, \\ c_{2x}(\tau) &= E\{x(n)x(n+\tau)\} = r(\tau), \\ c_{kx}(\tau_1, \tau_2, \ldots, \tau_{k-1}) &\equiv 0, \quad k \geq 3. \end{aligned} \tag{3}$$

When $Q = 2$, the level of teacher power and the level of distribution of educational resources for business English classroom evaluation comply with the $(2+1)$ subordinate continuous letter writing condition. That is, the class of English international education is analyzed and evaluated accordingly.

$$\psi_x(\omega) = \ln \Phi_x(\omega) = -\frac{1}{2}\omega^2\sigma^2. \tag{4}$$

Based on the constructed data information flow model, a set of scalar sampling sequence components is established for the exclusive parsing evaluation of English internationalization education and provides an accurate data input base for the lecture analysis evaluation of English internationalization education [7, 8].

The interactive virtual reality (VR) genetic algorithm is used to carry out the big data information model analysis of the business English teaching optimization, and the control objective function for the predictive estimation of business English teaching optimization model competencies is established as follows:

$$\begin{aligned} &\max_{x_{a,b,d,p}} \sum_{a\in A}\sum_{b\in B}\sum_{d\in D}\sum_{p\in P} x_{a,b,d,p}V_p, \\ &\text{s.t.} \sum_{a\in A}\sum_{d\in D}\sum_{p\in P} x_{a,b,d,p}R_p^{bw}(S)\, b \in B. \end{aligned} \tag{5}$$

Hence, a specific analysis of the health indicator system is established accordingly.

The level of teaching competencies of personalized learning support is evaluated quantitatively and recursively based on the gray model. It is assumed that the historical data on the distribution of teaching competencies of personalized learning support and the initial values of the features are fixed from the prediction of teaching competencies of personalized learning support to obtain the estimated probabilistic density generalized function as the following:

$$u_c(t) = Kx_c(t). \tag{6}$$

The statistical model for the predictive estimation of business English teaching optimization analysis capacity is $u$: $I \times IR^{\,d} \longrightarrow IR$. After $k-1$ iterations, $k \geq 1$, and the gray order sequence of business English teaching optimization analysis evaluation complies with $N(k) < L$. The interactive virtual reality genetic algorithm is used to obtain the output indicator of the personalized learning-supported lecture analysis evaluation, which is taken as the $K$-adjacent sample values of the distributed large data information stream, as shown in the following expression:

$$P_{1J} = \sum_{d_i \in KNN} \mathrm{Sim}(x, d_i)\, y(d_i, C_j). \tag{7}$$

The fusion method for big data information is used to establish a personalized learning support lecture, and the objective function is used to construct the interdomain classification for analyzing and evaluating the information flow of large, distributed data. That is, the objective function of the big data cluster is described as follows:

$$J_m(U, V) = \sum_{k=1}^{n}\sum_{i=1}^{c} \mu_{ik}^m (d_{ik})^2. \tag{8}$$

The studied English courses supported by personalized learning is explored, and the sequence of exponential correlation distribution of the evaluation is quantitatively analyzed to identify the method of $K$-value excellence [9]. The results of quantitative recursive feature extraction for educational analysis and evaluation can be obtained as follows:

$$x_n = a_0 + \sum_{i=1}^{M_{AR}} a_i x_{n-i} + \sum_{j=0}^{M_{MA}} b_j \eta_{n-j}. \tag{9}$$

$x_{n-i}$ stands for the scalar time series; $b_j$ stands for the oscillatory decay value of the personalized learning support alignment and analysis evaluation.

*2.2. Establishment of the Business English Educator Model.* As English language learners are as the main participants and experiences of business English teaching as well as the main subjects of the learners' resource acquisition, English personalized design needs to meet the individual needs of English language learners. For the purpose of better clarifying the attribution of the educators in the business English teaching system, it is necessary to establish models for the practical examples and educators. The business English teaching model is mainly used to establish user modules through the teaching of business English or through third-party agent software for real-time data acquisition and develop business English teaching programs based on the acquired data information. Due to the growing demand for English language learners to be in full, independent as well as developing personalized learning, teachers can help them meet their personalized learning requirements and develop reasonable and scientific learning plan tasks the students.

During the process of business English learning, business English learners can make multiple kinds of errors. Business English learners are not proficient in the learning rules of English knowledge points. As a result, errors can occur in the application process. In addition, many unfavorable factors such as the tension and inattention of the evaluation process can also lead to many errors of business English learners. In contrast to the business English teaching content based on the basic English knowledge level, the learning model proposed in this article is designed based on the error/misunderstanding model of business English learners, which can identify the errors/misunderstandings made by business English learners effectively. Through the analysis of the root causes for their occurrence, it can respond to the error correction methods in time. The internalization of English knowledge is completed by consolidation, and the learning efficiency of business English learners can be improved quickly. Business English teaching mines the action data of business English learners based on learning records so as to quickly identify errors/misunderstandings that occur in the business English teaching process. The business English

teaching model is established to address the errors or misunderstandings of business English learners. The system will identify the corresponding correction methods in the error database based on the errors that occur so that business English instructors can quickly identify the error content and identify the error types after the errors occur and provide timely feedback to the business English instructors on the correction measures. The error database is divided into the enumerated type and the generated type. Through analyzing the experience of designers and experts, the system can effectively determine the possible errors of business English teachers and locate the causes of errors by enumeration. The class of errors is mainly generated based on the inventory system, which provides a reference basis for business English instructors to collect and analyze the errors that may occur in the learning process of business English instructors on their own. In addition, we have found that it is very rare for all three states of a phoneme to occupy only one frame in each frame of the system. This results in a system with only one corresponding frame of state in both sound scientific computational knowledge evaluation systems(Figure 1). If that state is skipped on the token transfer path, the HMM structure can still describe the phoneme in a business English teaching optimization system accurately. The HMM structure is illustrated in Figure 2.

If the transition path of the HMM structure is altered, the operation of token transfer will become more complicated. In any state HMM with $n$, the state transfer matrix transfer probability distribution needs to be met as the following:

$$\left.\begin{aligned} a_{ij} &\neq 0, \quad i = j \text{ and } i = j-1, \\ a_{ij} &= 0, \quad \text{others.} \end{aligned}\right\} \tag{10}$$

Hence, there are $2n+1$ transmission paths for each factor. However, there are seven transmission paths for HMM in three states. After cross-state conversion, there will be $3n+1$ transmission paths for each speech factor, and there are 10 transmission paths for three states. Although the increase in the number of transition paths will increase the time complexity of the operation, the ratio of increase is limited. Thus, the scientific computational knowledge evaluation of English speech still has the advantage of the frame-based asynchronous system operation, which has ensured the presence of an observation value in each English phoneme to obtain more valuable phoneme information. Figure 3 shows the HMM structure across $n-1$ states.

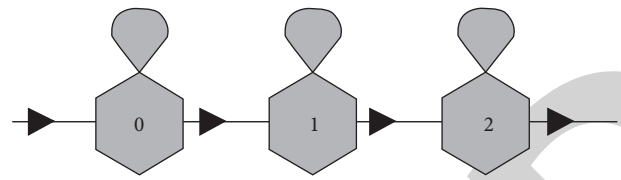


Figure 1: HMM state by state.

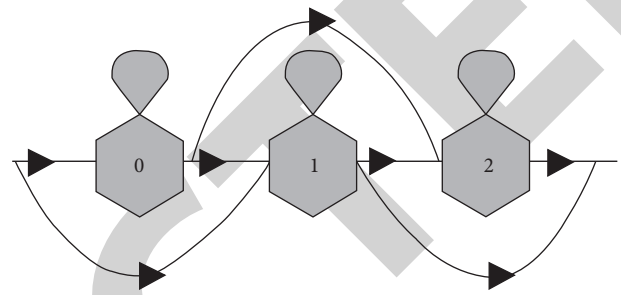


Figure 2: HMM across the single state.

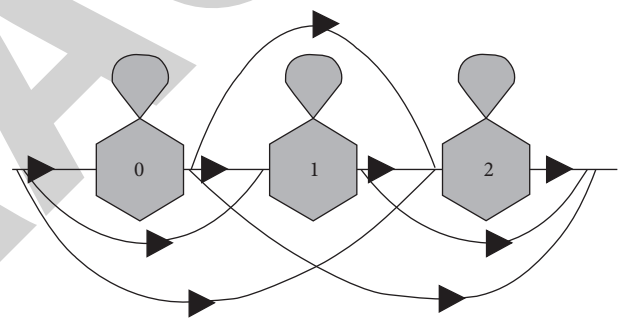


Figure 3: HMM across $n-1$ states.

## 3. Health Evaluation Indicator for the Classroom Teaching of Business English and Its Measurement Analysis

*3.1. Evaluation Indicators for the Business English Classroom Teaching System.* In accordance with the health review theory of knowledge, the dynamics of the teaching delivery system is derived from the English teachers and students within the system through. English teaching and activities input system dynamics, which mainly promotes changes in the optimization model of business English teaching, which should be measured indirectly based on the external visible teaching model [10, 11]. The types of teaching activities and features of the business English teacher evaluation health indicator system are based on the analysis of the teaching process between business English teaching and students. The optimization model for business English teaching is mainly about English teacher preparation, English classroom education, providing special tutoring, types of student educational activities including students learning at the teacher, peer help within the teacher, and so on. The features of business English international teaching activities can be measured by using teacher motivation and the time used in the teaching process. The features of the learning patterns of students can be illustrated based on the enthusiasm of students for learning and the amount of time they have spent in learning. In the past, business English education required a common teaching mode of teachers and students and modern information as a teaching mode

of the education system, in which the information teaching resources and international teaching of business English are mainly used.

*3.2. Organizational Structure Measurement Indicator for the Evaluation of Business English Classroom Teaching.* In the evaluation indicators for business English teaching, individual English teachers and students use teaching models from teaching input energy as a rational distribution in the process of internationalized teaching system. Thus, certain teaching model can be constructed to ensure a smooth and efficient flow of energy. The organizational structure applicable to the international evaluation of business English is measured to establish the teaching evaluation indicators. The teachers and students need to meet each other's demand and adapt to each other. Teachers and students should supervise each other based on their own teaching activities. Thus, the ways of mutual energy transfer become more fluent, and the number of energy transformation increases. In general, the adaptability complies with four aspects, which include purpose adaptability, content adaptability, modality adaptability, and attitude adaptability in turn as the evaluation system of business English teachers between the roles of different activities. In this way, the teaching content and learning attitude are in line with the degree of teaching of both sides.

*3.3. Resilience Indicator for the Evaluation of Business English Classroom Teaching.* The resilience of the English course evaluation system refers to the capability of the teaching evaluation system to maintain the system caused and functioned normally when it is threatened from outside. The main influencing factors in the evaluation system are the teaching fatigue of English teachers in the teaching process, the lack of motivation of students to learn, and the existence of maladjustment in the information environment. The teaching organizational structure is threatened from outside, which will be the different perspectives of teachers' professional fatigue, interaction between students' learning and teachers' teaching activities, purpose, teaching content, teaching attitude, and teaching methods that cannot meet the actual demands of each one involved. It is necessary to overcome the problems that exist, such as the incompatibility with the modern information teaching environment, and the need to detect the risk factors, and to take appropriate measures to overcome the difficulties that may be encountered [12]. This will enable teachers and students to effectively use their educational skills, to detect the risk factors, and to organize their learning motivation and teaching structure in a way.

## 4. Examples and Result Analysis

*4.1. Optimization of Attribute Selection for Data Sets.* In the interactive virtual reality genetic algorithm-based model for optimizing the effectiveness of teaching business English in higher vocational education, $n$ operations are required to determine the performance data on each one of the students. When there are more data, the operations become very slow, leading to a decrease in the efficiency of generating the interactive virtual reality genetic algorithm, so we reduce the computational overhead of the interactive virtual reality genetic algorithm and reduce the time consumption by redefining the selection criteria of the attributes in the data set.

In this article, the information quantity formula is optimized:

(1) It is assumed that $f(x)$ is continuous on $[a,b]$ and contains first-order as well as second-order derivatives in $(a,b)$. Thus, the following can be obtained:If $f''(x) > 0$ in $(a,b)$, then the shape on $[a,b]$ is concave.If $f''(x) < 0$ in $(a,b)$, then the shape of $f(x)$ on $[a,b]$ is upper convex.

(2) If $f(x)$ is an upper convex function on the interval $I$, $\forall x_1, x_2 \in I, \lambda \in (0,1)$, then equation (11) below can be obtained:

$$\lambda f(x_1) + (1-\lambda) f(x_2) \leq f[\lambda x_1 + (1-\lambda) x_2]. \quad (11)$$

The function $\log_2 P$ in equation (1), which are consistent with $P_1 - P_2 = \Delta P \longrightarrow 0$. The function $\log_2 P$ is continuous on (0,1]. In accordance with equation (1), the concavity of the function $\log_2 P$ is checked, as described in the following equations:

$$(\log_2 P)' = \frac{1}{P \times \ln 2}, \quad (12)$$

$$(\log_2 P)'' = -\frac{1}{P^2 \times \ln 2} < 0. \quad (13)$$

In accordance with equation (1), the shape of the function obtained is upper convex on the definition domain (0,1].

(3) If $f(x)$ is an upper convex function on the interval $I$, then $\forall x_1, x_2, \ldots, x_n \in I$, $\lambda_1, \lambda_2, \ldots, \lambda_n > 0$, and $\lambda_1 + \lambda_2 + \cdots + \lambda_n = 1$, and the following equation can be obtained:

$$\lambda_1 f(x_1) + \cdots + \lambda_n f(x_n) \leq f(\lambda_1 x_1 + \cdots + \lambda_n x_n). \quad (14)$$

The formula for the volume of information is improved accordingly, as shown in the following equation:

$$I(S_1, S_2, \ldots, S_m)' = -\log_2 \sum_{i=1}^{m} P_i^2. \quad (15)$$

The improved information quantity formula is applied, and the classification accuracy of the interactive virtual reality genetic algorithm classifier changes as a result. Hence, on the basis of previous equation the information entropy formula can be modified, as shown in the following equation:

$$E(A)' = \sum_{j=1}^{m} \frac{|S_{1j} + S_{2j} + \cdots + S_{nj}|}{|S|} \times \left( -\log_2 \sum_{j=1}^{m} P_{1j}^2 + P_{2j}^2 + \cdots + P_{nj}^2 \right). \quad (16)$$

In the previous equation, $P_j$ stands for the set of samples in the subset $S_j$ that are included in the category $C_i$, and $(|S_{1j} + S_{2j} + \cdots + S_{nj}|/|S|)$ stands for the weight of the $j$th subset.

*4.2. Optimization of Information Gain.* In the process of increasing the training set, the interactive virtual reality genetic algorithm also changes significantly, and the number of examples increases during the process of tree establishment, the mutual information of individual features and the interactive virtual reality genetic algorithm will be transformed, which will influence the learning process of the subsequent data sets [13].

In the process of interactive virtual reality genetic algorithm, the amount of information is used as is the criterion for detecting attributes. In the interactive virtual reality genetic algorithm, the information gain is replaced by the Gini metric, and the performance after the replacement is more desirable than the former. The data set $S$ Gini($S$) for a data set containing classes is shown in the following equation:

$$\text{gini}(s) = 1 - \sum p_j \cdot p_j. \tag{17}$$

In the previous equation, $p_j$ stands for the frequency of the $j$th type of data in S, and Gini increases proportionally to the information gain.

The most prominent defect of the interactive virtual reality genetic algorithm is that the interactive virtual reality genetic algorithm is unstable. In this article, the relevant improvements are made based on the operation. Compared with the operation of Gini, the detection indicator of Gini selects the minimum value of Gini. The modified method for dealing with the above problem is based on the Gini split indicator, in which the smallest residual value is selected as the new indicator for attribute selection, and the original information gain is supplemented accordingly.

The improved formula for the information gain is shown as follows:

$$\text{gain}_{\text{left}} = 1 - \text{gain}(A)' = 1 - \frac{I(S_1, S_2, \ldots, S_m) - aE(A)}{m}. \tag{18}$$

In the previous equation, $a$ stands for the attribute priority value, which takes values in the range of (0,1].

The minimum value $\text{gain}_{\text{left}}$ is selected as the new test attribute benchmark, which can not only solve the problem that the interactive virtual reality genetic algorithm easily accepts attributes with multiple fetched values, but also improve the classification efficiency of the interactive virtual reality genetic algorithm and reduce its instability.

*4.3. Simulation Results.* In this article, simulation experiments are carried out specifically to verify the effectiveness. The computational cost is calculated, and the results are shown in Figure 4.

Subsequently, the optimized interactive virtual reality genetic algorithm is used to construct an optimization model for the effectiveness, and the results are tested in a higher vocational institution for practical effectiveness optimization, as shown in Figure 5.

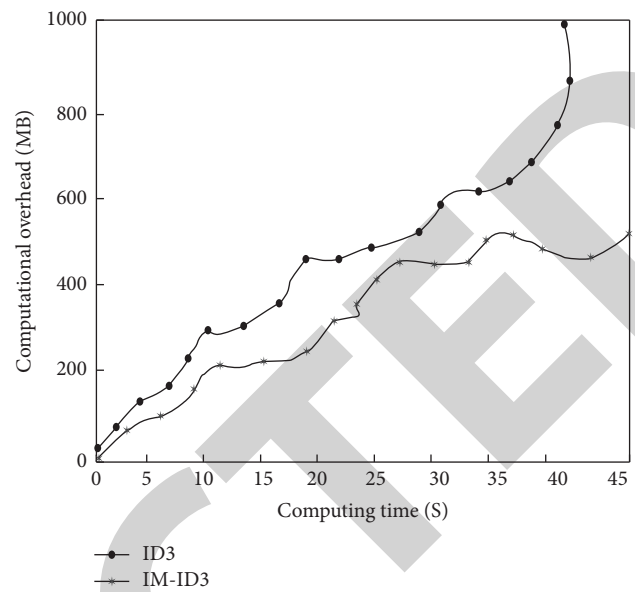


Figure 4: Results of interactive virtual reality (VR) genetic algorithm in optimizing the construction effectiveness of higher vocational business English teaching.

From the simulation experiments, it can be concluded that the above optimization algorithm not only saves computing overhead, but also improves the optimization results of the effectiveness of teaching business English in higher vocational education.

For the purpose of verifying the system performance, the popular business English teaching evaluation systems (HMM system, endpoint detection system, and Audry system) at present are used and compared with the system proposed in this article. The overall control and result output of the system are processed by MATLAB software. The speech models were constructed by business English teaching evaluation and feature extraction of the four systems. The average evaluation rates and evaluation times of the four evaluation systems after 10 training sessions are shown in Table 1.

So far, it can be known that the online English speech teaching evaluation system designed in this thesis has a significantly higher evaluation rate than the HMM system and the endpoint detection system has a slightly higher evaluation rate than the Audry system. In the aspect of evaluation time, the system proposed in this article is almost the same as the HMM system and the evaluation time is significantly less than the Audry system and the endpoint detection system. For the purpose of enhancing the convincingness of a higher evaluation rate of the system proposed in this article than the Audry system 9, the curves are depicted for the evaluation rate of single training business English teaching in the above training group of 10 training sessions, as shown in Figure 6. This has revealed that the evaluation rate of the system proposed in this article is higher than that of the Audry system.

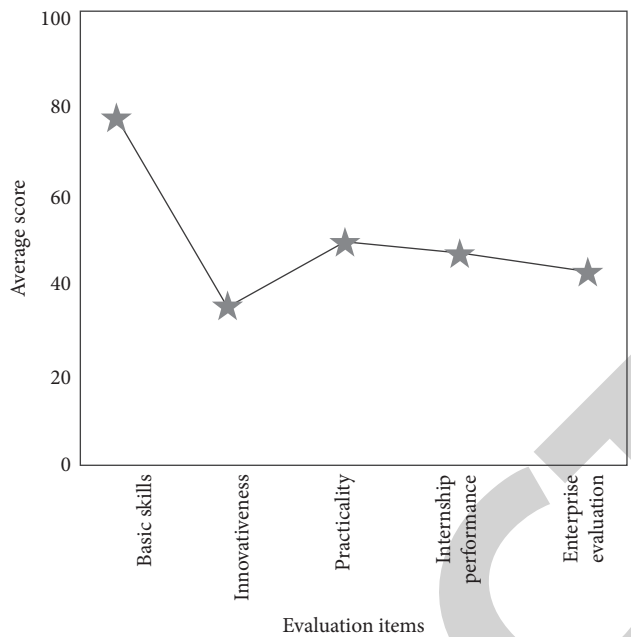


Figure 5: Results of optimizing the effectiveness of higher vocational business English teaching.

Table 1: Comparison results of evaluation systems.

| Serial number of voice model | Endpoint monitoring system | | Audry system | | HMM system | | The system proposed in this article | |
|---|---|---|---|---|---|---|---|---|
| | Evaluation rate (%) | Evaluation time (ms) | Evaluation rate (%) | Evaluation time (ms) | Evaluation rate (%) | Evaluation time (ms) | Evaluation rate (%) | Evaluation time (ms) |
| 1 | 98.253 | 24.569 | 98.776 | 15.698 | 92.125 | 13.698 | 99.818 | 12.635 |
| 2 | 98.126 | 20.119 | 99.123 | 16.002 | 91.003 | 12.589 | 99.268 | 12.964 |
| 3 | 97.663 | 22.369 | 98.695 | 15.289 | 92.535 | 18.216 | 98.968 | 13.563 |
| 4 | 96.595 | 19.848 | 97.664 | 15.669 | 94.216 | 17.625 | 98.901 | 14.536 |
| 5 | 97.212 | 22.147 | 98.013 | 16.987 | 89.215 | 12.336 | 99.053 | 13.684 |
| 6 | 93.214 | 28.693 | 98.096 | 17.002 | 89.336 | 13.528 | 99.525 | 16.279 |
| 7 | 95.113 | 27.629 | 96.215 | 16.592 | 91.025 | 14.256 | 98.773 | 17.061 |
| 8 | 94.126 | 28.139 | 95.125 | 15.365 | 92.216 | 12.693 | 98.693 | 12.113 |
| 9 | 98.001 | 22.169 | 97.662 | 15.841 | 93.114 | 13.547 | 98.525 | 11.986 |
| 10 | 97.629 | 25.551 | 98.218 | 16.035 | 95.216 | 14.006 | 99.147 | 13.516 |
| 11 | 95.365 | 24.336 | 99.003 | 15.256 | 90.963 | 13.694 | 99.981 | 12.589 |
| 12 | 96.333 | 27.219 | 98.675 | 14.969 | 90.003 | 13.546 | 98.927 | 14.369 |
| 13 | 97.125 | 29.329 | 98.762 | 16.259 | 91.326 | 12.589 | 98.796 | 12.654 |
| 14 | 96.123 | 28.647 | 96.251 | 16.576 | 88.779 | 17.216 | 99.669 | 12.156 |
| 15 | 93.655 | 27.664 | 95.796 | 15.295 | 94.252 | 12.697 | 99.785 | 12.954 |
| 16 | 94.558 | 25.125 | 98.256 | 16.286 | 93.251 | 12.254 | 99.367 | 13.816 |
| 17 | 95.216 | 23.958 | 98.698 | 15.321 | 94.105 | 13.664 | 98.864 | 16.021 |
| 18 | 97.001 | 24.569 | 99.126 | 17.069 | 91.189 | 14.654 | 99.125 | 13.624 |
| 19 | 97.921 | 20.325 | 99.331 | 16.696 | 92.336 | 15.329 | 98.138 | 14.941 |
| 20 | 96.129 | 23.693 | 98.276 | 15.643 | 90.017 | 14.369 | 98.714 | 12.694 |

In brief, the online English speech teaching evaluation system 7 designed in this article has some advantages over mainstream business English teaching evaluation systems in the aspect of 5 "recognition rate" and "evaluation time." Hence, the proposed system is highly effective.

## 5. Discussion

*5.1. Adjusting the Teaching Objectives.* The evaluation work of business English teaching competency is influenced by multiple factors, and the experiments and research on business English teaching level are conducted first, and the data system and resource analysis system of business English teaching level are established. Through the application of the combination of information as well as clustering solution to assess business English teaching ability and establishing the objectives and statistical system of English teaching ability evaluation, the quantitative budgeting ability of business English teaching capacity evaluation can be significantly improved. This can be seen from the effect of the sequencing of courses on the

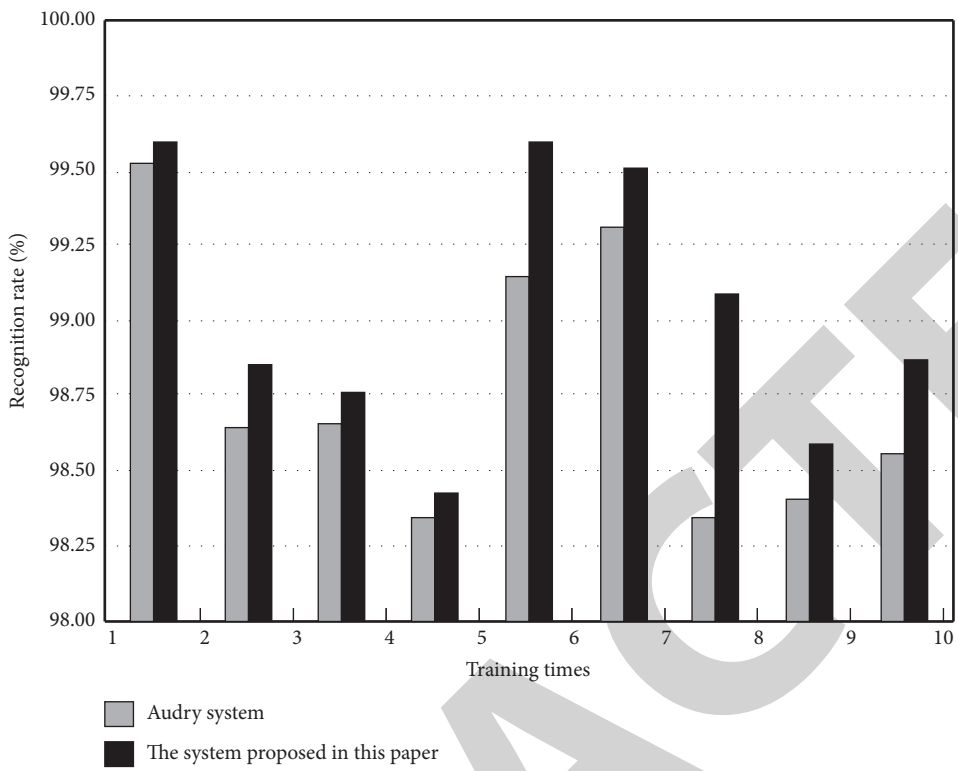


Figure 6: Comparison of the evaluation rates between the Audry system and the system proposed in this article.



rationality of the arrangement of business English classrooms in an institution, and the sequencing of business English classrooms in an institution stands for the feasibility of the whole class schedule in that institution.

*5.2. Enhancing the Design of Optimized Courses for Business English Teaching.* In view of the situation of imprecise classification of traditional international education model and evaluation indicator system competency evaluation calculation, the research scholars proposed the method of indicator system competency evaluation calculation by combining fuzzy greedy calculation method with information. Firstly, the research system of constrained parametric indicators is formed. Subsequently, the capacity of the data and information system is assessed by using the quantitative recursive method to achieve the access to the resources of capacity control features [14, 15]. The evaluation of the evaluation indicator system is completed by classifying and summarizing the indicator parameters, editing the corresponding teaching resource plan, and completing the evaluation of the evaluation indicator system. Using this calculation method to evaluate the international education model and evaluation index system, and to carry out a high degree of integration and analysis of information, can improve the accuracy of resource teaching ability evaluation.

*5.3. Establishing a Sound Teaching Test and Evaluation System.* The optimal evaluation of business English teaching in China has been carried out based on final evaluation for a long time, with final exams and level 4 and 6 exams as the main means of examination, but the evaluation of students' English learning process is relatively neglected. In college English level 4 and 6 exams and English level 4 and 8 exams, emphasis is given to the grades and pass rates. The question type of university English level exams has a great flaw in design. Not only the basic direction of internationalization of university English education is greatly deviated, but also many contents. In particular, business English skills, translation skills, and other aspects of the review of the weakness of our higher vocational education, and the phenomenon of inability to use English for oral communication properly is still relatively serious. Therefore, the current business English teaching requires innovative changes and optimization of the testing and evaluation system.

## 6. Conclusions

In accordance with the above analysis, it can be observed that there are many problems in the optimization process of business English teaching based on the interactive virtual reality genetic algorithm. English teachers in higher vocational education institutions need to carry out reforms in accordance with their teaching level, so as to implement the adjustment and innovation of the previous national teaching programs for business English, effectively enrich the role and function of the optimization of business English teaching, effectively improve the level of international English teaching, and adapt to the internationalization of higher vocational education and the development trend in economic globalization more effectively. In this article, an

optimization model for the effectiveness of higher vocational business English teaching is put forward based on the improved interactive virtual reality genetic algorithm. The corresponding optimization is implemented through a field test conducted in a higher vocational institution, and the countermeasures related to a higher vocational business English teaching are put forward in combination with the model.

## Data Availability

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

## Conflicts of Interest

The author declares no conflicts of interest.

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