

APPLICATION OF HYBRID TEACHING MODE IN TRANSLATION TEACHING FROM THE PERSPECTIVE OF ECOLOGICAL CONCEPT TEACHING

Xiaoxiao Zhang*

Midwest University, Wentzville, Missouri, 63385, USA

xiaoxiaozhang@midwest.edu

Reception: 13/03/2023 **Acceptance:** 03/05/2023 **Publication:** 23/05/2023

Suggested citation:

Zhang, X. (2023). **Application of hybrid teaching mode in translation teaching from the perspective of ecological concept teaching.** *3C TIC. Cuadernos de desarrollo aplicados a las TIC*, 12(2), 261-276. <https://doi.org/10.17993/3ctic.2023.122.261-276>

ABSTRACT

Blended teaching is a model of teaching that combines traditional classroom teaching with online teaching. The integration of blended teaching is not only the integration of carrier means but also the breakthrough of teaching mode and the expansion of teaching time and space. Based on the theory of education ecology, this paper first analyzes the mixture of college English translation teaching modes and indicates that the college English translation teaching system from the dimension of the language training system, cultivation system, and communication dimensions cultural dimensions of three parts, and communicative dimension culture contains three platforms, four interaction, five links. Then, the hardware and software of the hybrid teaching ecosystem are designed to realize translation teaching. In the test to verify the system performance in this paper, it was found that the overall iteration value of the system presented a rising trend with the increasing number of tests, and in 6 tests, the maximum iteration value of the system in this paper was always 3-12 higher than the maximum iteration value of the teaching system in the traditional protocol data test group. Therefore, the hybrid teaching ecosystem designed in this paper has obvious advantages in reliability and practicality.

KEYWORDS

Ecological concept; Hybrid; Teaching mode; Translation Teaching

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1. INTRODUCTION

With the development of science and technology and the arrival of the Internet era [1-3], modern teaching methods based on new media and Internet technology bring opportunities for classroom teaching reform [4], which brings great challenges to traditional translation teaching for English majors in colleges and universities [5-6].

Restricted by the nature of the curriculum [7], traditional translation classes are often teacher-led and passively accepted by students [8], without getting rid of the basic characteristics of traditional teaching such as unilateralism, indoctrination, and compulsion [9-10]. The lack of vividness and interactivity in listening, speaking, and other courses results in mechanical, dull, boring, and stylized classes. Students lack enthusiasm for knowledge and subjective initiative in learning, resulting in low classroom teaching efficiency and an easy-to-produce classroom "ecological crisis" [11-13].

Hybrid teaching is an organic combination of traditional classroom teaching and online teaching [14]. The integration in hybrid teaching is not only the integration of carrier means but also the breakthrough of teaching mode and the expansion of teaching time and space [15]. According to the characteristics, applicability, and superiority of the hybrid teaching mode [16-18].

In the past two years, with the continuous development of the Belt and Road Initiative, translation talents have played an increasingly important role in Sino-foreign exchanges. However, as a college English course for cultivating compound foreign language talents, the emphasis on translation teaching is seriously inadequate [19-21]. Most domestic studies focus on translation teaching for foreign language majors, but the research results on college English translation teaching are relatively few [22]. According to the literature [23] and [24], a small number of scholars have put forward their views on the main problems existing in College English translation teaching in China, including teaching design, teachers' quality and construction of teachers, textbook compilation, and evaluation methods of translation ability. Literature [25]- [26] has proposed a new translation theory called "ecological translatology", which has attracted widespread attention from scholars at home and abroad. According to the literature [27], eco-translatology refers to "an ecological approach to translation studies, Or translation studies from an ecological Perspective." This theory combines the concepts of ecology and translatology and is interdisciplinary. It not only has important guiding significance in theoretical construction and translation practice guidance at the macro level but also provides a new perspective for college English translation teaching. Literature [28] makes systematic statistics on the number of translation teaching research papers from the perspective of "ecological translation" published on CNKI and points out that ecological translation theory has attracted the attention of college English translation teaching researchers and teachers. Literature [29] proposed the concept of "ecology of education" and the concept of "ecological balance of classroom" based on the ecological research paradigm, expanding the parameters of education research.

Literature [30] shows that the discipline education field in China begins to introduce the concept and paradigm of education ecology and re-examine education and teaching activities from the ecological perspective of system theory and holistic view. A large number of studies have shown that the current study is mostly given the situation of translation teaching in the concept of ecological research, but along with the development of the Internet age, slowly began to combine the traditional approach to learning and online learning, through the environment, content, tasks, and activities to make the two complement each other, to each director, to optimize learning, realize the teaching goal. Therefore, this paper studies the application of mixed teaching mode in translation teaching from the perspective of ecological teaching.

This paper first analyzes the mixed teaching model of college English translation under the guidance of ecological translation studies and finds that the teaching system of college English translation from the perspective of ecological translation studies is composed of three parts, namely, the cultivation system of language dimension, the cultivation system of cultural dimension and the cultivation of communication dimension, which affect each other but are different from each other. Then, based on this, the hardware and software of the hybrid teaching ecosystem are designed to realize translation teaching.

2. A MIXED TEACHING MODE OF COLLEGE ENGLISH TRANSLATION UNDER THE GUIDANCE OF ECOLOGICAL TRANSLATION

The blended teaching model should be learner-centered in translation teaching, integrate online and offline teaching, combine teachers' teaching with students' inquiry, and focus on personalized guidance and deep learning experience in translation teaching. Therefore, the mixed teaching model should take into account the three principles of openness, individuality, and interaction. Openness refers to an open teaching platform, open learning resources, and open interaction and exchange. Students can access the Internet through computers, mobile phones, tablets, and other terminals anytime and anywhere without any restrictions, and learning resources conform to the characteristics of fragmentation [31]. Individuation means that students' personalized learning needs can quickly and accurately feedback questions generated in translation teaching to teachers through the SPOC teaching platform or social software, and teachers can provide one-to-one guidance through various channels. Interactivity refers to the construction of convenient and low-cost communication channels between teachers and students and between students in translation teaching, to promote students to acquire a deep learning experience [32].

The ecological environment of translation includes the language, culture, and communication of the source language and target language, namely, the linguistic dimension, cultural dimension, and communicative dimension. The "three-dimensional" theory here, in which the communicative dimension includes three platforms, four interactions, and five links, is based on the actual characteristics of

college English translation teaching, this paper constructs a hybrid teaching model of college English translation under the guidance of ecological translation, as shown in Figure 1.

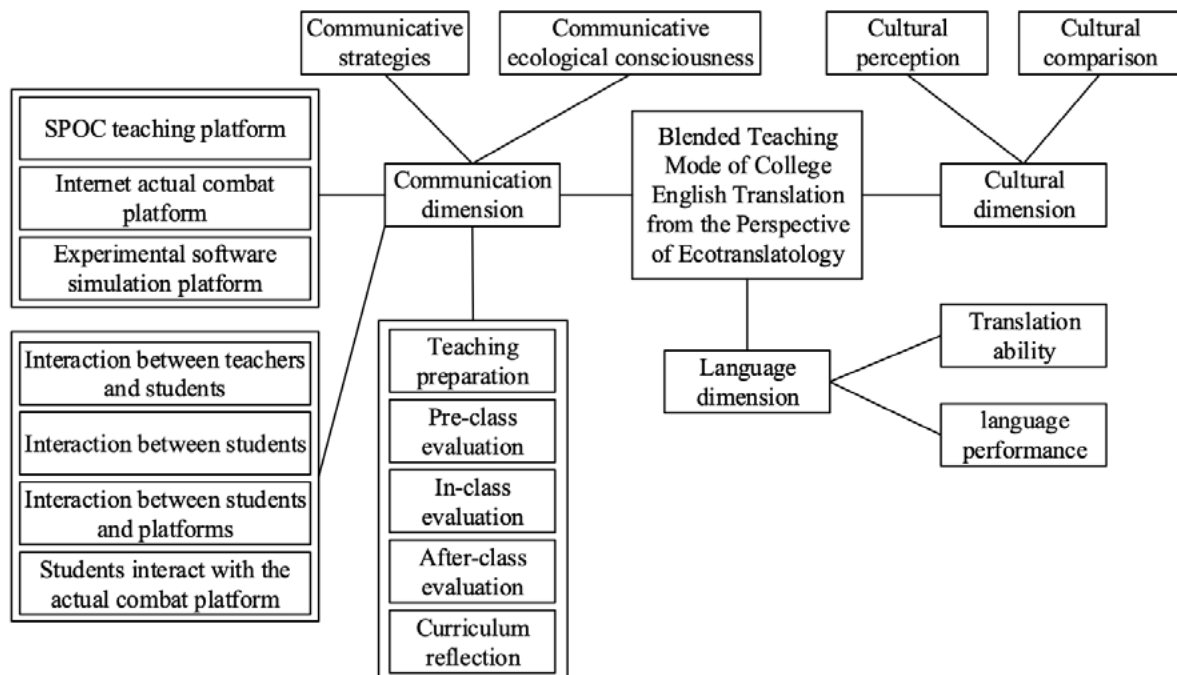


Figure 1. The mixed teaching system of college English translation from the perspective of ecological translation

As can be seen from Figure 1, the college English translation teaching system from the perspective of ecological translation studies is composed of three parts: the language dimension cultivation system, the cultural dimension cultivation system, and the communicative dimension cultivation system. The three aspects interact with each other and have different emphases:

1. Train students' translation ability and language expression abilities from the language dimension

At present, college English teaching mainly targets non-English majors, so their translation ability needs to be further improved, including the improvement of translation theories, translation strategies, translation skills, and other aspects of knowledge [33]. What needs to be noted here is that in classroom teaching, too much attention should be paid to the study of translation knowledge while ignoring the operation of translation practice, and the complementary role of translation theoretical knowledge and translation practice ability should be given full play. Language expression ability is the language expression ability based on translation activities. Language expression ability is the foundation. If students do not have certain language expression abilities, it is difficult to produce high-quality translation works [34]. Because the language expression ability has been involved in other aspects of college English teaching, teachers should also pay attention to the balance between them. Hybrid teaching ecosystem construction.

2. Cultivate students' cultural perception and cultural comparison ability from the cultural dimension

Some scholars believe that translation is not only a conversion activity between two languages but also a conversion activity of cultural communication and transmission. Cultural perception ability requires students to consciously improve their sensitivity to the original text culture; Cultural comparison ability emphasizes the ability to seek common ground while reserving differences when facing the two cultures of the original text and the target text, and accurately understand the similarities and differences between the two cultures in many aspects, such as thinking mode, value system, customs and language expression [35].

3. Cultivate students' communicative strategies and communicative environment awareness from the communicative dimension

Some scholars believe that the ultimate purpose of translation is communication. Therefore, in the process of college English translation teaching, attention should be paid to cultivating students' communicative strategies and improving their communicative skills to ensure that they can conduct efficient cross-language communication through translation activities [36]. Ecological translation provides a broader perspective, that is, to let students pay attention to the overall ecological environment of communication, rather than simply treating translation as a word processing activity. In translation activities, different translation strategies and communication strategies should be selected according to the ecological environment of the activity. The three platforms refer to the SPOC teaching platform, the Internet actual combat platform, and the experimental software simulation platform; The four interactions refer to the interaction between teachers and students, the interaction between students, the interaction between students and the teaching platform, and the actual platform. The five links refer to teaching preparation, pre-class, in-class, after-class, evaluation, and reflection [37]. The use of information technology by teachers and students in the process of "teaching" and "learning" can create a hybrid teaching ecosystem.

3. HYBRID TEACHING ECOSYSTEM DESIGN

3.1. SYSTEM HARDWARE DESIGN

3.1.1. CONSTRUCT THE CORE PROCESSING CIRCUIT OF THE HYBRID TEACHING SYSTEM

Before the system hardware design, it is necessary to build the core processing circuit of the hybrid teaching ecosystem with a certain comprehensiveness. The ATmega128 chip is selected as the core processor of the processing circuit, and then the chip is placed in the circuit in series with KRY, LED, and LCD. This arrangement

has a very important influence on the large-scale information processing of the later online hybrid teaching ecosystem.

The fixed power supply interface and signal receiving interface connected to the end frequency of the development board are also open in general, which can be connected in general and will not affect the related use of the hybrid teaching ecosystem. In the case of no abnormality, the circuit of the development board is in the association state by default, and the jumper in the connection bus of the circuit can be connected with the development board twice, so as to improve the operation stability of the teaching system. At the front end of the ATmega128 chip, the control system running circuit is established, and the installation data information download interface, network communication interface, I/O inversion interface, and JTAG multi-frequency control interface are added. These interfaces have a great influence on the operation control of the teaching system. The data information can be downloaded to the operation chip and saved by the download interface. Dual engineering communication of teaching is realized through the USART interface. The I/O inversion interface can monitor and control the corresponding application program, and then transform the program, and finally realize the teaching function of the system. At this point, the core processing circuit of the hybrid teaching system is completed.

3.1.2. DESIGN THE TEACHING SYSTEM INTEGRATED CONTROL CHANNEL

Initialize the serial port of the teaching control system, and modify the user verification program module to set the mode of data frame verification. When the teaching system sends and receives data, the USART interface will automatically generate calculation and verification bits and associate them with the data frame port. The USART interface verification calculation formula is as follows:

$$P = \sum_{i=1}^n \frac{1}{(a + b)} - \sqrt{3} \quad (1)$$

Where, P represents the USART interface check value; i represents the check times; n represents the check temperature; a represents the maximum frequency of calculated output; b represents the application frequency of calculated output. Through the above calculation, the specific USART interface check value is obtained. The information register is used to read the control byte data of the teaching system and compare it with the byte-fixing standard.

A loop buffer circuit is constructed in the teaching system circuit to form a controllable data transmission channel. The transmission channel is connected with the ATmega128 chip to expand the RAM rate outside the transmission channel. It is worth noting that the expansion of the RAM rate should be within a certain standard range. Once the RAM rate exceeds the standard, the system will be unable to run,

affecting the teaching progress and not conducive to the final completion of the design of an integrated control channel of the teaching system.

3.2. SYSTEM SOFTWARE DESIGN

3.2.1. BUILD A FUNCTIONAL STRUCTURE TREE OF ECOLOGICAL BALANCE IN HYBRID TEACHING

After completing the hardware design of the teaching system, the functional software of the system is designed. Establish a structure tree that can balance the internal functions of the teaching system, and use pseudo code to receive relevant data in the system to avoid data loss. The CommGetChar function calculates the overclocking value of the received code, that is:

$$W = \left(\frac{1}{h} - 1 \right) - 3 + k \quad (2)$$

Where, W represents the over frequency value of the receiving code; h represents the receiving stress coefficient; k represents the maximum allowable receiving range. Through the above calculation, get the code over frequency value. Use the if language to associate the overclocking value to add the result to the system. Check the balance of system functions, if the balance is verified, you can continue to operate; If not, recalculate the overclocked value of the receiving code. After verification, close the terminal of the teaching system. Establish the functional structure tree and establish the function

The output layer is mainly divided into the online learning layer, offline communication layer, auxiliary computing layer, data access and collation layer, score query layer, and other functional layers. To find a suitable transfer function, first, build the framework of the structure tree, and add the corresponding programs to the control interface of the system one by one according to the level, so as to achieve balanced teaching. Establish a mixed mechanism, compile intermediate protocol instructions of mixed teaching, add and save them in the basic level of the functional structure tree, and finally realize the construction of a balanced functional structure tree of mixed teaching.

3.2.2. ESTABLISH A REMOTE ONLINE TEACHING DATABASE

After completing the construction of the balanced functional structure tree of hybrid teaching, the remote online teaching database is established. A teaching database is equivalent to a relatively large teaching material warehouse, storing data, information, and audio and video teaching content. Set the system terminal audio and video transmission, processing, and display in adjustable mode. In the remote online

teaching system, the managed code is compiled and written into the system mechanism in user mode. When done, use the DirectShow API to run the function for a custom numerical calculation of the call, that is:

$$D = \frac{1}{r} + \sqrt{3} - g \quad (3)$$

Where, D represents the value called; r represents the function applied; g represents the exponential applied. Through the above calculation, the call value is obtained. Using the actual call value at this time, the iteration ratio of the teaching system is calculated again, and the specific formula is as follows:

$$A = \int_{v=1}^w \left(\frac{1}{6} - m \right) + \frac{1}{(x+y)} - D \quad (4)$$

Where, A represents the time-shift ratio of system operation; w represents operation construction conditions; v represents operation times; m represents system operation delay; x represents the furthest iteration distance; y represents error distance. Through calculation, the specific time shift ratio can be obtained. Add the Filter remote control program in the system, take the Ksproxy Filter platform as the medium, make the teaching system and Ethernet, Internet connection, and realize the remote teaching.

4. RESULTS AND ANALYSIS

4.1. TEST EXPERIMENT

Here, with the help of the SPOC teaching platform, online learning of college students in a city is tested, including attendance, discussion, homework, unit tests, in-class quizzes, and other data statistics. As of May 2021, the number of Chapter learning times of students on the SPOC teaching platform has reached 14,772, and 18 learning task points and 2 non-task points have been released. It includes 12 online self-study video tasks and 8 Chapter quizzes.

In order to verify the effectiveness of the hybrid teaching ecosystem designed in this paper, the statistics of chapter learning times of the SPOC teaching platform reached 14,772 times, 18 learning task points and 2 non-task points were compared between the system designed in this paper and the traditional protocol data teaching system. The traditional protocol data teaching system is set as the traditional protocol data test group, and the system designed in this paper is set as the hybrid teaching test group. Select two computers as the devices for this test, and prepare one computer as the test terminal. Add the initial test parameters to the system, as shown in Table 1.

Table 1. Parameters of initial test data

index parameter	system terminal	initial server	teaching system certification
running cost factor	450	0.6372	0.73
number of connection weights	6.173	1.6300	2.63
hidden layer running value	1.500	21.7450	5.2

Add the parameters in Table 1 to the system to complete the initialization of the test. Select two groups of the same teaching content as the test object, and ensure that the system is in a stable running state and no external factors affect the test results after the test.

To ensure the accuracy of the test results, the two groups of systems were tested simultaneously. Test terminals and test computers are placed in different rooms, associated with the Internet or Ethernet, to complete the database setting of online teaching. Open the teaching system and start online teaching after counting the number of students. After a certain period of teaching, the relevant test information data is obtained. Then, the sequence communication of online teaching is set up. To calculate the final value of the system teaching order, the formula is:

$$F = A + \sqrt{3} - c \quad (5)$$

Where, F represents the final value of teaching order; A represents the time-shift ratio, and c represents the sequential inertia index. The final value of the actual teaching order is obtained through calculation. The above sequential end values are used to calculate the operation iteration values of the hybrid online teaching system, and the formula is as follows:

$$M = \frac{(\sqrt{2} + 1)}{F} + 4d - 2u \quad (6)$$

Where, M represents the operation iteration value of the teaching system; F represents the sequential final value; d represents the absolute execution instruction factor, and u represents the system certification index.

Test results were obtained through the above tests, and the results were compared and analyzed, as shown in Figure 2.

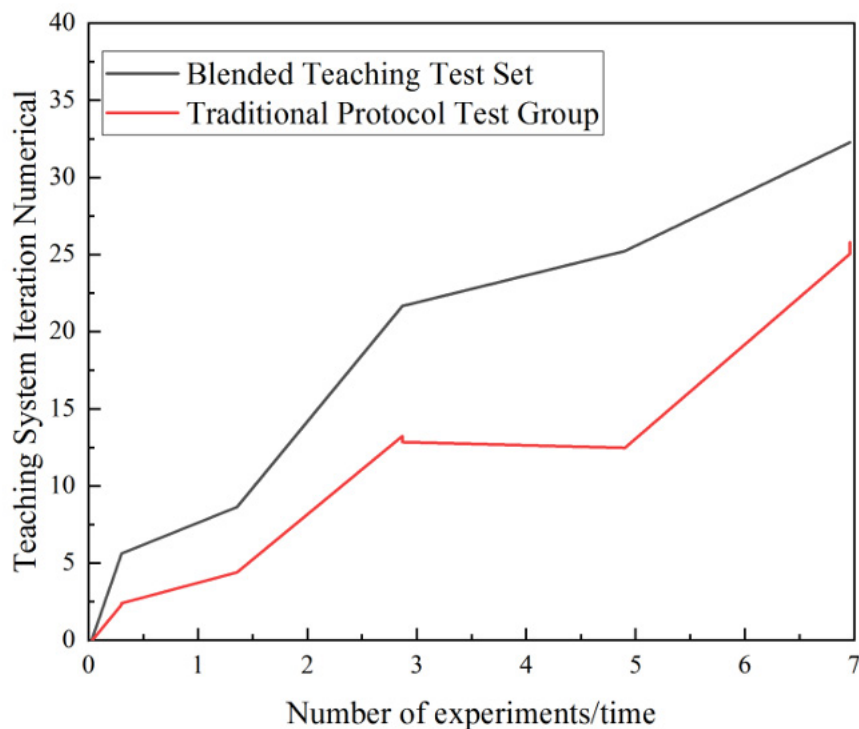


Figure 2. Numerical comparison analysis diagram of running iteration

According to Figure 2, during the first experiment, the maximum iteration value of the teaching system in the traditional protocol data test group was 7, while that in the hybrid teaching test group was 13. In the second experiment, the maximum iteration value of the teaching system in the traditional protocol data test group was 13, while that in the hybrid teaching test group was 17. In the third experiment, the maximum iteration value of the teaching system in the traditional protocol data test group was 17, while that in the hybrid teaching test group was 20. In the fourth experiment, the maximum iteration value of the teaching system in the traditional protocol data test group was 17, while that in the hybrid teaching test group was 25. In the fifth experiment, the maximum iteration value of the teaching system in the traditional protocol data test group was 16, while that in the hybrid teaching test group was 28. In the sixth experiment, the maximum iteration value of the teaching system in the traditional protocol data test group was 28, while that in the hybrid teaching test group was 31. And the overall iteration value of the two test groups showed a rising trend with the increasing number of tests. Thus, with the increasing number of experiments, two iterative numerical test group is also on the rise, but in any one experiment, can be clear that a maximum iterative numerical always higher than the traditional protocol data maximum iterative numerical test group teaching system, this paper designed hybrid teaching ecological system has better performance in terms of reliability and practicability.

In addition, the system designed in this paper and the traditional protocol data teaching system are used to analyze the learning data related to college students, and it is found that there are differences between students in terms of accuracy of the

translation, interaction between students and teachers in class, and completion of translation homework, as shown in Table 2.

project	translation accuracy %	the proportion of classroom interaction %	percentage of homework completed %
traditional protocol data	65.23%	45.96%	72.17%
this article system	93.77%	90.48%	98.44%

Table 2. Comparison of classroom situation tests between the two systems

Table 2 shows that in the translation teaching test, the accuracy of the system in this paper is 28.54% higher than that of the traditional protocol data teaching system. In terms of the proportion of classroom interaction, this system is 44.52% higher than the traditional protocol data teaching system. In terms of homework completion ratio, this system is 26.27% higher than the traditional protocol data teaching system. As you can see, this article puts forward the ecological concept of teaching from the teaching mode, is online teaching organic to the traditional teaching model, not only improve the learning atmosphere of the class, to change students' passive to accept knowledge and improve the vitality of the classroom listening comprehension, oral English courses and interactive, students are more active in the hybrid teaching mode, which is in line with modern students' love for electronic products and network atmosphere. Therefore, they should be especially active and serious in finishing homework after class. Therefore, the hybrid teaching model proposed in this paper from the perspective of ecological teaching has great advantages in translation teaching.

5. DISCUSSION

In recent years, with the development of education informatization, the mixed teaching mode has been gradually accepted by teachers and students, especially those affected by the epidemic, and this mode shows a trend of popularization. But at present, the blended teaching mode mainly regards online teaching resources as the supplement or extension of the traditional classroom. The mixed teaching mode in many studies is based on an online teaching platform, which has some innovations in teaching methods and achieved good results. But the current blend mode mainly deals with the problem of the "teaching method of the single" focusing on teaching methods of mixing, is less involved in the teaching content reform, does not fully explain how to carry out online teaching evaluation, new teaching content is given priority to with the operating system interface level, did not touch the system core, etc., so in the future hybrid teaching, The teaching content reform, online teaching evaluation and the application of system core technology should be considered, which will not only improve the teaching quality of mixed teaching mode but also greatly improve the enthusiasm of students to learn.

6. CONCLUSION

The ecological theory under the emergence of hybrid teaching mode of college English translation teaching points out a new road, the theory of translation put forward by the concept of ecological environment for college English translation teaching provides a broader perspective, and will no longer be isolated from the whole teaching contents, translation teaching and online teaching model and hybrid as a new model of education, The content is more abundant and has certain advantages under the current environment. Through this study, it is shown that:

1. The hybrid teaching mode under the theory of ecological translation activity has three dimensions, the dimension of language, culture, and communication dimensions, respectively, it also provides clear thinking, and translation teaching helps to lead to more scholars focusing on the field, and further perfect the system of college English translation teaching, translate for Chinese culture to go out to cultivate more talents;
2. In the communication dimension, there are 3 platforms, 4 interactions, and 5 links. The three platforms refer to the SPOC teaching platform, the Internet actual combat platform, and the experimental software simulation platform; The four interactions refer to the interaction between teachers and students, the interaction between students, the interaction between students and the teaching platform and the actual platform. The five links are teaching preparation, pre-class, in-class, after-class, evaluation, and reflection. The mixed teaching method has practical guiding significance in translation teaching under the ecological concept.
3. Through the analysis of the system performance in this paper, it is found that the overall iteration value of the system in this paper presents a rising trend with the increasing number of tests, and in 6 tests, the maximum iteration value of the system in this paper is always 3-12 higher than the maximum iteration value of the teaching system in the traditional protocol data test group. Therefore, the hybrid teaching ecosystem designed in this paper has obvious advantages in reliability and practicality.

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