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Retraction

Retracted: The Development Strategy of the Multimedia Fusion Mode of Big Data Technology in Japanese Translation Teaching

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1].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] W. Qian, "The Development Strategy of the Multimedia Fusion Mode of Big Data Technology in Japanese Translation Teaching," *Advances in Multimedia*, vol. 2022, Article ID 9408108, 11 pages, 2022.

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Research Article

The Development Strategy of the Multimedia Fusion Mode of Big Data Technology in Japanese Translation Teaching

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With the in-depth development of economic globalization, the connection and communication between China and other countries in the world are increasingly deepened, so the task of cultivating translation talents in various languages is particularly important. In the teaching process, teachers mainly focus on explaining theoretical knowledge and lack of classroom interaction, resulting in a boring and dull classroom atmosphere. At the same time, it does not pay attention to the practice of translation after class and often pays attention to interpretation and neglects written translation, which leads many students to think that Japanese translation is difficult and boring, which greatly reduces students' enthusiasm for learning. In view of this situation, the application of multimedia technology in Japanese translation teaching proposes that the application of multimedia technology in Japanese teaching can improve the interest of students in Japanese learning and improve the teaching effect of Japanese teaching. Firstly, this paper constructs a logistic semantic ontology model based on automatic calibration of Japanese translation, extracts Japanese semantic features through this model, and performs relational mapping on the extracted Japanese semantic features. Starting from each aspect, optimize the automatic calibration algorithm of Japanese translation, find the best semantic relevance feature in each sentence, and realize automatic optimization, thereby improving the automatic calibration of Japanese translation machines and the registration of subject words.

1. Introduction

At present, with the continuous development of society, informatization has become an inevitable trend. Introducing multimedia teaching into Japanese translation teaching is an important measure. Computer knowledge and multimedia-assisted teaching was used to build a multimedia foreign language teaching system. Its contribution to Japanese teaching is also eye-catching. Currently, many universities are actively researching virtual reality technology and establishing relevant system simulation research rooms, striving to provide students with a vivid and realistic learning environment, consolidate learning theory, deepen knowledge connotation, and greatly promote students' knowledge understanding.

The application of multimedia technology in Japanese translation teaching is mainly divided into three parts: pre-class preparation, classroom teaching, and students' autonomous learning [1]. First of all, teachers should prepare well in advance and design the teaching content before conducting the translation course [2]. Teachers can simulate the scene, query the correct expression and vocabulary translation methods on the Internet in advance, and determine the content of classroom teaching [3].

In the process of collecting materials and making courseware, teachers can prepare more pictures, videos, and other materials, which can increase students' sensory awareness and enhance the interest of the classroom [4]. In addition to the compulsory content of the course, teachers can also prepare some extracurricular content in advance to expand students' knowledge [5]. For example, some Japanese translation training videos allow students to follow the training, which not only improves students' listening and speaking skills but also exercises students' translation skills [6]. Secondly, in the process of translation classroom teaching, new media technology can play a role in broadening students' horizons, improving classroom activity, and enriching

teaching content [7]. In the classroom, teachers can use multimedia courseware to allow students to carry out various translation exercises, such as listening translation, word-by-word translation, and simultaneous interpretation, etc.; they can also simulate dialogue scenes, allowing students to perform dialogue translation in a set virtual scene [8]. In addition, teachers can use multimedia equipment to record and evaluate students' performance, so that students can truly recognize their own small mistakes and make corrections easily [9]. This can further improve the efficiency of classroom teaching [10]. Finally, students can use multimedia equipment for independent learning [11]. There are very rich teaching resources on the multimedia platform, which provides very good conditions for students to learn Japanese translation independently anytime and anywhere [12]. In addition to completing homework after class, students can also learn what they are interested in independently [13].

In actual teaching, the traditional Japanese translation teaching mode is generally for teachers to explain translation skills, students to conduct Japanese-Chinese and Chinese-Japanese translation exercises, and teachers' evaluation and summary [14]. In this teaching mode, teachers are the main body of teaching activities, and students are in a passive acceptance state, which is not conducive to mobilizing students' learning enthusiasm and cultivating students' innovative thinking [15]. At this stage, it is not ideal for Chinese universities to implement and promote Japanese translation teaching on digital platforms [16]. The problems of "how to teach" and "how to learn" in Japanese translation teaching have not been effectively solved [17]. Under the background of information technology, course teaching should be deeply integrated with information technology, and college Japanese translation teaching should be effectively combined with information technology in order to maximize the teaching level of Japanese translation [18]. At present, many colleges and universities have launched "blended teaching," infiltrating relevant information technology into students on the basis of multimedia teaching, so as to improve students' learning motivation and cultivate more information talents for the society. Multimedia teaching has made a major breakthrough in curriculum innovation and educational form reform. By combining it with independent learning, it promotes students' brain development, improves their thinking ability and self-discipline ability, and achieves various teaching objectives of Japanese translation teaching.

In the knowledge transfer stage, teachers are required to make curriculum-related resource packages [19]. According to the syllabus and teaching materials of the course, teachers sort out the content suitable for course flipped teaching, make course resource packages including PPT, microvideos, animations, exercises, and discussion questions and finally distribute the course resources to students through the online teaching platform Do independent learning [20]. After downloading the course resource package, students conduct self-study to complete online learning tasks and feedback difficult problems encountered in the learning process or homework test results to the teacher. This stage is the first internalization stage of knowledge. The rapid development of information technology has brought many convenient conditions for flipped classroom teaching. Teachers and students can use social networking platforms such as WeChat and QQ to realize activities such as uploading course resource packages, online learning, online discussion, and assignment submission.

At the beginning of the class, teachers organize students to discuss their feedback and answer each other's questions to facilitate the development of inquiry-based learning. In offline discussions, teachers can interact with students, observe students' performance, and conduct group lectures or individual tutoring. After the question-and-answer session, the students entered the classroom practice activities. In classroom practice, the situational simulation teaching method is mainly used to create specific situations for students. Students can simulate a certain position or play a certain role in a group to train Japanese translation skills to achieve the purpose of secondary construction and internalization of knowledge, and then, each group displays the results and finally makes an evaluation summary [21–24].

Let the students correct the problems in the classroom practice scenario simulation, record the video, and upload it to the online platform for display. Students can also be assigned expansion tasks based on their performance in the classroom to consolidate and expand knowledge. The difficulty is slightly higher than classroom tasks, but it will not become a burden for students.

This paper is aimed at studying the application of multimedia technology in Japanese teaching, so as to improve students' interest in learning Japanese and the teaching effect of Japanese teaching. This paper constructs a logistic semantic ontology model based on automatic calibration of Japanese translation, extracts Japanese semantic features through this model, and maps the extracted Japanese semantic features; by optimizing the automatic calibration algorithm of Japanese translation, the best semantic correlation feature in each sentence is found, so as to improve the automatic calibration of Japanese translation machine and the registration of subject words.

2. Materials and Methods

2.1. Overview of Japanese Translation Teaching. Translation teaching is a comprehensive test of students' previous knowledge and abilities in all aspects. Its purpose is to make a qualitative leap in students' ability to use language, especially in translation. Translation is not an isolated subject but has its own systematicness, integrity, and scientificity. The improvement of translation ability depends on many factors. The level of translation not only reflects the grammatical foundation of the translator in the choice of words and sentences but also reflects the logical thinking ability and adaptability of the translator.

Nowadays, the penetration and popularization of modern technology have put forward new ideas and new requirements for the reform of Japanese translation teaching in colleges and universities. Many colleges and universities have begun to explore the teaching methods and methods

of introducing modern technology and make efforts to improve the current situation of Japanese translation teaching. However, in actual Japanese translation, in teaching, there are still many problems in Japanese translation in some colleges and universities, which lead to the phenomenon that the reform of Japanese translation teaching curriculum is not smooth enough, and the effect of improving students' translation skills is not obvious enough.

2.1.1. Neglecting Japanese Translation Teaching. In the current Japanese translation teaching in some colleges and universities, there is a problem that Japanese translation is not taken seriously. The reason is related to the fact that the Japanese translation course has been in the subsidiary position of the Japanese course teaching for a long time. The Japanese translation courses set up by most colleges and universities are only an auxiliary course in addition to the Japanese major courses, similar to elective courses. Some teachers unilaterally believe that the current Japanese major education is still mainly exam-oriented education, and students only need to master the basic theoretical knowledge and basic knowledge of Japanese. The translation skills are enough, and the in-depth study of translation practice can be put into the postgraduate level for further study, so Japanese translation is not paid much attention. Moreover, the Japanese translation classes set up in colleges and universities are also very limited, and it is basically a fantasy for students to master Japanese translation skills in a limited time, which also reflects the phenomenon that Japanese translation teaching is not valued.

2.1.2. Backward Teaching Materials. The content of textbooks is the teaching carrier that college teachers need to rely on to carry out Japanese translation teaching activities. Comprehensive and appropriate textbook content can meet the translation learning needs of students at different levels and can also help students lay a solid foundation of Japanese translation knowledge for the smooth development of social translation activities in the future. Today, some Japanese translation textbooks in colleges and universities are mostly written in the order of translation theory introduction, word translation, sentence pattern interpretation, and practical stylistic translation, which are mainly interspersed with interpretations of translation skills such as straight translation and reverse translation, although they have a certain reference. However, some teachers rely too much on the compilation order and content of reference textbooks in teaching, requiring students to carry out intensive reading and extensive reading exercises according to the requirements of the textbooks, ignoring the development of students' actual translation teaching activities and processes, resulting in the failure of converting textbook theory into actual translation skills. It can be seen that the use of textbooks is not scientific and reasonable.

2.1.3. Inadequate Japanese Teaching Environment. Based on the complexity and diversity of contemporary Japanese translation teaching, when colleges and universities use modern technology to teach Japanese translation, they have not yet created a relatively good Japanese teaching environment for students, so that current students still carry out Japanese translation learning in traditional classrooms. On the one hand, due to the limitations of teaching conditions in colleges and universities, advanced translation, interpretation, and other related teaching equipment have not been purchased, such as simultaneous translation headphones and intelligent voice indicators, students can only rely on the listening content shown in multimedia and audio tapes for translation learning. It greatly limits the flexibility and convenience of students' learning. On the other hand, due to space limitations, some colleges and universities do not provide students with special dubbing rooms and listening practice rooms. Students can only carry out translation exercises in ordinary classrooms, which not only affects the teaching activities of surrounding classes but also is not conducive to the concentration of students in this class. The training of Japanese translation talents requires a large number of internships and studies on various occasions, which requires the concerted efforts of schools, government agencies, and enterprises to provide a large number of orderly internship platforms for students of relevant majors. At present, students' internships are only at the stage of self-seeking.

2.2. Multimedia Teaching. Today's society is in the information age, and the continuous development of multimedia technology, network technology, and artificial intelligence technology promotes the intelligent, multidimensional, and personalized development of modern education. In 2018, the "National Standards for Teaching Quality of Foreign Languages and Literatures," known as the "New National Standard," was promulgated, and new requirements were put forward for the talent training mode and professional characteristics of foreign language majors, and the demand for high-quality compound and applied talents attracted attention. As for the Japanese major, many colleges and universities take strong Japanese language application ability and strong ability to use modern technical means to obtain information and carry out work as one of the goals of talent training. How to use multimedia technology to assist Japanese teaching requires us to carefully analyze and understand the characteristics of Japanese teaching and Japanese learning, so as to effectively find the combination of multimedia technology and Japanese teaching. Foreign languages need to be consolidated and mastered by learners through the combination of mechanical training and speech practice. For example, meaningful speech practice can be carried out through imitation, recitation, and sentence pattern practice. The application of multimedia technology can provide better conditions for students to practice effectively. For example, through learning different multimedia teaching software, students can consciously master the details of Japanese daily conversation and business negotiation under the stimulation of audio and video. Japanese learning needs to improve listening, speaking, reading, writing, and other language application abilities step by step.

The cultivation of students' Japanese translation ability not only exists in Japanese intensive reading class,

Japanese listening class, and other courses but also is taught as a special professional core course in most schools, aiming at cultivating high-quality Chinese Japanese bilingual translation talents. In the context of the Internet era and artificial intelligence, the wide application of computer software and machine-assisted translation has brought great challenges and opportunities to traditional and outdated translation teaching. The teaching mode of Japanese translation also needs to be continuously deepened and reformed to adapt to social development and meet the needs of the industry.

The application of multimedia technology integrating various media resources in the classroom can greatly mobilize the sensory needs of students and stimulate their interest. However, if too much image and sound information is used in the courseware, it will distract students' attention, limit students' thinking and imagination, and reduce learning efficiency. Or relying too much on multimedia technology, ignoring the interaction and information feedback between teachers and students, evolved into a human-machine dialogue in the classroom, ignoring the dominant position of students, and violating the original intention of teaching. Although the traditional teaching mode has weaknesses such as singleness and tediousness, it still has the advantages that multimedia teaching cannot replace. For example, teachers' traditional blackboard writing can highlight key points and difficult points, which is beneficial for students to take notes and strengthen students' memory. Teachers' cultural values, charisma, and rich language arts performance will also affect learners' language experience. While teaching, they educate people silently. No matter how the information technology develops, the real-time emotional communication between teachers and students cannot be replaced by machines. The use of multimedia is to serve the teaching well, in a timely and appropriate amount.

2.3. Optimization of Japanese Translation Teaching Mode in Multimedia Environment. Fundamentally speaking, although the education system has been constantly changed, some teachers in colleges and universities will still adopt more traditional teaching modes and be passive to new teaching methods. Therefore, educators in colleges and universities should fully understand the significance of the network environment for education. What needs to be particularly clear is that the network environment has generally taken shape and will play an indispensable role in the future development of education.

Teachers are the organizers and designers of classroom activities. They should understand the course orientation, formulate teaching plans in general, select and determine suitable teaching methods, implement teaching plans according to actual situations, follow up afterschool homework, and evaluate teaching effects, giving full play to the leading role of the teaching process. The course setting, classroom teaching, evaluation, and feedback of Japanese translation should all aim at cultivating students' translation ability.

2.3.1. Optimize the Curriculum. Prepare for class first. When making multimedia courseware, it is not only based on teaching materials and supporting materials but also from rich network resources such as Japanese learning websites, Japanese news, newspaper materials, and Japanese translation-related databases, to select learning materials suitable for students to enrich the teaching content. The translation materials cover a wide range and focus on professionalism, practicability, and the times, so as to make teaching meet the needs of society. This requires teachers to always pay attention to domestic and foreign events, news, etc., and find relevant materials for my use in time. It is also necessary to supplement the knowledge related to translation, because translation is a language activity that spans time and space. The meaning of a language is expressed in a language, which cannot be separated from the cultural color of the cultural reference language, covering the word layer and phrase layer. And for the paragraph (chapter) level, it is necessary to understand the national culture behind the language and cultivate the translator's cultural analysis and expression ability. When using the collected audio, video, and text data to develop and produce courseware with computer technology, it must conform to the law of language acquisition and stimulate students' senses through pictures, text, and sound and create rich and realistic language situations for students.

2.3.2. Enrich Classroom Teaching Methods. Translation requires the translator to have two-way language expression ability, which is an advanced language conversion activity, which requires planned scientific training. Teachers should use a variety of teaching methods flexibly in the classroom, create a teaching environment that simulates the target language, cleverly design and arrange classroom activities, and integrate theory and practice. When using multimedia-related equipment to carry out teaching, teachers can use Internet and other technologies to collect videos and graphic materials related to Japanese, so as to enrich classroom teaching resources for students. At the same time, watching movies or short stories played by teachers can also help students to truly experience the original Japanese, so that students can learn Japanese culture through immersion, so as to experience the real happiness of Japanese learning. In addition, teachers constantly enrich some historical materials of Japanese culture with the help of Internet technology, which also helps students to learn a language and understand a country in depth, which also plays a very good role in the future development of students.

2.3.3. Improve the Feedback and Evaluation System. In the teaching evaluation of traditional Japanese translation courses, the final assessment of students' learning is often conducted through final course examinations or proficiency examinations to test students' mastery of translation rules and skills. It is unfair to ignore students' classroom performance and homework results. There is a certain lag in evaluation and feedback.

3. Results and Discussion

3.1. Semantic Ontology Mapping Relationship. Figure 1 shows the contextual semantic ontology mapping mechanism for machine translation.

On the basis of the above semantic ontology mapping model, an automatic calibration dictionary library for translation can be constructed according to the ontology diffusion mapping method, and its comprehensive evaluation fuzzy decision function can be obtained. The expression is

$$\left(\xi_{ij}^{+}\cdot\eta_{ij}^{+}\right)=\Delta\left(\frac{\min_i\min_j\Delta^{-1}d\left(\left(r_{ij},a_{ij}\right),\left(r_j^{+},a_j^{+}\right)\right)+\max_i\max_j\Delta^{-1}d\left(\left(r_{ij},a_{ij}\right),\left(r_j^{+},a_j^{+}\right)\right)}{\Delta^{-1}d\left(\left(r_{ij},a_{ij}\right),\left(r_j^{+},a_j^{+}\right)\right)+\rho\max_i\overline{\max_i}d\left(\left(r_{ij},a_{ij}\right),\left(r_j^{+},a_j^{+}\right)\right)}\right),\tag{1}$$

$$\left(\xi_{ij}^{-}\cdot\eta_{ij}^{-}\right)=\Delta\left(\frac{\min\ \min_i\Delta^{-1}d\left(\left(r_{ij},a_{ij}\right),\left(r_j^{-},a_j^{-}\right)\right)+\max_i\max_j\Delta^{-1}d\left(\left(r_{ij},a_{ij}\right),\left(r_j^{-},a_j^{-}\right)\right)}{\Delta^{-1}d\left(\left(r_{ij},a_{ij}\right),\left(r_j^{-},a_j^{-}\right)\right)+\rho\max\ \max_i\Delta^{-1}d\left(\left(r_{ij},a_{iij}\right),\left(r_j^{-},a_j^{-}\right)\right)}\right).\tag{2}$$

In the above formula, ρ represents the similarity feature quantity between domain knowledge models, $\rho\in[0,1]$, usually taking the value of 0.23. If $s_k\in S$ represents the semantic correlation rule feature between ontologies, a generalization mapping function M for automatic translation calibration is constructed.

Combining the above ontology model, define a 5-tuple $O=C,HC,R,I,\{A\}$. The autocalibration concept extension is represented by 2 sets of ontology segments θ. Suppose the translation system is a binary semantic (s_k,a_k), then the fuzzy mapping of the system is

$$\theta:S\longrightarrow S\times[-0.5,0.5],\tag{3}$$

$$\theta(s_k)=(s_k,0),s_k\in S.\tag{4}$$

In the above formula, S represents the language evaluation set and s_k represents a language phrase in the language evaluation set. Equation (4) represents the mapping relationship between a Japanese word and its semantically similar words. $\theta(s_k)$ represents the ontology map of fuzzy semantics.

Based on the above fuzzy semantic ontology mapping relationship, an automatic calibration matching model will be constructed through a differentiated method, and combined with the semantic analysis method, an automatic calibration semantic tree will be constructed. If the relational ontology mapping relationship in translation is expressed as

$$O=\left[C,I,H^{C},R,A\right],\tag{5}$$

$$O'=\left[C',I',H^{C'},R',A'\right].\tag{6}$$

Then, the logical mapping relationship between the two can be expressed as $\longrightarrow\subseteq()$, and the semantic information feature extraction relationship model and maximum correlation feature set between Cs and $C't$ are expressed as $\longrightarrow\supseteq()$ and $\longrightarrow\perp()$, respectively. Based on the above mapping relationship, the semantic mapping ontology and concept tree model of automatic translation calibration can be obtained.

In order to improve the difference between the semantic features and the output results of Japanese machine translation, the semantic features in Japanese translation are clustered based on the logistic chaotic attractor, and the semantic distribution and sentence main features in Japanese translation are analyzed in inscription analysis, constructing a tree-like vocabulary semantic library. Among them, the logistic chaotic model is used to describe the clustered Henon attractor.

$$x_{n+1}=\lambda x_n(1-x_n)x\in[0,1],\lambda\in[0,4].\tag{7}$$

In the formula, $xn+1$ represents the value of the map after iteration, $xn+1$ represents the value of the map after iteration, and λ represents the parameter of the map.

By context matching the attractor with the concept set x of Japanese translation, the concept set distribution model of Japanese translation text features can be obtained, to better adjust and correct the semantic information of Japanese translation. To achieve strong contextual relevance and accurate semantic analysis in Japanese translation, an automatic lexical feature analysis of Japanese translation is carried out based on clustering. If the length of the Japanese semantic sequence to be translated is denoted as N, and the distribution concept set is denoted as x, the column feature vector of $N\times1$ can be obtained, which is denoted as $x(n)\in RN$. By means of associative semantic grouping, the clustering model to obtain Japanese translation is expressed as

$$x=\sum_{i=1}^{N}s_i\psi_i=\psi_s.\tag{8}$$

According to the abovementioned logistic chaotic clustering model, the semantic feature analysis of Japanese machine automatic translation can be realized, and the automatic matching of Japanese vocabulary can be realized.

3.2. Design of Automatic Calibration Algorithm for Japanese Translation. The above mapping relationship can achieve

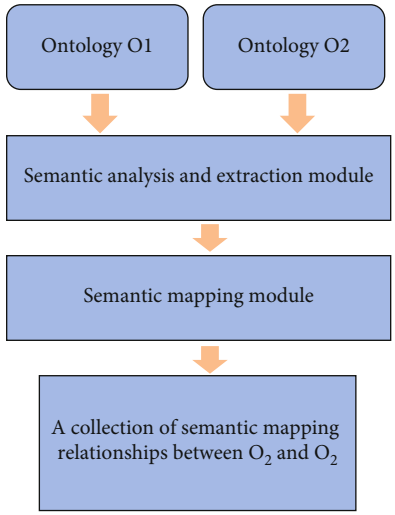


Figure 1: Logistic ontology mapping model.

automatic matching of Japanese translation semantics to a certain extent, but in terms of semantic similarity and translation fitness, further automatic calibration optimization is needed to improve the accuracy of Japanese translation calibration.

On the basis of constructing the dictionary database of Japanese translation through the ontology mapping model in Figure 1, the vocabulary with the greatest semantic relevance is selected as the connective word. If there is a binary semantics (s_k, a_k) [11], in which the feature quantity of the association rule represents s_k, the semantic ontology set is represented as S, and there is a conjunction relationship between it and (), which can be specifically expressed as

$$\Delta^{-1} : S \times [-0.5, 0.5) \longrightarrow [0, T]. \tag{9}$$

The semantic rule set of the target clause is calculated by formula (9), and the global optimization is carried out in the automatic calibration process through the logical expression of word segmentation, so as to obtain the similarity feature quantity, which is $\beta \in 0, [T]$, which is specifically expressed as

$$\Delta^{-1}(s_k, a_k) = k + a_k = \beta. \tag{10}$$

If (s_k, a_k) and $s1, a1()$ represent a pair of similarity feature sets, to achieve automatic Japanese translation calibration and subject word registration, it is necessary to automatically adjust its structure according to the tree semantic library to obtain its fuzzy mapping The set can be expressed as

$$\Delta : [0, T] \longrightarrow S \times [-0.5, 0.5). \tag{11}$$

Through different combinations of the semantic similarity of the above formula, the semantic assignment and sentence subject heading analysis of Japanese translation can be realized, thereby further improving the translation automatic calibration ability.

In order to improve the adaptive degree control of Japanese translation automatic calibration, we set up a target clause and label model, which can be expressed as $s1, a1()$, $s2, a2(), \cdots, sn, \text{an}()\{\}$. Summarize the target clauses and obtain the clause weight coefficient expressed as $Ks = 1$. After automatic optimization, the central vector $C(Y)$ of the best grammatical analysis can be determined, and the similarity of the association rules of Japanese translation can be further determined; the expression is

$$\text{Sim}(X, Y) = \cos(X, Y) = \frac{C(X) \cdot C(Y)}{|C(X)| \cdot |C(Y)|}. \tag{12}$$

If the semantic modification result of a certain Japanese sentence is expressed as $L \longrightarrow \text{AAPDAB}$, the automatic calibration of Japanese translation can be improved after structural adjustment according to the above adaptive adjustment method. Among them, the automatic calibration method of Japanese translation based on machine learning can be specifically summarized into the following steps:

(1) Firstly, it is necessary to determine the semantic rule set O for automatic calibration of Japanese translation, which is mainly realized by the method of grammatical analysis. Then, according to the fuzzy correlation matching method, the feature quantity of the subject words in the semantic unit is obtained, and the feature quantity with the largest semantic relevance is selected as the connective word

(2) After determining the above key feature quantities, establish the target clause in the Japanese sentence and decompose the S, V, O features in the semantic block. Then, according to the category of Japanese vocabulary, modify its different association rule sets to obtain the fuzzy matching set between Japanese sentence contexts

(3) Find the specific features of the fuzzy meaning, and according to the requirements of lexical semantic modification of nouns and prepositional phrases, the optimal semantic relevance value is solved, which is specifically expressed as

$$f(I) \coloneqq \left\{ \frac{o \in O}{\forall A \in I}, oKR \right\} \tag{13}$$

(4) Based on the correlation between the contexts of Japanese words, if the semantic structure of the word L is expressed as

$$L \longrightarrow A_A P_D A_B \tag{14}$$

Then, according to the semantic modification target in the tree-like vocabulary semantic library, the word structure

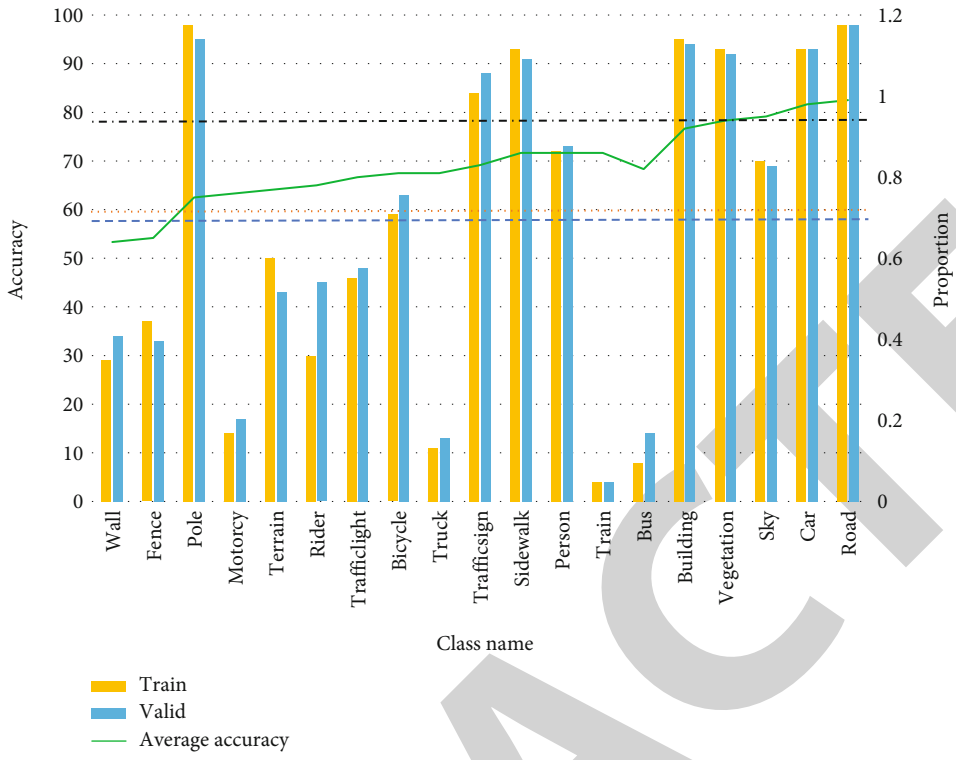
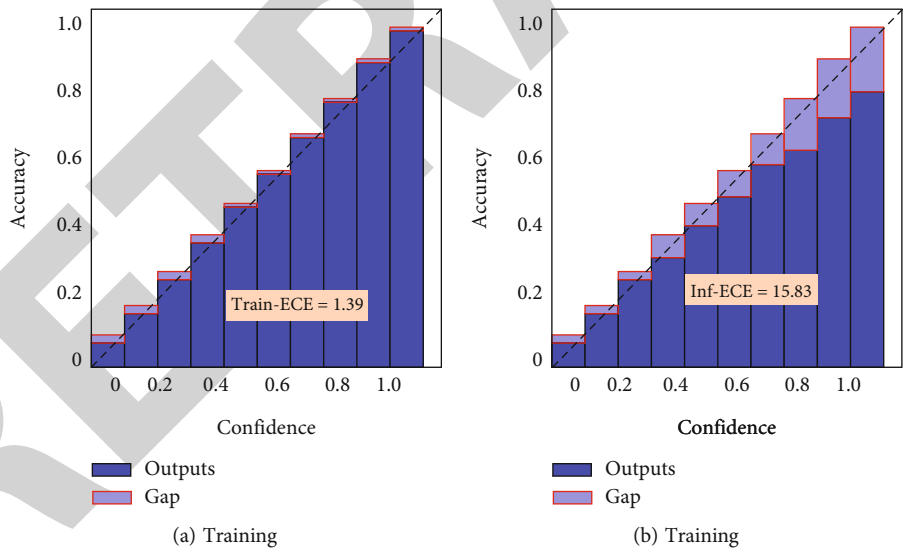


Figure 2: Simulation results of semantic feature distribution.



(a) Training (b) Training

Figure 3: Japanese translation calibration feature distribution.

is automatically adjusted to obtain the best semantic matching set.

(5) After obtaining the best semantic matching set, the semantic relevance in the clause can be processed mainly through the adaptive association mapping method, so as to obtain $\forall o \in O, \forall A \in A$. If the result of Japanese machine translation reaches convergence requirements, you can go back to step (2) to calculate, otherwise, go to step (6)

$$\text{Recall} = \frac{\#\text{correct\_found\_mappings}}{\#\text{existing\_mappings}} \quad (15)$$

(6) According to the results of Japanese translation, distinguish the specific process of machine learning according to the scope of clauses, build a heterogeneous ontology model, and then use a simple semantic division method to map the segmentation logic

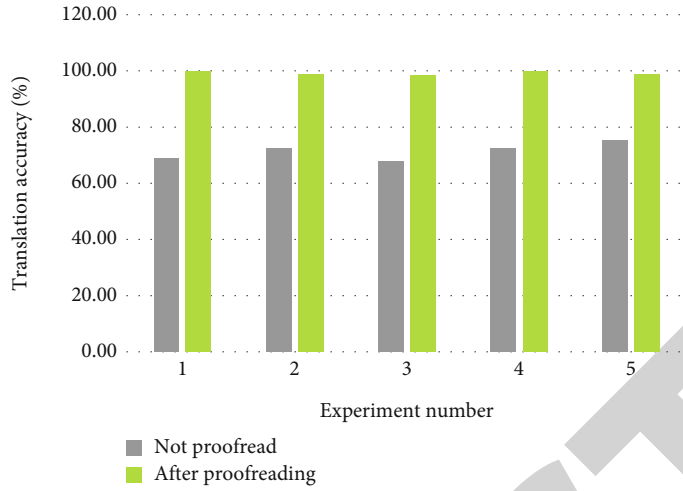


Figure 4: Accuracy comparison before and after participating in the calibration of this method.

(7) According to the characteristics and standards of machine learning, the convergence correction and adjustment of the semantic analysis results are carried out

(8) If the adjusted result reaches the final constraint standard, the calculation can be ended and the automatic calibration of Japanese translation can be completed

4. Experimental Results and Analysis

4.1. Simulation Test. In order to test the effect of the proposed method in the automatic calibration of Japanese translation, the experiment will be simulated in the MATLAB simulation environment. The association rule set for Japanese translation is OAEI. Among them, the number of simple Japanese semantics is 2000, and the training set and test set are 1200 and 800, respectively. In the parameter settings, the number of iterations and the number of machine learning are both set to 200, the semantic attribute set is set to 85, the similarity semantic feature distribution data is set to 120, and the convergence step size is set to 30.

Based on the above test environment and parameters, the experiment tests the proposed Japanese translation automatic calibration method on the above dataset and conducts an initial experiment on the semantic feature distribution of the dataset. The simulation results are shown in Figure 2.

From the initial simulation results in Figure 2, it can be seen that in the initial state, the distribution of Japanese translation semantic features is very uneven, and the calibration effect is not good. In order to better see the effectiveness of this calibration method, the experiment is based on the simulation results in Figure 3. After using this method to perform automatic calibration and optimization control of Japanese translation, the calibration feature distribution of Japanese translation sentences is shown in Figure 3.

From the feature distribution results in Figure 3, it can be seen that after the automatic calibration optimization

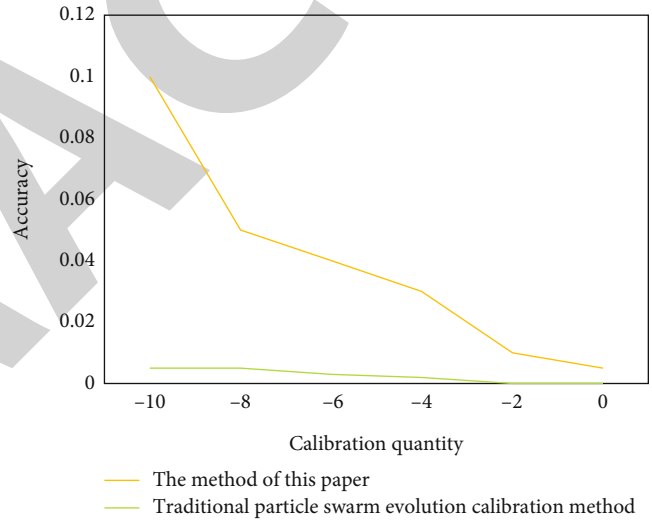


Figure 5: Comparison results of automatic calibration accuracy of two methods.

control of Japanese translation sentences is carried out by this method, the matching accuracy of automatic calibration is significantly improved, and compared with the initial semantic feature distribution, the calibration management degree of this method and the calibration ability is stronger and the calibration accuracy is higher.

In order to verify the performance advantages of the proposed method, the experiment compares this method with the results before calibration, and the results are shown in Figure 4.

From the comparison results in Figure 4, it can be found that after using this method for automatic calibration of Japanese translation, the accuracy of Japanese translation is significantly higher, and both remain at 98% and above, while the accuracy of Japanese translation before calibration is only 65%, which is 33% lower than the calibration accuracy of this method. It can be seen that using this calibration method can improve the accuracy of Japanese translation.

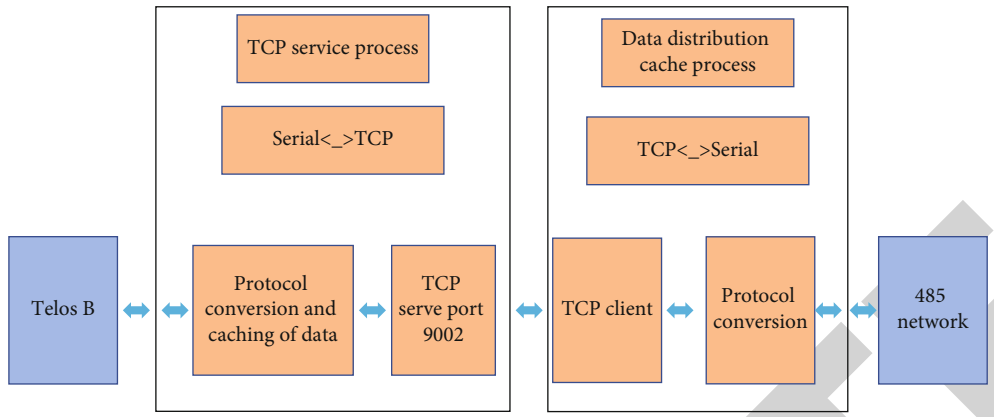


Figure 6: Platform design process and composition.

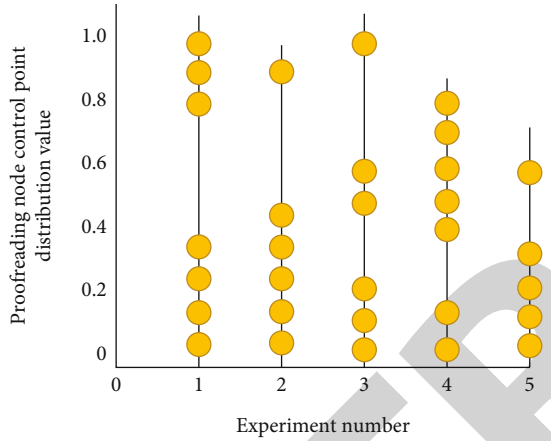


Figure 7: Distribution of node control points of this method on the calibration platform.

To further verify the performance of this method, the experiment compares this method with the traditional particle swarm evolution calibration method and tests from two aspects of calibration accuracy and time performance. The results are shown in Figure 5.

From the comparison results in Figure 5, it can be seen that compared with the traditional particle swarm evolution calibration method, the accuracy of the Japanese translation automatic calibration of this method is significantly higher. As can be seen from Figure 5, with the increase of the number of Japanese translations, the response time of this method in the Japanese translation automatic calibration platform is shorter, about 0.4 s lower than that of the traditional calibration method, which indicates that this method has shorter time and higher performance.

4.2. Application Verification. In order to verify the effectiveness of the Japanese translation automatic calibration method, an automatic Japanese translation calibration platform is constructed and implemented based on the logistic model. Among them, the overall model of the platform is composed of MySQL Japanese vocabulary database, S3C2440 Japanese information processing module, human-computer interaction module, and network interface module. The platform design process and composition structure are shown in Figure 6.

The model architecture is B/S architecture, the computer is compiled through the cross-compilation method, and the program control is multithreaded input control. In this platform, when processing Japanese information, the interface connection is usually realized by asynchronous serial mode, so as to carry out human-computer interaction. Among them, the Japanese vocabulary and translated data are mainly controlled by multithreaded transmission through the native TCP port and then based on the TCP/IP protocol stack, writing the application and automatic calibration of the Japanese translation information.

In order to verify whether the performance of the constructed Japanese translation automatic calibration platform is superior, the proposed calibration method and the traditional method are applied to this platform for comparative experiments. The results are shown in Figure 7.

From the comparison results in Figure 7, it can be seen that the distribution of node control points of the traditional method in the Japanese calibration platform is very sparse and has no order, indicating that the calibration accuracy of the traditional method is low, the semantic coherence effect of English translation is poor, and the node distribution is disordered. It further shows that the platform stability is poor. The node control points of this method in the Japanese translation automatic calibration platform are densely distributed and very orderly, which shows that the method has high calibration accuracy, good system performance, and good stability. When high-precision proofreading results are obtained, the English translation context can also be made more coherent; comprehensive analysis shows that, compared with the traditional Japanese calibration method, the calibration accuracy of this method in the Japanese translation automatic calibration platform is significantly higher, and it can effectively solve the problem of semantic incoherence and incoherence in English translation, and the automatic calibration platform for Japanese translation

based on this method can obtain better proofreading results and have better performance advantages.

5. Conclusion

From the effect of teaching practice, modern multimedia education technology and network have become important information sources and presentation methods in translation teaching, which has promoted the modernization of translation teaching methods, made teaching more efficient, and improved students' enthusiasm. To cultivate innovative, high-end, and diversified Japanese translation talents that meet the needs of society, teachers need not only to have a solid foundation in Chinese and Japanese languages but also to reform and innovate teaching concepts, teaching methods, and teaching models. However, the use of multimedia technology should identify the entry point with the teaching content, in line with the consideration of the development trend of pedagogy and the actual situation of students, timely and appropriate, avoid excessive dependence and stay away from the original intention. This paper proposes an automatic calibration method of Japanese translation machine based on the logistic model, which can realize the automatic and accurate calibration of Japanese translation, and has certain feasibility and effectiveness. The results show that, compared with the traditional Japanese proofreading methods, the proofreading accuracy of this method in the Japanese translation automatic proofreading platform is significantly higher, and the semantic incoherence and incoherence in English translation can be effectively solved. The Japanese translation automatic proofreading platform based on this method can obtain better proofreading results and has better performance advantages.

Data Availability

The figures used to support the findings of this study are included in the article.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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