



Collaborative CAD for English Translation in the Environment of Multimedia Network Technology

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Abstract. Enhancing pupils' ability to understand English translation is a prominent subject within the realm of English translation instruction and language acquisition. This paper commences by examining the viability of incorporating multimedia-assisted English translation instruction, drawing upon the scaffolding teaching theory of constructivism. It then proceeds to analyze the principles and instructional objectives of translation teaching, ultimately delving into the overarching concept of integrating multimedia teaching into the curriculum for English majors. This paper proposes a set of strategies to address the challenges encountered in English translation instruction within the context of multimedia network technology. A novel algorithm utilizing modern information technology is suggested to estimate the instructional quality of English translation. The teaching evaluation data should be cleaned in accordance with robust association criteria, and any unjustified or erroneous data should be removed. Based on the principles of strong association, an analysis is conducted to determine the significance of each index within the teaching evaluation index system, followed by the optimization of the evaluation index items. Empirical evidence demonstrates that this approach achieves an evaluation accuracy of approximately 95%, surpassing that of conventional methods by approximately 12%. The utilization of this approach for assessing the pedagogical efficacy of English translation exhibits a notable degree of precision and feasibility.

Keywords: Multimedia; Network technology; Collaborative CAD; English translation
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1 INTRODUCTION

The information age provides the possibility for the reform of traditional instructional mode [1]. As a major way of language input, English translation plays an important role in language learning

[2]. In the past, books were the main way of language input for English translation learners. The information age requires the high development of people's knowledge and intelligence. However, the teacher-centered, classroom-centered, and book-centered teaching activities in traditional education can hardly meet the requirements of social development for education [3]. With the development of computer technology, computers have become an important teaching tool in schools. Multimedia technology, which integrates words, sounds, images, and animation, has brought revolutionary changes to English classrooms and brought English classroom teaching into a new realm. The main goal of education should focus on developing people's intelligence and creativity [4]. This puts forward the requirements for how to train students to be good at learning, thinking, and creativity. There are great differences between multimedia teaching and traditional teaching [5]. Teachers present in a three-dimensional way by combining images, sounds, animations, texts, etc., which changes the traditional instructional content and greatly improves teaching efficiency [6].

The utilization of multimedia in education presents an extremely conducive teaching environment due to its distinct benefits of including images, text, audio, and video [7]. The introduction of multimedia has brought about a new era of development in the English classroom. Currently, the integration of multimedia into contemporary education is becoming increasingly prevalent due to its distinct benefits, which are transforming the conventional instructional approach, instructional material, instructional methods, and instructional content [8]. The advent of multimedia has provided an unparalleled boost to education, introducing a novel avenue for leveraging multimedia technology to enhance the quality of education [9]. To ensure the seamless advancement of numerous reform projects in the information and technology-based multimedia environment, it is imperative that we fully utilize contemporary educational technology for English translation instruction and self-directed learning [10]. Hence, the pedagogical approach to English translation is characterized by a greater emphasis on structured training, a tailored learning experience, and a steady enhancement of the teaching and learning outcomes in English translation through the utilization of multimedia networks [11]. Nevertheless, it is important to acknowledge that while acknowledging the beneficial impact of multimedia in the context of English translation instruction, it is crucial to recognize that multimedia alone does not constitute the primary component of teaching. Instead, multimedia should not be equated with the authentic teaching process. Furthermore, it is exceedingly challenging to attain the intended teaching objectives solely through the utilization of multimedia [12]. If teachers lack a comprehensive understanding of the knowledge and material in the classroom and students are not provided with sufficient time for meaningful conversation and involvement during multimedia teaching, these issues will ultimately impact the effectiveness of the teaching [13]. Consequently, this study develops an English translation instructional quality evaluation system by drawing upon research conducted in the field of English translation teaching within the context of multimedia network technology. The innovations can be categorized as follows:

1. This paper aims to examine the problems of English translation teaching in the environment of multimedia network technology and uses the methods of questionnaire survey, interview, literature review, etc. Based on behaviorism and constructivism, this paper discusses the application of multimedia in English translation teaching and the effect of multimedia teaching. And put forward some tentative measures to solve the problems in teaching multimedia English translation.

2. Aiming at the problems of inaccurate classification and identification accuracy of mega data information in traditional instructional quality evaluation algorithms, this paper proposes a new algorithm for English translation. This method quantitatively solves the instructional quality evaluation problem influenced by many factors. The results show that this method has good information fusion and analysis ability in evaluating the instructional quality of English translation.

It can effectively improve the accuracy of instructional quality evaluation and the application efficiency of instructional resources.

The organizational structure of this paper is as follows. This paper is divided into five parts. The first chapter introduces the research background and significance of this paper. The second chapter summarizes the domestic and foreign literature and gives this paper's research work and methods. The third chapter is divided into two parts. Section 3.1 discusses modern educational technology and multimedia English translation teaching design. Section 3.2 constructs an English translation instructional quality evaluation system and gives a concrete implementation process. The fourth chapter is the experimental part. In this part, many experiments are carried out, and the results are analyzed and discussed. The fifth chapter summarizes this paper's research work and achievements, and it looks forward to future research directions.

2 RELATED WORK

The educational purpose, educational significance, instructional contents, instructional modes, and teaching techniques of each era are developing with the development of social productive forces. With the advent of the information technology era, people put forward new requirements for English translation teaching and, at the same time, promoted the popularization and application of multimedia English teaching. Temple B et al. proposed a neural network-based English translation teaching ability estimation method [14]. Kahlon N K et al. established a mathematical model of the instructional quality evaluation system using the neural network method [15]. Regnart J et al. elaborated on the definition and characteristics of multimedia-assisted teaching in modern educational technology and gave an overview of the development and application of multimedia teaching in education at home and abroad [16]. Dahler-Larsen P et al. investigated the situation of multimedia teaching in English translation teaching. Through this investigation, exploratory and effective solutions are proposed to help English teachers improve multimedia teaching strategies, improve instructional quality, and give full play to students' learning initiatives [17]. Moodie I et al. pointed out that using the existing teaching evaluation data to predict the teaching effect of teachers and rationally arrange teacher resources is not only very important work but also one of the problems to be solved [18]. Hafner C A et al. showed through investigation that teachers basically mastered basic multimedia technology and could independently produce teaching courseware, but it was difficult to deal with animation and video editing in the production process [19]. Mcgee A et al. studied how to apply multimedia-assisted English translation teaching in English translation teaching [20]. Hayashi Y et al. pointed out that most of the evaluation methods for teachers' instructional quality are based on the combination of the evaluation of department leaders, directors of teaching departments, and supervisors and the evaluation of students. The value of each evaluation index is evaluated by simple mathematical operations to evaluate a teacher. Teaching effect. However, the accuracy and authenticity of the evaluation results of this method are low [21]. Santos D and others believe that the English translation teaching assistant software is becoming more and more mature and constantly enriched, and the English professional teaching software has yet to be developed and improved. The instructional contents and instructional modes of English majors also need to be changed urgently [22]. According to the survey by Porto M et al., the use of multimedia instructional content can improve teaching effect by 37.9% and save teaching time by 36.5% compared with ordinary instructional content [23]. Moodie I and others pointed out that multimedia-assisted English translation teaching has added a lot of color to our classrooms, and it is indeed of great help to college English learning. But there are also a series of urgent problems to be solved [24]. Wolf S D et al. focused on the role of multimedia in the teaching of English listening, English conversation, English reading, and English writing [25].

3 METHODOLOGY

3.1 Modern Educational Technology and Multimedia English Translation Teaching Design

The two major research objects of modern educational technology include the learning process and learning resources. The learning process refers to the cognitive process in which learners learn new knowledge and master new skills. Learning resources refer to the information, personnel, teaching materials, technology, and environment that can be used by learners to help and promote their learning [26]. In the combination of words and pictures, under the rendering of audiobooks, animation, and video materials, English translation teaching will fully mobilize students' subjectivity with its distinctive teaching characteristics, rich instructional resources, and vivid situations. Multimedia can integrate English pictures, words, sounds, animations, and videos to stimulate students' senses in all aspects of English teaching, make English learning content come alive, meet students' learning interests and requirements, and strengthen the appeal of English translation teaching [27]. At the same time, multimedia can make the presentation of instructional content more stereoscopic, deepen students' impressions and understanding of what they have learned, and make English translation teaching more efficient. According to the practical application and concept of multimedia teaching, it can be concluded that multimedia teaching has three basic characteristics: diversity, integration, and interactivity. Diversity refers to the variety of information types. Integration mainly includes two aspects: first, entity integration of stored information; second is the carrier integration of information. Interactivity is the main difference between multimedia and one-way information-providing means such as TV and movies. Multimedia plays a unique role in changing traditional instructional contents and learning methods, adjusting classroom atmosphere, creating learning situations, and stimulating learning interest. Initially, linguistic aspects of the English text are meticulously examined to capture nuances, context, and intended meaning from the source material. Simultaneously, an in-depth assessment of visual components, Collaborative CAD, is conducted to ensure relevance and alignment with the textual content. Diversity refers to the variety of information types. Integration mainly includes entity integration of stored information and the carrier integration of information. Interactivity is the main difference between multimedia and one-way information-providing means such as TV and movies. Multimedia uniquely changes traditional instructional content and learning methods, adjusts classroom atmosphere, creates learning situations, and stimulates learning interest.

The English translation is an applied subject, and teaching in a real or simulated language environment is more suitable for the characteristics of this subject. Translation classroom teaching should accomplish five tasks: first, to stimulate thinking activities. The second is practical operation guidance. Third, theoretical research guidance. The fourth is to guide students in understanding the original text, properly handling and adjusting their own translations, Paying attention to the expressive methods of translation, and thinking about the principles of translation expressionism. Fifth, it guides students in understanding translation, paying attention to the ontology of translation, and scientifically reflecting the translator's "self-worth" in the actual translation process. However, traditional foreign language teaching mainly focuses on formal learning in the classroom and mainly relies on indoctrination to organize teaching. As a result, both teachers and students bear a heavy burden. Multimedia English translation teaching has the characteristics of a large amount of information, large capacity, time-saving, and high quality, which saves the writing time in traditional English translation teaching. Teachers can show more learning content to students through multimedia-assisted instructional resources.

Modern educators integrate voice technology, image technology, and video technology with computer technology as the central medium. Convert voice, image, text, and other signals into digital signals, which are stored, processed, converted, and output by computer. The richness of its resources makes multimedia superior to other instructional resources. In fact, in the

information education environment, if teachers can make full use of a lot of media, they will no longer struggle to "explain" and "analyze" the teaching materials as clearly and thoroughly as before. Interactive participation is integrated into the process of multimedia English translation teaching, and students have the opportunity to participate in it and express their opinions in English. English learning becomes more active, and students create a reflective learning environment, which is conducive to the formation of new cognitive structures. The formation of any instructional model and the implementation of teaching reform are inseparable from the guidance of correct teaching theory. The classroom teaching practice of multimedia translation is mainly based on the scaffolding teaching theory of constructivism. Through investigation and analysis, the comparison of students' learning autonomy before and after using traditional teaching and multimedia instructional content is shown in Table 1.

<i>Evaluate your learning autonomy.</i>	<i>Before the translation course starts (%)</i>	<i>After the translation course(%)</i>
<i>1. Very strong</i>	<i>18.2</i>	<i>49.6</i>
<i>2. General</i>	<i>66.3</i>	<i>42</i>
<i>3. Not strong</i>	<i>11.4</i>	<i>6.9</i>
<i>4. Very bad</i>	<i>3.6</i>	<i>1.5</i>
<i>5. Other</i>	<i>0.5</i>	<i>0</i>

Table 1: Comparison of Students' Autonomous Learning.

Multimedia in the classroom has fundamentally changed the role of teachers from "acting" at the front desk to "guiding" at the back desk, focusing on preparing lessons in advance. This makes teachers have to study teaching materials deeply and put more energy into providing students with rich and orderly learning materials, creating the best learning situation for students, mobilizing students' learning interest, enthusiasm, and initiative, and organizing students to go deep into the learning process to think and explore. It can enable students to study happily and consciously in a lively atmosphere and maximize their enthusiasm and initiative. Moreover, teachers, students, students, and students can communicate with each other through the computer network so that teaching and learning activities are no longer limited to the classroom. Subsequently, a harmonious integration of linguistic and visual elements takes place. Collaborators and multimedia specialists collaborate to synchronize the translated English text seamlessly with the corresponding 2D and 3D imagery. This process surpasses mere literal translation, striving to craft a unified and engaging narrative that effectively combines language and visuals. Attention is devoted to maintaining consistency in style, tone, and visual aesthetics, resulting in a polished and cohesive final product.

3.2 The Construction of English Translation Instructional Quality Evaluation System

At present, instructional quality evaluation has formed several models, but at the same time, there are many problems, such as the authenticity of teaching evaluation data and the rationality of the evaluation system. In traditional evaluation, the relationship between the input and output of the evaluation system is not necessarily a simple linear relationship because of the deviation and subjective reasons of the evaluators' grasp of the standard. Therefore, it is inevitable that the evaluation results by this method will be quite different from the actual situation, which will reduce the accuracy and authenticity of the results. Under the background of high-quality education development, promoting the transformation and development of English translation education needs to form a differentiated evaluation system based on existing theories. Establishing an

excellent instructional quality evaluation mechanism is conducive to stimulating teachers' enthusiasm and strengthening the construction and scientific management of teachers. Therefore, finding the mathematical relationship between input and output is necessary to determine a scientific, reasonable, qualitative, and quantitative evaluation method. The functions of the multimedia English translation instructional quality evaluation system are shown in Figure 1.

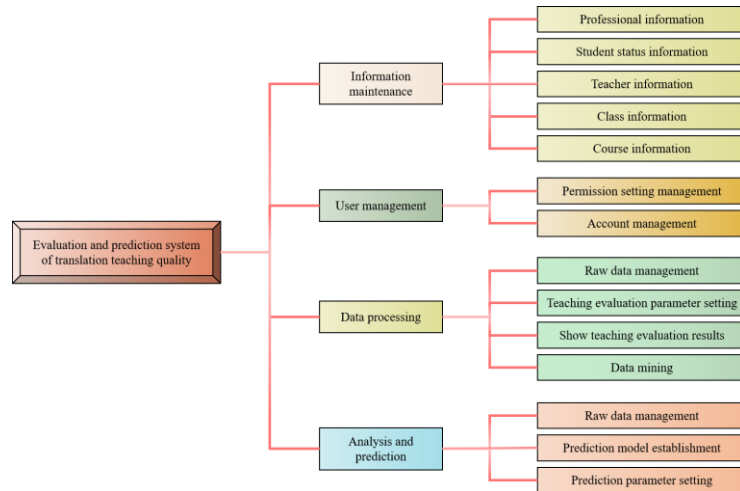


Figure 1: Functional diagram of the multimedia network English translation instructional quality evaluation system.

The instructional quality evaluation system can enable teaching management departments to make full use of reasonable teaching evaluation results and make scientific decisions, which can provide the basis for curriculum construction and teaching staff construction to formulate effective measures. When evaluating teachers' instructional quality, of course, the more factors to consider, the better. However, if there are too many factors, it will be more difficult to evaluate. Based on the aforementioned example, the evaluation elements can be categorized into many components, including teaching attitude, instructional content, teaching outcomes, and others. When assessing the instructional quality of teachers, it is imperative to thoroughly examine all contributing factors and make informed decisions for each factor. This entails integrating factors that share similar influences and appropriately considering the distribution breadth and representativeness of these factors. Factor analysis seeks to investigate the inherent interdependence among several variables while minimizing the loss of information from the original variables. The overarching framework of factor analysis is as follows:

$$\begin{cases} x_1 = a_{11}f_1 + a_{12}f_2 + \dots + a_{1m}f_m + \varepsilon_1 \\ x_2 = a_{21}f_1 + a_{22}f_2 + \dots + a_{2m}f_m + \varepsilon_2 \\ \dots \\ x_p = a_{p1}f_1 + a_{p2}f_2 + \dots + a_{pm}f_m + \varepsilon_p \end{cases} \quad (1)$$

Using the quantitative recursive analysis method, the K nearest neighbor sample values of the output index distribution data information flow of the English translation instructional quality assessment are obtained:

$$P_{1j} = \sum_{d_i \in KNN} Sim(x, d_i) y(d_i, C_j) \quad (2)$$

The inter-domain classification objective function of distributed data information flow for English translation instructional quality evaluation is constructed using data information fusion. That is, the data clustering objective function is:

$$J_m(U, V) = \sum_{k=1}^n \sum_{i=1}^c \mu_{ik}^m (d_{ik})^2 \quad (3)$$

Quantitative analysis of the index correlation distribution sequence $\{x_n\}_{n=1}^N$ of the English translation instructional quality assessment studied, combined with the K value optimization method, the quantitative recursive feature extraction results of the instructional quality assessment are obtained as follows:

$$x_n = a_0 + \sum_{i=1}^{MAR} a_i x_{n-i} + \sum_{j=0}^{MMA} b_j \eta_{n-j} \quad (4)$$

In the formula: a_0 is the sampling amplitude of the initial English translation instructional quality assessment; x_{n-i} is the scalar time series; b_j is the oscillation attenuation value of the English translation instructional quality assessment. Let the j th index value of x be t_j . assumed:

$$a_{j0} > a_{j1} > a_{j2} \dots > a_{jK} \quad (5)$$

Order:

$$b_{jK} = \frac{a_{jk-1} + a_{jk}}{2} \quad k = 1, 2, 3, \dots, K \quad (6)$$

$$\text{the } d_{jk} = \min(|b_{jk} - a_{jk}|, |b_{jk+1} - a_{jk}|) \quad k = 1, 2, 3, \dots, K - 1 \quad (7)$$

Determine the single-index attribute measurement function $\mu_{xjk}(t_j)$ as follows:

$$\mu_{xj1}(t_j) = \begin{cases} 1 & a_{j1} + d_{j1} < t_j \\ \frac{|t_j - a_{j1} + d_{j1}|}{2d_{j1}} & a_{j1} - d_{j1} \leq t_j \leq a_{j1} + d_{j1} \\ 0 & t_j \leq a_{j1} - d_{j1} \end{cases} \quad (8)$$

$$\mu_{xjk}(t_j) = \begin{cases} 0 & a_{jk-1} + d_{jk-1} < t_j \\ \frac{|t - a_{jk-1} - d_{jk-1}|}{2d_{jk-1}} & a_{jk-1} - d_{jk-1} \leq t_j \leq a_{jk-1} + d_{jk-1} \\ 1 & a_{jk} + d_{jk} < t_j \leq a_{jk-1} - d_{jk-1} \\ \frac{|t - a_{jk} + d_{jk}|}{2d_{jk}} & a_{jk} - d_{jk} \leq t_j \leq a_{jk} + d_{jk} \\ 0 & t_j \leq a_{jk} - d_{jk} \end{cases} \quad (9)$$

$$\mu_{xjK}(t_j) = \begin{cases} 1 & t_j < a_{jK-1} - d_{jK-1} \\ \frac{|t - a_{jK-1} - d_{jK-1}|}{2d_{jK-1}} & a_{jK-1} - d_{jK-1} \leq t_j \leq a_{jK-1} + d_{jK-1} \\ 0 & a_{jK-1} + d_{jK-1} < t_j \end{cases} \quad (10)$$

Teachers' quality and teachers' quality evaluation include evaluating teachers' pre-employment situation, evaluating teachers' teaching situation after their employment, and evaluating teachers' employment guidance when students graduate. This system adopts a three-tier architecture divided into two parts: the management background and the client. The form is the combination of C/S and B/S mode. Raw data processing and evaluation selection, because of strong interactivity, a large amount of data processing, flexible data processing requirements, relatively fixed location, and high-security requirements, adopt C/S architecture. The constraint index parameters of English translation instructional quality are a set of nonlinear time series. This paper constructs a high-dimensional distribution model of parameters and indicators to express English proficiency assessment in feature distribution space. Some independent variables of the model have no effect, and some independent variables overlap with other independent variables, increasing the amount of calculation and reducing the estimation of model parameters and prediction performance.

Therefore, it is necessary to choose important independent variables among many factors and establish a reasonable, simple, and practical regression model. The model of the English translation instructional quality evaluation system is shown in Figure 2.

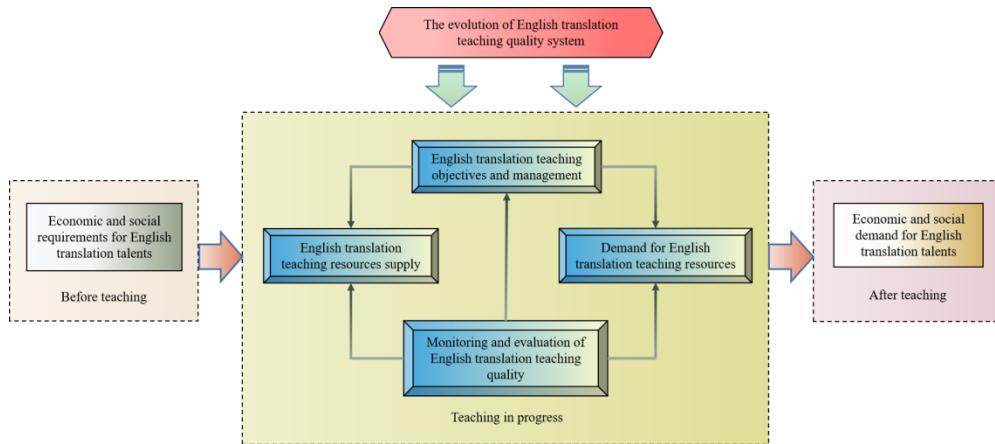


Figure 2: Model of English translation instructional quality evaluation system.

The evaluation set directly describes the evaluation results of teachers' instructional quality. To explain the evaluation results of a teacher on a particular factor, the evaluation results can be divided into four grades: excellent, good, qualified, and unqualified. In most practical problems, only one factor can influence the dependent variable change. Usually, there are many influencing factors, so it is necessary to use many influencing factors as independent variables to explain the change of dependent variables. This is multiple regression, also known as multiple regression. A nonlinear problem can be transformed into a linear problem using variable transformation, so most issues can be solved using linear regression.

4 RESULT ANALYSIS AND DISCUSSION

In order to verify the performance of the multimedia network, this paper constructed an English translation instructional quality evaluation system. This chapter conducts simulation experiments. Firstly, this paper preprocesses the obtained data. Data preprocessing is to obtain purified data needed by data mining under the data mining environment. It includes data integration, data selection, and data cleaning. Get relevant information about teachers from this system, including teacher number, name, gender, age, teaching experience, education background, professional title, and other data. Among them, the number and name of the teacher obviously have nothing to do with the prediction and evaluation of teaching, so they are directly removed. Then, the personnel data corresponding to the cleaned dirty data will be removed, and finally, a database will be formed for constructing teaching evaluation and prediction. The sampling frequency is 600Hz, the adaptive initial step size is 0.97, and the correlation coefficient of the feature distribution of instructional resources is 1.14. According to the above parameters, the data reconstruction of the constraint parameters of English translation instructional quality evaluation is carried out. The raw data of instructional quality evaluation are shown in Table 2. The binary data of instructional quality evaluation results are shown in Table 3.

<i>Record</i>	<i>Competence</i>	<i>Attitude</i>	<i>Way</i>	<i>Content</i>	<i>Result</i>
<i>Scoring record 1</i>	<i>Good</i>	<i>Good</i>	<i>Good</i>	<i>Bad</i>	<i>Bad</i>

<i>Scoring record 2</i>	<i>Bad</i>	<i>Bad</i>	<i>Good</i>	<i>Bad</i>	<i>Good</i>
<i>Scoring record 3</i>	<i>Good</i>	<i>Good</i>	<i>Good</i>	<i>Good</i>	<i>Good</i>
<i>Scoring record 4</i>	<i>Good</i>	<i>Bad</i>	<i>Bad</i>	<i>Good</i>	<i>Bad</i>
<i>Scoring record 5</i>	<i>Bad</i>	<i>Good</i>	<i>Good</i>	<i>Bad</i>	<i>Good</i>
<i>Scoring record 6</i>	<i>Bad</i>	<i>Bad</i>	<i>Good</i>	<i>Good</i>	<i>Good</i>
<i>Scoring record 7</i>	<i>Bad</i>	<i>Good</i>	<i>Good</i>	<i>Good</i>	<i>Good</i>
<i>Scoring record 8</i>	<i>Good</i>	<i>Good</i>	<i>Bad</i>	<i>Bad</i>	<i>Bad</i>
<i>Scoring record 9</i>	<i>Bad</i>	<i>Bad</i>	<i>Good</i>	<i>Bad</i>	<i>Good</i>
<i>Scoring record 10</i>	<i>Good</i>	<i>Good</i>	<i>Bad</i>	<i>Good</i>	<i>Good</i>
<i>Scoring record 11</i>	<i>Bad</i>	<i>Bad</i>	<i>Good</i>	<i>Good</i>	<i>Good</i>
<i>Scoring record 12</i>	<i>Good</i>	<i>Good</i>	<i>Good</i>	<i>Bad</i>	<i>Bad</i>

Table 2: Instructional quality.

<i>TID</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>0</i>	<i>0</i>
<i>2</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>0</i>	<i>1</i>
<i>3</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>
<i>4</i>	<i>1</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>0</i>
<i>5</i>	<i>0</i>	<i>1</i>	<i>1</i>	<i>0</i>	<i>1</i>
<i>6</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>1</i>	<i>1</i>
<i>7</i>	<i>0</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>
<i>8</i>	<i>1</i>	<i>1</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>9</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>0</i>	<i>1</i>
<i>10</i>	<i>1</i>	<i>1</i>	<i>0</i>	<i>1</i>	<i>1</i>
<i>11</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>1</i>	<i>1</i>
<i>12</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>0</i>	<i>0</i>

Table 3: Binary data of instructional quality evaluation results.

The main purpose of data cleaning is to remove "noise" and irrelevant information in the data set. In the raw data collected by data, there are also some quality problems, such as missing values, noise, and inconsistency. For these problems, because there are many situations, different methods are adopted according to various conditions. Whether the importance value is adequately selected directly affects the comprehensive evaluation result. Because in the factor analysis, the correlation among teachers' elemental potential energy, instructional contents, content timeliness, teachers' attitude, data selection, classroom distribution, teaching optimization, and education effectiveness has been exhausted theoretically through orthogonal rotation, so the variables in the initial model of the structural equation are set as irrelevant. To verify the performance of this algorithm, we use recall rate and mean absolute error to compare this algorithm, the classical

algorithm, and the Apriori algorithm. The recall results are shown in Figure 3. The absolute error comparison is shown in Figure 4.

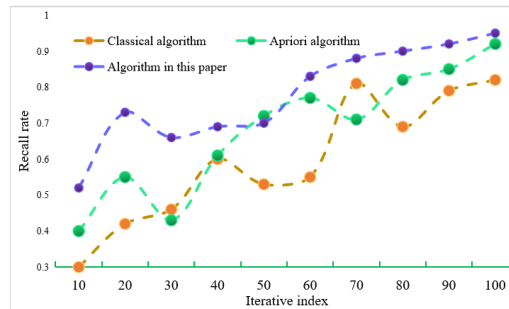


Figure 3: Comparison of recall results.

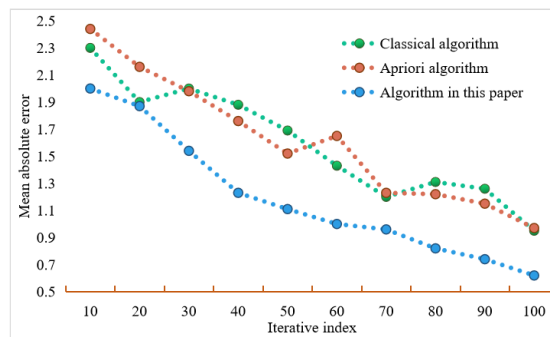


Figure 4: Comparison of mean absolute errors.

It can be seen that the recall rate of this algorithm is high, and the average absolute error is low. It is divided into two parts: one part is called the training set, which is used for model training; The other part is the test set, which is used for testing and verification. A well-defined training verification protocol is needed to ensure the model's accuracy and robustness. Take 5% to 33% of the original data for test data. The utilization rate of instructional resources for different methods is shown in Figure 5.

According to the number of parameters to be estimated and the number of observable variables in the model, the model can be divided into non-matching, only matching, and over-matching. The number of parameters to be estimated is greater than the number of equations obtained by the sample, which cannot be matched, and an infinite number of parameters can be obtained. The number of parameters to be estimated is precisely equal to the number of equations, which is just a match, and only one parameter estimation value can be obtained. In this paper, the algorithm reduces the access to the database during pruning and the generation of new duplicates during the union, thus improving the running efficiency. The calculation time of this algorithm is compared with that of the classical algorithm and the Apriori algorithm, as shown in Figure 6.

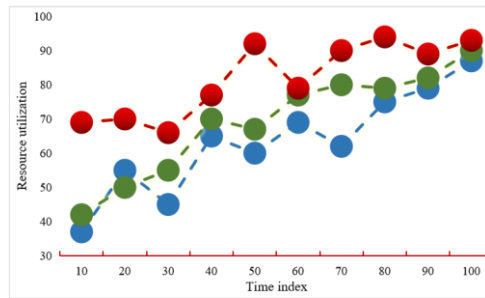


Figure 5: Instructional resource utilization of different methods.

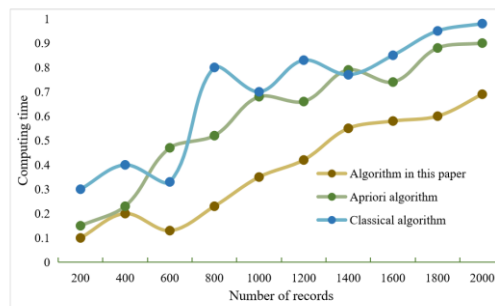


Figure 6: Algorithm time comparison chart.

The aperiodic continuous-time signal uses the Fourier transform to calculate the continuous spectrum of the signal, but the discrete sampling values of the continuous signal are obtained in the actual control system, so the discrete sampling values of the continuous signal should calculate the signal spectrum. Using strong association rule evaluation to analyze the teaching evaluation index. Suppose there is a strong association rule that can deduce whether the teaching evaluation result is good or bad. In that case, every item in the combination of indicators in the association rule is essential and reasonable. Otherwise, it is unimportant so that it can be modified or deleted. Figure 7 compares the accuracy of instructional quality assessment using different methods.

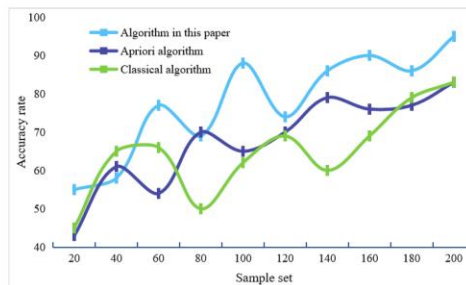


Figure 7: Comparison of the accuracy of instructional quality assessment of different methods.

By analyzing the data in the figure, we know that the accuracy of instructional quality evaluation by this method is higher than that of the other two methods. This method has a specific superior performance. This method is applied to the evaluation of instructional quality, which scientifically avoids the fact that the cumulative variance contribution rate of common factors is used as the weight coefficient in factor analysis. In contrast, the common factors are easily influenced by the number of selected indicators, which will affect the stability of the evaluation results. Experimental results show that the evaluation accuracy of this method can reach about 95%, which is about 12% higher than traditional methods. Evaluating the instructional quality of English translation with this method is accurate and practical, and it provides more decision-making support information for the teaching department to improve the instructional quality.

5 CONCLUSIONS

Multimedia teaching, a significant advancement in the realm of curriculum reform, has emerged as a result of the integration of contemporary teaching technologies, particularly in the context of English translation instruction. Multimedia-assisted instruction offers a comprehensive educational setting and robust instructional resources to facilitate students' learning and growth. This research proposes a set of strategies to address the issues present in multimedia English translation instruction. By incorporating contemporary, sophisticated information technology into the English curriculum, students can enhance their capacity to engage in knowledge exploration, information acquisition, independent study, critical thinking, and fostering an inventive mindset. In the development of instructional resources for English translation with multimedia assistance, educators have the opportunity to leverage multimedia technology in order to construct authentic life scenarios for students during classroom instruction. Enhance pupils' understanding by employing visual and aural stimuli to construct meaning. This work introduces a constraint parameter index analysis model for evaluating instructional quality. It employs a quantitative recursive analysis method to assess the effectiveness of the data information model. The experimental findings demonstrate the precision and feasibility of assessing the instructional efficacy of English translation using this approach. This method achieves an evaluation accuracy of approximately 95%, surpassing traditional methods by approximately 12%. This approach significantly enhances the efficiency of utilizing instructional resources for English translation. The index system employed in this study is solely the first-level index system, given the constraints imposed by the limited information and experience presented in this work. We will conduct additional research on the second-level index system in order to enhance the optimization of the teaching evaluation index system's content.

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